FISH VALUE CHAIN DYNAMICS: LIVELIHOOD OPPORTUNITIES AND CHALLENGES FOR SMALL-SCALE FARMERS IN LUSAKA DISTRICT

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DECLARATION

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This dissertation by **KAFUMUKACHE MILU ELISHA** is hereby approved as partial fulfilment of the requirements for the award of the degree of Masters of Arts in Development Studies by the University of Zambia.

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DEDICATION

To my parents Mr. Edgar Kafumukache and Ms Dorica Zulu who inspired me from childhood in different ways, they are true heroes rest in peace.

This work is dedicated to my adorable wife Milika Kafumukache, my children Elisha Milu Kafumukache Junior, Patience Chawanzi Vera Kafumukache and Edgar Milu Kafumukache for your great support during the period of writing this dissertation and tender hearted you have been there for me in every situation.

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LIST OF ACRONYMS AND ABBREVIATIONS

CEEC	CITIZENS ECONOMIC EMPOWERMENT COMMISSION
CUTS	CONSUMER UNITY TRUST SOCIETY
DoF	DEPARTMENT OF FISHERIES
EU	EUROPEAN UNION
FAO	FOOD AND AGRICULTURE ORGANIZATION
GTZ	GERMAN TECHNICAL COOPERATION
GDP	GROSS DOMESTIC PRODUCT
IMF	INTERNATIONAL MONETERY FUND
MFI	MICROFINANCE INSTITUTIONS
MLNR	MINISTRY OF LAND AND NATURAL RESOURCES
MoF	MINISTRY OF FINANCE
MoNP	MINISTRY OF NATIONAL PLANNING
NAP	NATIONAL AGRICULTURE POLICY
	NATIONAL AGRICULTURE INVESTMENT PLAN
ZAEDP	ZAMBIA AQUACULTURE ENTERPRISE DEVELOPMENT PROJECT
ZIPAR	ZAMBIA INSTITUTE OF POLICY ANALYSIS AND RESEARCH

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ABSTRACT

This study explored opportunities and challenges in the fish value chain of small-scale farmers in the Lusaka District. Three objectives underpinned this study: To understand policy frameworks guiding fish value chain expansion; to identify the key actors in the Fish Value Chain and their roles; and to examine opportunities and challenges for small-scale farmers involved in the fish value chain in Lusaka District.

Quantitative and qualitative research methods were used in order to generate first hand opinions and experiences from small scale farmers and key informants. The sample consisted of fifty-six (n=56) registered small-scale fish farmers were included in the study and 12 key informants deemed to be knowledgeable in various aspects of the fish value chains in Zambia. Information was collected through researcher administered questionnaires, semi-structured interviews, observational methods and examination of policy documents. The researcher analyzed the data using descriptive statistics, thematic analysis and content analysis. The response rate was 93%.

The findings also show that fish value chains in Lusaka are an integrated matrix of roles and relationships between actors from the government, the private sector, civil society, and the donor community. The roles of government institutions are policy setting and strategic planning; regulation and law enforcement, provision of financing, and also research and technical support. Donor agencies are largely involved in the provision of finance and also in providing technical assistance to the fisheries sector. The role of the formal private sector is to conduct research and provide technical services and also to provide finance. They are also leading players in commercial activities. Depending on their special designation, these organizations can be involved in fish extraction from natural water bodies or the production of fish in large to medium scale aquaculture. They additionally, conduct fish processing activities (freezing, drying, smoking, canning, infusion of additives, and so on); transportation and distribution as well as wholesale and retail activities, all of which are done on a strictly commercial basis. Informal private sector actors largely engage in fish extraction from water bodies, micro-scale aquaculture. Civil Society perform the functions of sub-sectorial policy setting and planning in coordination with the line government ministries. They also provide technical support and finance in coordination with government and donor agencies. These organizations additionally have commercial ventures at different stages of the food value chain.

Traditional authorities are key partners with the government in community-based natural resource management including the management of fisheries activities in rural areas. Research organizations have a primary function of generating evidence-based analysis and overall statistics that will inform policy decision making and also facilitate the process of monitoring and evaluation of results.

End consumers are the ultimate beneficiaries of all policy initiatives in the fisheries sector. These stakeholders create demand for fisheries products and this demand is what will determine the business strategies of commercial entities and the policy priorities set out in the fisheries sector. Consumers can also form a feedback loop with policymakers by providing information on the effectiveness of the policies, the efficiency of the value chain coupled with the possible changes and innovation that are needed in the sector in terms of new policy initiatives, new regulatory

elements, new technological requirements together with new marine products/ or product presentations.

The main challenges identified by small scale actors in the value chain include constrained access to land. This challenge manifests due to scarcity of land, lack of information, insecure tenure, land fraud, and poor land administration. Additionally, they experience low capacity to access and benefit from lucrative markets due to factors such as the high cost of transport, poor road infrastructure, and poor overhead infrastructure, lack of information on commodity prices, competition from foreign goods, and lack of access to the international markets. Low availability of and access to credit and financial services is another bottleneck. In this respect, the small-scale entities are inhibited by lack of information on organizations offering microcredit, absence of nearby banking facilities, high cost of borrowing, lack of financial literacy, delays in processing financial transactions, and unmanageable collateral requirements. These challenges impair the capacity of small scale farmers to benefit from opportunities available in the food chain; opportunities which include a growing market demand for fish in Lusaka and other urban centers, funding and training initiatives launched by government, the private sector and donor agencies.
The study concludes that small scale aquaculture enterprises have great potential to support sustainable development and assure food security, even though this potential remains under realized. Unless well-targeted and coordinated interventions are implemented the value chain will still retain systemic barriers that will preclude these actors from competing favorably, from growing, and from becoming a viable component of the sustainable development in Zambia.

Keywords*:* *Opportunities, Challenges, Value Chain, Fish, Zambia*

CHAPTER ONE

1.0 Introduction

Fish is among the most traded food commodities across the globe. Fish trade has expanded considerably in recent decades, as the fisheries sector operates in an increasingly globalized environment. The way fish products are prepared, marketed, and delivered to consumers has undergone a transformation from segmented national and subnational value chains, to an integrated international value chain that still has national and sub-national sub-chains (FAO, 2018).

For this reason it is not uncommon that and commodities may cross-national borders several times before final consumption. Fish can be produced in one country, processed in a second, and consumed in a third. Several factors operate as driving forces behind this globalized fisheries and aquaculture value chain. The first of these is the dramatic decreases in transport and communication costs. Added to this is the wide spread outsourcing of processing to countries where comparatively low wages and production costs provide a competitive advantage (FAO, 2014b). Thirdly as populations grow and as new centers of affluence emerge, there has been an increase in the consumption of fish commodities (FAO, 2018). The mainstreaming of trade liberalization policies has reinforced the former factors by streamlining global fish commerce resulting in more efficient distribution and marketing. The last enabling factor is accelerated technological innovation, including upgrading in processing, packaging, and transportation (FAO, 2014b ; WorldFish/NEPAD, 2020).

The high demand for a balanced diet associated with diet changes are some of the factors that influence the growth of fishing industries (Bartkiene et al., 2019). Rapid change in dynamic markets affect the entire value chain, with wide ranging implications for the competitiveness and future viability of small-scale producers (Vermeulen et al., 2008). In particular, first-world environmental concerns and regulations are driving changing requirements from certain markets. Additionally, technical, and institutional innovations can improve production and trade. This can include technical efficiency, productivity, and profitability but it also can take into account environmental impact and social equity concerns.

With the advent of the Sustainable Development Agenda, fish has been identified as a vital food source in the age of sustainability (O'Meara et.al, 2021). This is because it possesses three

fundamental aspects in this namely- low cost and easy accessibility; low demand of environmental resources and high content of essential proteins and micronutrients. For this reason , the development of inland fish value chains especially in developing countries is projected to generate sustainable spin-off effects including employment for low income groups (as a means of ending poverty) and also abundant low cost natural protein- as a factor in ending hunger and food insecurity.

This study seeks to explore and analyze the opportunities and challenges of fish value chain in Zambia, specifically in Lusaka District. Thus the pertinent questions that may be addresses are: What opportunities and challenges exist within urban based fish value chains in developing countries? How can the opportunities be magnified and leveraged in a way that promotes holistic, sustainable development? How can the inherent challenges be managed in a manner that either eliminates them or converts them in to new opportunities for sustainable development; particularly among small scale farmers, fishermen and fish traders?

1.1 Background

The fisheries sub-sector in Zambia plays an important role in the economy as it offers opportunities for improved nutrition, income generation, and job creation, resulting in general wealth creation and food security at national and household levels. At the national level, the fisheries sub-sector contributes about 3.2% to the national GDP (Second Agricultural Policy, 2016). This economic segment also has the potential to induce sustainable jobs creation.

A survey by Krishnan and Peterburs (2017) estimates that Zambian fisheries value chains have the potential to create 13,000 jobs per year. The majority of these jobs are mostly unskilled to semiskilled jobs including raw labor and low skilled production and processing occupations on. The 12,000 registered farmers in the country will hire laborers to dig ponds and net fish. Although these jobs are informal and considered piecework in nature, they play an important role in the development of the small-scale sector. The survey also projects that as many as 22,000 jobs may be available in the sector by 2022.

To understand how fisheries value chains may be a viable economic sector, it is necessary to provide an overview of the fisheries markets in terms of demand and supply trends as together

with the relative sizes of small and large scale activities. In Zambia, fish supplies more than 20 % of the dietary animal protein consumed by the population (Gellner et.al , 2019). For low income household in the country, fish provides a diverse more diverse nutrition mix thereby averting malnutrition and strengthening their food security status. As other animal food source increase in cost, fish has become a more affordable alternative for these households (Mofya-Mukuka & Kabisa, 2017).

National demand for fish in Zambia is approximately 185,000 MT. per year (AfDB, 2016). From the supply side local production is approximately 120, 963 MT. while imports account for 37 % of annual fish supply. As of 2018, aquaculture accounted for 32,888 MT of produce with production from inland natural water bodies remaining static at 80,000 MT over the period 2015-2018. The fact that annual catch remains static- despite the increase in the number of catchers and despite increase in the capacity of the tools and technology used – suggests that the production capacity from natural water bodies has reached its peak (DoF, 2018).

Aquaculture therefore, remains an alternative of fisheries resources are to be exploited in a sustainable manner. In contrast, to production from natural fisheries, aquaculture has registered consistent growth increasing by 300% from 2005 to 2017 (Kruijssen et.al, 2018b). This expansion has been triggered by the increase in the number of large scale cage and pond based facilities during the stated timeframe. Coupled with this, the large scale aquaculture sector has manifested improved technical now-how and seed-quality. Large scale players have also increased their input supply chains and their distribution, wholesale and retail capacities. This sector is therefore, providing the excess produce needed to reduce the gap between growing demand and requisite supply.

Conversely, the small-scale sector has not manifested a commensurate trend in growth. This sector still remains underdeveloped and has a very minimal contribution, by quantity and monetary value to the fisheries market. Farmers, fishermen and traders and traders in this sector operate in the informal sector. They are focused on producing on a subsistence basis and also for sale to customers in their immediate residential areas of nearby urban and rural areas (Gellner et.al, 2019). According to Kruijssen et.al, (2018b) growth in this sector is barred by constrined access to inputs as well as a low level of technical knowhow and technology.

This study explored the value chains in the small scale subsector in order to understand its composition as well as the opportunities and challenges therein.

1.2 Statement of the Problem

The overall objective of this study is to explore and analyze opportunities and challenges in the fish value chain of small-scale farmers in Zambia. The introduction and promotion of aquaculture in Zambia are contributing to bridging the gap between the demand and supply of fish. According to The European Commission (2018), fish farming has been adopted as an assured way of meeting the deficit in Zambia's fish requirements. However, whilst production and access to markets are crucial for small-scale farmers, they continue to face challenges on value addition which limit their full development. It is indicated that most farmers that are unable to sell their fish, the market for small-scale farmers is still under-researched and it is unclear what role different producers can play in the current fish market in Zambia. Limited research has examined small-scale experiences in fish value chains in Zambia despite substantial investments by the government (such as Zambia Aquaculture Enterprise Development Project) and NGOs (for instance, Rural Aquaculture Project), the performance of small-scale farmers in Zambia remains poor. Several elements around the fish value chain dynamics as they relate to small-scale participants remain less address, but only now are these emerging as NGO and Government policy reports. Systematic academic reports around the fish value chain hype in Zambia and what this means for small-scale farmers is a research area requiring urgent attention. This study aims to fill up this knowledge gap.

1.3 Study Objectives

1.3.1 Main objective

The overall objective of this study is to explore and analyze fish value chain dynamics and related opportunities and challenges in the fish value chain for small-scale farmers in Lusaka District.

1.3.2 Specific Objective

1. To understand policy frameworks guiding fish value chain expansion
2. To identify the key actors in the Fish Value Chain and their roles.
3. To examine opportunities and challenges for small-scale farmers involved in the fish value chain in Lusaka District.

1.4 Research Questions

1. What is the nature and content of policy frameworks guiding fish value chain expansion?
2. What are the identities and roles of the key actors in the Fish Value Chain in Lusaka District?
3. What are the opportunities and challenges for small-scale farmers involved in the fish value chain in Lusaka District?

1.5 Significance of the Study

The importance of this study is to provide a better understanding of opportunities and challenges in the fish value chain of small-scale farmers in Zambia, specifically in Lusaka District. Fish farming contributes significantly to the global production and supply chain of aquaculture (FAO, 2018). However, many small-scale fish farmers in developing countries possess the potential to maximize the value of aquaculture products provided they are granted enabling incentives and opportunities in production, distribution, and marketing. It is hoped that the findings of the study may be of great importance to the Ministry of Livestock and fisheries department and NGOs to improve policies on value addition. The study would also show key opportunities to improve the fish value chain in non-financial and financial support provided to small-scale farmers. It could make a significant contribution to theory and policy. In terms of theory, the study would add to the existing literature on value chain analysis of fish farming in Zambia. In terms of policy, the study would inform practitioners in the field about the opportunities and challenges of the fish value chain among fish farmers. This would then form the basis to find ideas and practical solutions to curb the challenges in the industry.

Theoretical Framework: Value Chains as a Theoretical Framework

The theoretical framework for this study is anchored on the Value Chain Theory (VCT). The Value Chain Theory has been chosen because it gives a new framework for the integration of fish farming in a way that provides the best understanding of how value addition to fish can incorporate opportunities and challenges in the fish farming industry. Proposed by Michael Porter (1985), the VCT sets out the positive and forward linkages between one company or commercial entity with other actors in a particular industry. In an extended form, the theory would also trace inter industry

links that are involved in the production, development, distribution and consumption of a product (Kumar & Rajeev, 2016).

The value chain is conceptualized as a series of products in the global scope, covering the whole life cycle from conceptual design to the use and ultimate scrap. A value chain consists of successive value addition activities, including product design, production, marketing, distribution and on to end-user support and service and so on. Various activities of the value chain can be contained within an enterprise, but can also be dispersed among various enterprises. With respect to geographical spread, the value chain can be clustered within a particular geographic area, spread out through-out the world.

When adapted for research purposes, the Value Chain Theory research focuses on three areas. The first area is the governance of the value chain. Value chain governance refers to the organizational structure, the power distribution value chain organization, as well as the relationship between the various economic agents in the value chain. Kaplinsky and Morris (2003) draw on the principle of separation of powers in Western society to propose an analytical framework of value chain governance. Such a separation of powers comprises value chain governance legislation, the implementation of governance, and oversight management. The second area of focus is the value chain upgrading**,** which refers to the mechanism, the type, and the trajectory of industrial and technological upgrading.

The third aspect is the production and distribution of economic rent in the value chain. This includes the entry barriers, sources of economic rents generated (such as technical ability, organization ability, skills, and marketing ability of core competence), and the distribution of rent. Of the three aspects of the value chain, governance, occupies the core position, as determines the extent of the industry upgrading and the distribution of rent within the value chain.

The Value chain theoretical framework was considered useful because it explains the types of knowledge and insights that when applied would led to the successful integration of small-scale fish farming into the wider fish value chain in Lusaka. Based on this theory, this investigation could demonstrate that farmers do not need to be familiar with the entire value chain framework to benefit from it. All they need is to understand that instructional practices are best shaped by content-driven, pedagogically sound, and thinking knowledge.

In terms of application, the VCT was relevant as a thematic guide for the research, by pointing out the aspects which the investigator must focus on for a clear understanding of the value chain. Therefore, the Governance dimension of the value chain connoted creating an understanding of the policies that pertain to the fish value chain in Lusaka. It was further elucidated by highlighting the role of different actors in governance processes within the value chain. The Value chain upgrading dimension was highlighted firstly by identifying the key actors in the value chain, outlining their role in value creation and value addition. The rent distribution aspect was investigated by focusing on the extent to which small scale farmers, fishermen and traders benefit from the opportunities available in the fish value chain. Providing this holistic, multi-dimensional lens to value chain analysis, the VCT was adequate for this study.

CHAPTER TWO

LITERATURE REVIEW

2.0 Introduction

This Chapter discusses the concepts, theories and studies on the subject matter of the present study. The literature will be reviewed at the global, sub-Sahara Africa, and national levels respectively. This chapter is organized as follows. Section 2.1 focuses on empirical review of the concept of value chain analysis, section 2.2 focuses on global perceptive Section 2.3 focuses on sub-Sahara African's perceptive, section 2.4 focuses on Zambian perspective. Further, 2.5 is the Knowledge Gap and section 2.6 is the summary to chapter.

2.1 Empirical Review

2.1.1 Conceptualizing Value Chains

The concept value chain describes the full range of activities that 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), delivery to final consumers, and final disposal after use (Kaplinsky and Morris, 2000). Among the activities in the chain include 'design, logistics and marketing' (Knorringa and Pegler, 2006). Disintegrating activities in the chain leads to efficiency and effectiveness in the production process since activities are executed by different actors in the chain (Kaplinsky and Morris, 2000).

Ahmed (2007) refers to a value chain as a structure of physical, economic, and social transactions between individuals and organizations engaged in raw material transformation into end products. Kaplinsky and Morris only theorize how a product passes through different phases of production and delivery to final consumers. Nevertheless, these processes cannot take place without the physical, economic, and social transactions theorized by Ahmed. Hence these two definitions complement each other in generating a clearer conceptual definition.

2.1.2 Conceptual Definitions of Aquaculture

The FAO (2014) defines Aquaculture (fish farming) as raising fish commercially in tanks or enclosures (such as tanks or fish ponds), usually for food. Thus it is the art and science of controlled

rearing of fish in ponds, farms, and in some instances natural water bodies from hatchlings to matured size. Unlike fish that grow in the wild water bodies, without human interference activities in aquaculture such as feeding, fertilization, stocking, reproduction, and harvesting are controlled (FAO, 2014b). A variant of aquaculture is mariculture, where the same process is applied to the cultivation of marine fish and other edible marine products using off shore, ocean based production systems (Katavic, 1999).

According to the FAO (2004), a small-scale fish farmer is one who operates at widely differing organizational levels ranging from self-employed single operators through to informal micro-enterprises and ultimately formal sector businesses. The small scale sub-sector, is a such, not homogenous within and across countries and regions. Attention to this fact is warranted when formulating strategies and policies for enhancing its contribution to food security and poverty alleviation.

2.2 Small Scale Fisheries Policies for Sustainable Development

The need for an integrated approach has underpinned the fisheries sustainability debate for a number of years. With the SDGs on the global agenda, consisting of a spectrum of governance goals that transcend across social, ecological and political targets, it is opportune to discuss how sustainability can be achieved through integrated policies that reflect the needs of the sector (Bennett, 2018). For small-scale fisheries, the prospect is greatly enhanced with the Voluntary Guidelines for Securing Sustainable Small-Scale Fisheries in the Context of Food Security and Poverty Eradication (SSF) policy Guidelines. SSF Guidelines are the first international instrument dedicated entirely to the immensely important – but until now often neglected small-scale fisheries sector. The SSF Guidelines represent a global consensus on principles and guidance for small-scale fisheries governance and development. They were developed for small-scale fisheries in close collaboration with representatives of small-scale fisheries organizations in a process facilitated by FAO. They are directed at all those involved in the sector and intend to guide and encourage governments, fishing communities and other stakeholders to work together and ensure secure and sustainable small-scale fisheries for the benefit of small-scale fishers, fish workers and their communities as well as for society at large (FAO, 2015).

Given that the SDGs are broad in context, as they serve to touch upon major items, they do not have the necessary depth, leaving ample space and flexibility for interpretation. In contrast,

national SSF policy Guidelines are more explicit about how to improve the existing governance mechanisms, and are also indicative of how SDGs can be achieved, and how they can help foster governance reform and transformation. To this end, the Guidelines provide guidance on how to implement specific measures. For example, to fulfill the specific components of the SDG14 the guidelines stipulate that national fisheries policies must address elements such as such as those pertaining to regulation of harvesting and overfishing, the contribution to the economic benefits to low income groups, as well as the implementation of water bodies' area management among others.

On the whole, it could be said that the SSF Guidelines can serve as an important instrument to guide the development of the policy process and governance frameworks for the implementation of the SDGs, which, in one way or another, pertain to small-scale fisheries. The wide-ranging nature of the SSF Guidelines also invites an important analytical process, informed by a trans disciplinary perspective, to examine how they interact with other instruments, both to help fulfil SDG14b target, and to strengthen the role that small-scale fisheries can play in contributing to achieving other SDGs.

An example would be how to promote the role of small-scale fisheries to resolve crisis of overexploited species, which is a global issue. Teh and Pauly (2018) submit that small scale fisheries, the majority of which utilize low-impact fishing gear and engage in responsible fishing, are an important segment that could ease some of the problems related to failing ecosystems. The stewardship ethics found in many small-scale fisheries are also an important trajectory for the conservation of marine resources (Soliman, 2014), which is the main substance of SDG14. Alongside this exist the community values of fishing communities, which provide the backbone for collective action, economic growth and community viability (Jentoft, S and Finstad, B, 2018) , all central components of the SDGs.

This shows that although small-scale fisheries are only mentioned in SDG14b, their role towards sustainability, as well as their ability to remain sustainable is subject to diverse elements. In other words, SDG14b cannot be a stand-alone target to achieve the sustainability of small-scale fisheries, and also, the route to SDG14b is determined by other systems including the political economy, the institutional landscape, the market systems, the governance structure, and the species they target.

All of these systems are, in one way or another, linked to different SDGs, hence, securing access for small-scale fishers to aquatic resources and markets can benefit from the synergy with several other objectives and targets in the SDGs (Jentoft, S and Finstad, B, 2018). Strong connection can be made, for instance, between sustainable small-scale fisheries and strategies for decent work and economic growth (SDG8), sustainable communities (SDG11), strong institutions (SDG16), and so on. Such interconnectedness between the different SDGs and the SSF Guidelines indicates why policy and institutional reforms implemented to reach the targets ought to be linked to the complexity of the small-scale fisheries systems (Singh, 2017). So when economic growth strategies or plans for local development are put in place, or when devising 195 participatory governance mechanisms or implementing gender regulations, a reflection on how small-scale fisheries can be affected and incorporated would be necessary, as indicated in the SSF Guidelines.

This also means that policy visions in the fisheries sector vision must be broadened to cater for a process of coordination between the different goals, through a thorough identification of actual or impending trade-off challenges that may exist between attaining different sustainability goals (Singh, 2017) and with a consideration of the barriers and impetus that exists between different targets such as reducing inequalities (social sustainability) vs. economic growth (economic sustainability) (Saito et.al, 2017), or achieving conservation (ecological sustainability) vs. retaining community viability (social sustainability). While it is clear how the implementation of the SSF Guidelines can help achieve SDGs, the reverse is less obvious. This is because the inherent flexibility provided by the SDGs as an international tool enables the governing bodies at regional and national levels to choose whichever route to achieve the different targets.

For instance, it is not clear what the plans for economic growth, sustainable communities and sustainable oceans look like under the SDGs, and how they can truly address the wide-ranging nature of small-scale fisheries sustainability. Bennett (2018) highlights how fisheries policies in developing countries lacks adequate attention to issues of social justice and inclusion, making it highly improbable that the forthcoming ocean sustainability pathways of the SDGs are both just and inclusive (Bennett, 2018).

The same argument has been echoed by Barbesgaard (2018) who has claimed that currently coalitions towards growth and conservation have been predominantly steered by eltist/expert groups and have a bias towards neoliberal paradigms, through the notion of market-based

mechanisms, which are projected as both a need for the protection of the ocean's future and for creation of stable economies, but which do not always accommodate or reflect the needs of small-scale fisheries (Barbesgaard, 2018). These conditions can hinder, rather than facilitate, the sustainability of small-scale fisheries.

The level of correspondence, between SDGs and SSFs was gathered in a study by Said and Chuenpagdee (2019) which scrutinized the contents of both SSF and SDG policy documents. The survey quantified 'correspondence scores' through comparative content analysis, conducted manually by in-depth reading of all paragraphs in the SSF Guidelines and the different goals specified in the SDG document. As this exercise was exploratory in nature, and did not aim to be an extensive representation, the analysis focused only on the main goals of the SDGs and did not include the primary or secondary targets.

The study found that SDG14, 'Life Below Water', has the highest correspondence score of 42 occurrences. What was less anticipated, however, was the high score on "Governance of Tenure" within the SDGs, which indicates a strong emphasis on issues pertaining to ownership, rights and access to resources, even at the goal level of the SDGs. SDG16 on Peace, Justice and Strong Institutions has a correspondence score of 33, and it is the only goal in the SDGs that touches upon all aspects of the SSF 155 Guidelines. The next two SDGs with moderately high correspondence score are SDG5 on Gender Equality (n= 26), and SDG8 on Decent Work and Economic Growth (n = 22). To a lesser extent, provisions on how to tackle these targets, as well as other SDGs including Zero Hunger (SDG1), No Poverty (SDG2) and Climate Change (SDG13), Sustainable Communities (SDG11) and Responsible Production and Consumption (SDG12) are intrinsic to the SSF Guidelines. The SDGs that are least covered by the SSF Guidelines include 'Cleaner Water and Sanitation' (SDG 6) and 'Affordable and Clean Energy' (SDG7), both having a correspondence score of two (Said and Chuenpagdee, 2019).

The study above reflects a strong complementarity between SSF principles and SDGs. As such, if national policies in the fisheries sector are to reflect spirit of sustainable development goals, they must be in line with the stipulations set out in the SSF Guidelines. In the present study, this complementarity can be determined through a close examination of the nature, scope and aims of fisheries policy frameworks in Zambia. The researcher scrutinized the contents of these policies in order to detect if they were aligned to the spirit of SSFs and SDGs.

For fisheries policies to produce sustainable fisheries management and sustainable development, the nations must invest in socio-economic and biological data and improve the governance of data collection and scientific evidence production and use to better motivate, priorities and design policy change. It is necessary for them to gather disaggregated socio-economic data on fisheries to help identify, within countries, and across sectors, the segments of the population that are most vulnerable and exposed to both risks of the status quo and of the proposed policy change as well as the elements of policy change that could yield the greatest benefits. There is also a need to set up inclusive mechanisms for producing scientific evidence, involving respected research institutions, stakeholders and policy makers from different policy and scientific domains, right from the stage of formulating the research questions, and with transparent methods and financing. The sharing of relevant socio-economic and biological data and scientific evidence with stakeholders and the general public in a timely manner is also recommended in order to enable all actors to engage meaningfully (Potts, 2016).

Countries must also invest in reinforcing the human and technological capacity of the public entities in charge of fisheries management to help them process the information required to deal with increasingly multifaceted problems and engage with stakeholders that have increasingly diverse interests. 2. Make greater use of commitment mechanisms – such as adaptive policies, which build in rationale and mechanisms for automatic policy change in the face of possible evolutions – to initiate and adopt policy change. They may prove particularly helpful, in contexts of uncertainty, such as data-poor fisheries or fisheries deemed to be most affected by climate change. Such approaches to policy change can also provide incentives for the fishing sector to invest in data collection, with the prospect of increased harvest possibilities if resources are shown to have the capacity to sustainably support higher catch levels (Peñas, 2016).

To make policies legitimate and acceptable countries should adopting a whole-of government approach to address the socio-economic issues affecting the fisheries sector. To this end fisheries policies must be harmonized with policies undertaken by other branches of the administration. Furthermore, governments must enable inclusive, open and transparent dialogues with stakeholders and across branches of the administration throughout processes of policy change to inform these processes, and increase their legitimacy and acceptability among stakeholders, while avoiding opening the door to undue influence, unfair competition and policy capture (Peñas, 2016). It is imperative to create inclusive and representative advisory groups, in which stakeholders, non-

governmental organizations (NGOs), and scientific institutions can directly intervene in decision-making through a process that is defined transparently in advance (Swinnen, 2018). They should follow the key principles on transparency and integrity in lobbying, notably to ensure that a fair and representative balance of influence is achieved and natural inclinations to consult some stakeholders do not lead to the exclusion of others. It is also needful to create inter-governmental co-operation groups in which different levels of the administration (local, regional and national) and entities in charge of different policy domains come together. Lastly, sustainable fisheries policies must frame policy-change proposals in ways that acknowledge the importance of various norms and cultures in their assessment by different stakeholders (OECD, 2019).

2.3 The Global Perspective on Fish Trade and Fish Value Chains

The FAO, (2020) estimated that in as of 2018, capture fisheries and aquaculture, together with their value chains provided income and employment to over 59.51 million people worldwide. Small-scale inland fishers; who depend on fishing for their livelihoods are among the poorest and most vulnerable rural populations. These fisheries contribute to poverty reduction and resilience building by providing food, income, and employment. Fishery-related livelihoods are particularly important in rural and remote areas where alternative employment is lacking. Fisheries strengthen resilience by acting as a safety net during lean times and when disaster strikes, when other food-producing sectors (including agriculture) do not function (Kalikoski et.al, 2018).

For instance, inland fishing households in Cambodia get more than 50 percent of their income from fishing; where as in the mainstream Mekong River 20 percent of household income comes from fishing. In in parts of the Zambezi Basin, fish provides more household income than cattle; where as in the Brazilian Amazon, households obtain 30 percent of household income from fishing (FAO, 2010a).

Kanji and Barrientos (2002) explain that value chain analysis can be a useful analytical tool in understanding the policy environment in terms of efficiency in the allocation of resources within the domestic economy while at the same time understanding how firms and countries are participating in the global economy. Analyzing value chains can bridge the gap between the focus of mainstream economics on aggregate measures of poverty such as income and the stress of livelihoods perspectives on micro-level complexity. These two perspectives tend to view the

purported benefits of trade liberalization differently with the former being positive and the latter generally less so.

Hopkins and Wallerstein (1986) state that value chains of fish in Asian Developing Countries are not developed to meet international market requirements and limited value addition. The main markets for pelagic species are domestic markets and processing efforts are poor. In contrast, value chains of dermasal species are well established and value addition generates profits to the stakeholders of the chain. The face of the fisheries industry is affected by participation in either regional or global fish trade. Value chains are networks of labor and production processes where the result is a finished commodity.

Value chains are led by firm leaders and chains consist of several nodes, each of which has a particular function in transforming an object from raw materials to an article of consumption (Gereffi and Korzeniewicz, 1994). Mapping the range of activities in the chain, it provides the capacity to decompose total value chain earnings into the rewards which are achieved by different parties in the chain. In mapping the distribution of income we focus on profits, the greater the barriers to entry, the higher the level of profitability. So, profitability is an important window into understanding the pattern of returns in global production networks (Kaplinsky and Morris, 2001).

Value chain perspective analyses how particular firms, regions, and countries are linked to the global economy. This mode of insertion will determine to a large extent the distributional outcomes of global production systems and the capacity which individual producers have to upgrade their operations and thus to launch themselves onto a path of sustainable income growth. Understanding the determinants of income distribution requires a focus on rents and barriers to entry. Levels of competition are high and incomes are under threat. The only way in which income growth can be sustained is through an enduring barrier to entry or by the firm, the region, or the country developing the dynamic capability to systematically move to activities in which high barriers to entry prevail. The focus in value chain analysis on power relations and institutions explains whose behaviour needs to change if different outcomes are to emerge (Kaplinsky and Morris, 2001).

Therefore, focusing on the institutions which drive international specialization, value chain analysis identifies the normative levers which can be used to alter these distributional patterns. Value chain analysis does not stop at the level of the firm or groups of firms. It also draws attention

to the national system of innovation the network of institutions that support economic actors. What they do impinges on the competitive performance of firms and groups of firms, and is also subject to the support and regulation provided by governments, whose actions, too, need to be located in value chain analysis (Kaplinsky and Morris, 2001).

According to Food and Agriculture Organisation (2011), the global production of fish from aquaculture has grown substantially in the past decade, reaching 52.5 million tonnes in 2008, compared with 32.4 million tonnes in 2000. Aquaculture continues to be the fastest-growing animal food-producing sector and currently accounts for nearly half (45.6 percent) of the world's food fish consumption, compared to 33.8 percent in 2000. Therefore, with stagnating global capture fishery production and an increasing population, aquaculture is perceived to have the greatest potential to produce more fish in the future to meet the growing demand for safe and quality aquatic food. As reported by FAO (2012), more than 50 percent of global food fish consumption will originate from aquaculture. It is acknowledged that, with growth in volume and value of aquaculture production in the past decade, aquaculture has made a positive contribution to national, regional, and global economies, poverty reduction, and food security.

FAO (2018) highlights the critical importance of fisheries and aquaculture for the food, nutrition, and employment of millions of people, many of whom struggle to maintain reasonable livelihoods. Total fish production in 2016 reached an all-time high of 171 million tonnes, of which 88 percent was utilized for direct human consumption, thanks to relatively stable capture fisheries production, reduced wastage, and continued aquaculture growth. This production resulted in a record-high per capita consumption of 20.3 kg in 2016. Since 1961 the annual global growth in fish consumption has been twice as high as population growth, demonstrating that the fisheries sector is crucial in meeting FAO's goal of a world without hunger and malnutrition. While annual growth of aquaculture has declined in recent years, significant double-digit growth is still recorded in some countries, particularly in Africa and Asia. The sector's contribution to economic growth and the fight against poverty is growing. Strengthened demand and higher prices increased the value of global fish exports in 2017 to USD 152 billion, 54 percent originating from developing countries.

The value addition is found highest 105% from wholesaler to retailer, followed by 90% from wholesaler to exporter. Short supply chains, managed by private businesses entrepreneurs, Non-

Governmental Organizations (NGOs), and supermarkets, profit maximization and profit distribution are considerably high (Shamsuddoha, 2007). Traders follow different strategies to maintain healthier ties with producers as well as markets. In Vietnam, local Chinese Brokers provide price guarantees and often with up to 15% excess price to farmers (Lindhal, 2005). This assures regular supplies to them. Moreover, companies without HACCP certification use their social networks to access both regional and international markets and enhance their power and coordinating skills in the value chain (Lindhal, 2005). They often develop new embedded networks in the local Chinese around the region.

According to a World Fish (2014) report for the ILO, for every 10,000t of feed produced there could be 100 jobs. This means that by the end of 2017 there could be between 800 and 1000 jobs in the feed sector alone. The same report estimates that for every 1000 tonnes of fish produced, about 100 jobs are created in the value chain (trading, logistics, gastronomy, etc.).

Therefore, FAO (2004) stated that the Danish companies in their study seemed to control a larger share of the value chain than their Moroccan counterparts, but this did not ensure profitability of the harvesting sector. The European Union has been struggling with its fisheries policy for decades. Overfishing caused by too large fishing fleets has forced cuts in quotas, making it difficult for fishing companies to survive financially. Control of the seafood value chain does not necessarily guarantee good livelihoods for fishermen or fishing companies.

Good fisheries management is a necessity to allow fishermen to reap the benefits from higher export prices. Without proper management in place, increased prices can lead to increased fishing pressures and hence threaten the sustainability of the resource and profitability of the fishing companies (Asche, Eyjolfur and Max, 2006). This was also shown in the Icelandic and Moroccan fisheries where in both cases good management practices are in place, limiting the total catch to sustainable levels. Price changes then do not threaten the resource but simply have a direct impact on the income fishermen receive. In Morocco increased prices force the processors to import anchovies from other countries but when prices drop they buy only from domestic sources.

According to FAO (2016), this shows how international trade can help in relieving the pressure on fishing grounds when prices become very high due to increased demand or if catches decline through natural fluctuations. Fishing is based on a natural resource that can fluctuate dramatically

over time. International trade helps seafood companies in diversifying these risks by opening up access to different sources of raw material. This again helps stabilize markets and increased stability helps in operating seafood businesses.

2.4 Sub-Sahara African's Perceptive

The world fish value chain and aquaculture supply has experienced tremendous growth and is estimated to reach over 200 million tonnes by 2030 (FAO, 2020). Since 2013, aquaculture has become the main source of fish available for human consumption. Globally, fish accounts for about 17 percent of animal protein intake, and apparent per capita fish consumption is currently over 20 kg. A large share of fish production is exported, and fish and fish products are among the most widely traded food commodities in the world. About 200 million people are employed in fisheries and aquaculture worldwide, in the primary and secondary sectors, with the majority of these in developing countries, including a large number of women employed mostly in processing activities (FAO, 2020).

With a world population expected to reach 9.8 billion by 2050, a sustainable fisheries and aquaculture sector will play a key role in ensuring food security as the increased demand will challenge fish production over coming decades (FAO, 2020). Food loss and waste occurs in most, if not all, supply chains. Reducing this loss and waste is becoming increasingly more important as demand for fish as food increases. If we compare the export performance of Africa and the rest of the world, we see that Africa was falling behind until 2000. However, since 2000, there has been strong growth in African seafood exports, and at the moment the growth in Africa is stronger than the world average (Kariuki, 2013).

In a study by the Namibian Ministry of Fisheries and Marine Resources (2006), showed the current level of value addition in Namibian fisheries, and pointed out opportunities for further value addition in the future. The study was undertaken by INFOSA (the Inter-Governmental Organization for Marketing Information and Technical Advisory Services for the Fisheries Industry in Southern Africa) and used the value chain approach to describe the current affairs in Namibian fisheries.

However, more could be achieved concerning value addition, employment creation and foreign exchange earnings if: Seafood processing companies are given Manufacturing Status; The seafood industry is accorded Export Processing Zone status; An export promoting organization is established and Increased Government support for export promotion is made available (INFOSA, 2006). Thus, the government encouraged companies to add value by reducing quota levies proportional to value-added production, and by rewarding performance with additional quota. To a large extent, Namibia's fisheries industry has been and is a raw materials producer. Most of the production is exported as fresh, chilled, or frozen products, and limited value addition is done in Namibia (Hempel and Russell, 2007).

It is also argued that in Kenya, a wide variety of markets are linked to the capture fisheries value chain. The four main markets are the export markets for industrially processed fresh and frozen Nile perch filets and the domestic markets for fresh tilapia, artisanally processed fish (Nile perch, tilapia, omena), and feed grade omena. These freshwater species markets handle 96% of Kenya's annual fish production of around 175,000 MT. (Hempel, 2008). Also, a fifth set of markets are those related to Kenya's marine capture fisheries (shrimp, tuna, octopus, crab, etc.). Each of those markets is growing with supply generally lagging demand.

FAO (2006) further revealed that by far the largest fish exporter in Africa is Morocco, followed by South Africa and Namibia. While Morocco's exports have been growing steadily over the past 10 years, the exports of South Africa and Namibia have been more stable. The largest exporters, Morocco, South Africa, and Namibia, export most of their products to the EU. In the case of Namibia, as much as 80% of all seafood exports end up in the EU, with over 70% going directly to Spain. Morocco is also heavily Europe-oriented, although part of its cephalopods exports are destined for Japan. South Africa exports over 50% to the EU, but have other main trading partners also. Approximately 9 – 12% goes to each of the countries, Japan, Australia, and Asia (Asche, Eyjolfur and Max, 2006). In later years, both South Africa and Namibia have made an effort to diversify their markets to reduce the dependability on the EU market.

Asche, Eyjolfur, and Max (2006) noted that value-added production in Africa is lower than in the rest of the world. While African total production of fish (catches and landings plus aquaculture production) constitutes 5.7% of the global production, Africa's share of fishery commodity

production, i.e. processed products, amounts to only 4.3% of the world total. In general, the level of value addition in African fisheries and aquaculture has been relatively low. This is partly because of the continent's history as a colonial region whose main function, was to provide cheap raw materials for the colonial powers' industries at home. Consequently, practically all production was focused on raw material production and export. The developing countries seemed to control a relatively lower share of the overall value chain than developed countries. An example is the Icelandic case where Icelandic-owned companies control as much as 70 percent of the entire value-chain while Tanzanian and Moroccan companies controlled less than 50 percent (Asche et.al, 2006).

However, the Icelandic and Tanzanian fisheries produce very similar products, going into the same markets, or market segments, in Europe and the USA. The Icelandic export sector has been developing over the past 60 years and started with state monopolies on exports (or monopolized export licenses), ending with the completely free trade of seafood products in the early 1990s (Asche et.al, 2006). This has been a long process for the Icelandic companies but it created strong export companies that strategically marketed their products under their brand.

Ike and Onuegbu (2007) also attempted to improve the aquaculture technology package for Nigerian farmers. The results of the intervention showed that the level of adoption of the technology was low. Farmers found it difficult to adopt the developed technology because they did not have adequate funds to maintain the technology. Though not much literature is known about fish farming in Nigeria, the viability of implementing fish farming in Nigeria is similarly constrained. Chenyamba et al. (2012) argues that aquaculture in Nigeria is still a subsistence activity practiced by small-scale farmers who have low social, cultural, and economic status and limited access to technology, markets, and credit. Despite the paucity of literature, the cross-examined, empirical evidence shows fish farming as a potential enterprise for economic growth and poverty eradication for the poor. However, the sub-sector is constrained by multiple factors that require policy interventions.

2.5 Zambia Perspective

Markets in the value chain differ across geographic locations, rural and urban areas, and wealth status of consumers. The pond-based, small-scale sector produces mainly for household

consumption and local sales, but very rarely as a primary agricultural activity. The fish farm survey carried out by Kaminski et al. (In press) showed that 41% of surveyed farming households use most of the harvest for household consumption, 57% sell their harvest in local markets and 2% use their fish mainly for barter and trade. Other studies in Zambia also confirm that about 40% of fish farming households consume all of their fish and do not sell within local markets (Nsonga 2015; Musuka and Musonda 2013).

It is, therefore, explained that the majority of farmers from the some survey (94%) stated that their fish was sold at a higher price than fish from capture fisheries. The remainder was sold at the same price, and no fish from small-scale aquaculture was sold at a lower price than capture fisheries. Absolute fish prices were difficult to assess as fish was sold based on the species and the size of the fish, not by weight. Smaller fish (<100g) are usually sold in bundles that can consist of 10–30 fish while larger fish (>200g) are sold per single whole piece (Genschick et al, 2017).

Large-scale commercial farms, meanwhile, mostly target urban areas as primary markets for selling fish to the middle and upper classes. Across the different operators, the majority of the overall production is transported to and sold in the capital, Lusaka, either through company-owned retail outlets, or wholesale depots. Some large-scale producers have their ice production, freezing facilities, and refrigerated trucks. Some actors operate with only one wholesale depot, while others directly engage with a small number of retailers, and one company (Lake Harvest Ltd.) distributes its products to 27 wholesale depots in five provinces. Capital Fisheries Ltd is a major trader of wild, farmed, and imported fish and also buys fish from small- to large-sized farms that do not engage in their processing (Genschick et al, 2017). Capital Fisheries Ltd is one of the only large-scale processors in the value chain that sells packaged gutted/scaled whole fish and a small percentage of packaged filleted tilapia.

According to Kaminski et al. (2016), the price of commercially farmed fish in Zambia is slightly higher than from capture fisheries, though this largely depends on fish size and is often subject to unpredictable price fluctuations. The latter are largely based on a volatile exchange market and an erratic capture fisheries supply. Generally, farmed fish from the commercial sector is categorized into three different grades: (1) grade 1 describes fish that weighs more than 300 g and is currently sold for ZMW 24–27 (USD 2.55) per kg; (2) grade 2 comprises fish that weighs 100 g to 250–

300g and is sold at ZMW 18 (USD 1.80) per kg; and (3) grade 3 is for fish that weighs less than 100 g and is sold at about ZMW 8 (USD 0.80) per kg (Genschick et al, 2017). Products are sold whole in fresh or frozen form.

However, in 2017, the African Development Bank (AfDB) approved a loan for the Zambian government to implement the Zambia Aquaculture Enterprise Development Project (ZAEDP) to present the aquaculture subsector as a viable and inclusive business opportunity for small- to medium-sized farmers and enhance production and productivity for improved livelihoods along the aquaculture value chain. From an economic perspective, increased uptake of aquaculture by small-scale farmers could help increase per capita income, diversify livelihoods, and combat poverty, as seen in the case of Ghana (Kassam 2013; Kassam and Dorward 2017). This is of critical importance given that in 2015, 54.4% of the population lived below the poverty line (76.6% in rural areas and 23.4% in urban areas) and 40.8% of people were considered extremely poor (CSO 2016).

Kaminski et al (2016) point out that the fact grade 3 fish, which is not sold in formal supermarkets, is highly demanded by mostly retailers who purchase fish from depots in Lusaka when it arrives together with the larger fish intended for formal retail. Personal communication with Kafue Fisheries Ltd and Lake Harvest Ltd revealed a definite undersupply of smaller fish to these traders and that over 80% of these traders are made up of women. These fish are taken for trade-in "informal" markets in lower-income areas in Lusaka where they can compete with tilapia from capture fisheries because of their size and price. This indicates that there is a significant market in lower-income areas in Lusaka, though the same companies expressed that this is a small percentage of their total sales as the fish is almost treated as a byproduct.

Furthermore, Kaminski et al. (2016) explain that the aquaculture value chain in Zambia has experienced a major transformation as a result of upgrades in pre and post-production. Many of those upgrades have been initiated by large-scale commercial producers, who have vertically integrated advanced feed production and hatchery technologies into their operations or from direct partnerships between companies and different actors in nodes in the value chain (Kaminski et al. 2016). Feed mills and private hatcheries have invested in upgrading technologies too. Higher-

quality inputs for aquaculture production, namely feed and seeds, have become more widely available, but are mostly utilized by large-scale commercial producers.

Therefore, access to the means of production in small-scale aquaculture is largely made up of horizontal linkages, such as in the form of farmer networks for fingerling supply and a strong reliance on on-farm resources for feeds and organic fertilizer. By improving access to enhanced production technologies and knowledge, small-scale aquaculture productivity could increase and more on-farm jobs would be created, which would mean a stronger uptake and integration of aquaculture into rural livelihoods. Fundamental to achieving these development outcomes is making microfinance (with low-interest rates) accessible to small-scale farmers to purchase inputs and sustain production. These should be made especially available to women and youth (Kaminski et al. 2016).

Currently, no microfinance options exist other than through the government-supported Citizens Economic Empowerment Commission (CEEC) or those trialed by development organizations such as SIDA and the FAO-ILO (Genschick et al, 2017). The demand and preference for fish and in particular the availability of land and water in many rural areas are not considered to be constraining factors to small-scale aquaculture development in the country unlike the accessibility to inputs (including microfinance) and markets, which present the biggest challenges. As cage aquaculture is usually more capital intensive than land-based pond aquaculture, the latter holds the biggest potential for resource-poor farmers to venture into aquaculture production.

DoF, (2015) point out that the recent aquaculture growth in Zambia has contributed to an increase in fish supply (tilapia) in the country. To date, approximately 20% of the fish sourced in Zambia comes from domestically produced aquaculture. The large-scale commercial sector is the main supplier of farmed fish in the country and accounts for 71% of the approximately 20,000 t of fish produced in 2014. The remainder of farmed fish is produced by small-scale fish farmers, though there is high uncertainty on how accurate the statistics are on the total production in small-scale aquaculture.

Even though productivity is low, the 12,000 households in small-scale aquaculture create their access to fish (Genschick et al, 2017). Fish from small-scale aquaculture is consumed, to a certain extent, within the producing household, of which the majority can be considered resource-poor.

The amount of fish that is produced is difficult to decipher and, commonly, farmers engage in partial harvesting throughout a cycle to supplement their food and nutrition needs or pay for basic expenses (e.g. school fees).

Therefore, the production share that can be retailed locally is usually more expensive than fish from capture fisheries and hence not very competitive in rural markets. It is therefore usually sold to a limited number of slightly higher-income buyers from small district towns and peri-urban areas (e.g. civil servants, teachers, etc.). While these types of transactions only occur for those farmers who can produce a surplus, these fish are not generally bought by resource-poor people in rural areas who largely meet their fish demands with smaller dried fish products from capture fisheries (both from within and outside Zambia) (Genschick et al, 2017). In contrast to the accessibility of farmed fish from the small-scale sector, some larger companies from the commercial sector have positioned their production and retail infrastructure in areas with favorable production and marketing conditions (such as Lusaka and Copperbelt provinces), where they market their products directly through their own and other retail outlets. The marketing and placement of these retail outlets do not seem to directly meet the needs of poorer urban populations as fish are mostly targeted to and consumed by middle-income populations.

Nsonga (2015) argues that population growth and a growing urban middle class are expected to further increase the demand for fish, which can be met by the rapidly expanding aquaculture sector. The questions that remain are whether the small-scale sector has the means to be able to compete and supply fish for this market and whether resource-poor urban consumers will be able to afford farmed fish? It is unlikely that commercial aquaculture will supply consumer preferences and the needs of population groups with limited purchasing power as long as the middle-class demand is still not satisfied. This would require producing small-sized fish, which for now is being filled mostly by imported tilapia. Poorer urban population groups are only benefitting through the "informal" retail of smaller-sized, low-grade fish from commercial aquaculture, which is regarded as a "by-catch" and only available in small-quantities in urban areas. This does, however, present an opportunity for small-scale aquaculture to consistently supply smaller sized tilapia to these lower-income peri-urban and urban markets. Small-scale farmers struggle to grow their fish to larger than 300 g, while the commercial sector markets fish between 300 and 600 g or more.

Genschick et al, (2017) explain that market for fish between 100 and 300 g, which is currently filled by imported tilapia. There is an argument, therefore, that small-scale farmers could produce for this market using minimal inputs if they were to be further integrated into the value chain (for instance cold chain and transport). The argument is not to supply immature fish but rather to either sell fish that are fed on low-cost feeds and grow to an average size of say 200 g over say a 6-month cycle, or find new species of indigenous fish that have fast growth rates and reach a smaller adult size than what producers are currently supplying to the market today.

Therefore, little is known, however, on Zambians' preferences for imported fish compared to locally produced fish. Resource-poor consumers in urban areas, where most of the imported and commercial farmed fish is retailed, may still have limited access to farmed or imported fish and the main source of fish (including dried, smaller pelagic, and wetland species) would still likely be cheaper. This may change if production from capture fisheries continues to decline. The low accessibility of farmed fish by poor consumers is likely caused by the price of fish and not by its acceptability or taste though this requires further research and validation. Tilapia, the dominant species in Zambian aquaculture, is highly preferred across income groups in urban Lusaka (Genschick et al, 2017) though it is not always accessible and/or affordable. The outlook for the growth of tilapia farming looks promising, though there is also scope to debate the possibility of further introductions of other species into the sector to diversify the products on the market.

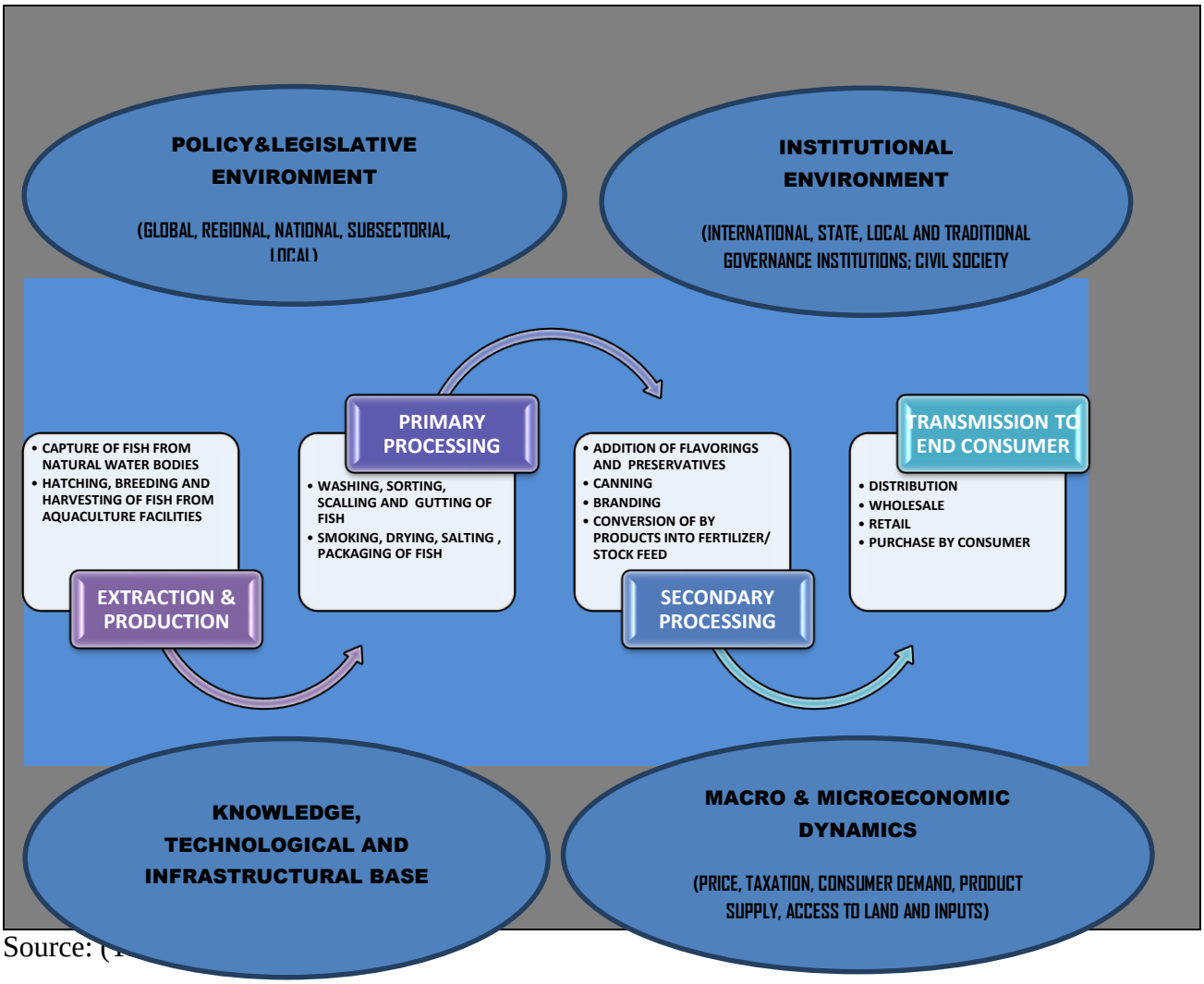
2.6 Conceptual Framework for the Present Investigation

This study examined the key actors at every stage of the fish value chain in terms of the role they plaid at each stage of the value chain. Based on information gained from the literature review, the primary fish value chain in Lusaka is made up of four nodes and these are: Extraction and Production; Primary Processing, Secondary Processing and Transmission to the End User. The activities involved at each stage are indicated in Figure 1. The study seeks to identify the key actors at each stage of the value chain.

The investigation furthermore, identifies the actors and elements of the external environment of the value chain that have an impact on the productivity, production, business growth, and development in addition to the capacity of value chain actors to benefit from opportunities presented to overcome challenges encountered. As indicated in Figure 1, these include: Policy

and Legislative Environment; Institutional Environment, the Knowledge, Technological and Infrastructural Base and the Micro/macroeconomic Dynamics. In this regard, the study investigated how these factors presented small scale actors in the value chain with challenges that threatened their viability and Opportunities for future growth and sustainable development.

Figure 6: Conceptual Framework for the Study



Source: (1

2.7 Knowledge Gap

The revealed studies in the literature mostly focused on different aspects, show that the value chain analysis approach is useful in several cases with different purposes. However, this study focuses on fish value chain expansion and attempts to decipher new perspectives on relationships and links among networks of farmers, or nodes, along the chain. The research seeks to identify opportunities to upgrade or improve a node's position along the chain through innovations.

It further explains the challenges that may threaten business growth and development especially among micro/small-scale players in the value chain (such as informal fishermen, fish farmers, fish traders, and so on). Policy related, influence related and also systemic barriers to business growth and development are explored and contextualized as bottlenecks that impair sustainable development in the value chain.

2.8 Chapter Summary

This chapter has shown that the value chain analysis approach is useful for analyzing the fisheries and aquaculture industries in the global, Africa, Zambia and that through the application of this approach, new insights may be gained and valuable new strategies may be developed, both at the micro-economic (company) level and the macro-economic (national) level. The value chain analysis can be applied to pure descriptive studies, where the purpose is to describe a process and for example allocate portions of the costs to the various elements. But it can also be used as a model in more analytical studies, where relationships and mechanisms are described. Value chain analysis has been of particular use in business investment analyses, where it can provide a firmer ground for making decisions about investment opportunities.

There have been vast developments and improvements in aquaculture in Zambia in recent years. Aquaculture production is on the rise though mainly driven by the large-scale commercial sector, which is generally detached from the small-scale sector. These sectors are responding to the needs of the poor differently and have the potential to respond better in the future. The small-scale aquaculture sector can be characterized as low input-low output where the resource-poor people access to fish from their production and to generate some income through the local retail of fish.

CHAPTER THREE

METHODOLOGY

3.0 Introduction

This chapter presented the methodology and procedures that were employed in carrying out the study. It described the research design, location, target population, sample size and sampling procedures, data collection techniques, data analysis procedure, ethical considerations, limitations, and summary of the study.

3.1 Research Design

A research design included how data was collected, what instruments were employed, how the instruments were used, and the intended means for analyzing data collected (Ader and Mellenbergh 2008). The research used both quantitative and qualitative research designs hence the reason for adopting these methods to ensure that information obtained using one design was complemented by the other. This research design was preferred as the researcher wants to get precise information by applying research instruments such as questionnaires which allows for the collection of data from a large number of respondents in a relatively short (Bowling, 2002).

3.2 Study Location

This study was conducted in Lusaka District located in the South Central part of Zambia at coordinates 15°25′S28°17′E. As of 2019, the city's population was about 3.3 million, while the urban population is estimated at 2.5 million in 2018[1].Lusaka is the largest city in Zambia, with a large market for fish as well as its chief administrative, industrial financial, and commercial center. These features entail that the city has a well-developed fish value chain that can be mapped and explored by the researcher.

3.3 Target Population

The targeted population was the population that the researcher wanted to generalize the results of the study. Mugenda and Mugenda (2003) define the targeted population as the whole group about which the researcher wished to conclude from. The targeted population for this study was 52 small-

[1]"Zambia Population 2020 (Live)". *worldpopulationreview.com. Retrieved 28 April 2020*

scale fish farmers of the Lusaka district which has six areas namely: Ngwelele, Lusaka East, Makani, Kabangwe, Kasupe, and Chalala.

3.4 Sample Size and Sampling Techniques

This section presented the methods that were used to determine the study sample size from which data was collected. It also described the sampling procedure that was used in selecting elements included as the subjects of the study sample. A sample size is a subset of the total population that is used to give the general views of the target population (Kothari 2004). The sample size must be representative of the population on which the researcher would wish to generalize his research findings. According to the Department of fisheries (2019) Lusaka district has a total population of sixty (60) registered small-scale fish farmers.

However, the purposive sampling method was used to select both small-scale fish farmers and key informants as the population for registered fish farmers in the Lusaka district was small to have a representative sample. The characteristic of our population was not common to everyone who lives in the area but only to the people who are practicing fish farming. In this case, the list of small-scale fish farmers from the department of fisheries was used to pick the participants. Five (7) key informants were selected purposively from different organizations and these include: The Department of Fisheries (x01), one from the LCC (x01), MLNR (x01); ZNFU (x01), IAPRI (x01) and World Fish (x0l).

3.5 Data Collection Techniques

Creswell (2003) indicates that research instruments are the tools used in the collection of data on the phenomenon of the study. For this study, the researcher used questionnaires and observation to collect data for the study from the selected small-scale fish farmers. An interview guide was also used to collect data from the key informants and policy assessment. Policy documents and their relevant policy analyses were also utilized as sources of both primary and secondary data.

3.5.1 Questionnaires

A questionnaire is the means of collecting identical data from a large number of people by using a unique technique, where the result is later analyzed systematically. This technique allowed the researcher to approach as many respondents as possible, to enhance the accuracy and validity of

the data. According to Denscombe (2007), this helps the researcher to reduce discrepancies in the analysis of data, minimizes costs of materials, and saves time. However, the disadvantages of using a questionnaire for data collection are the inevitable biased responses from participants as a result of lack of supervision (Cooper and Schindler, 2010).

The semi-structured questionnaire was administered to the small-scale fish farmers in the Lusaka district. This was so because it was pre-supposed that not all the respondents would be able to read and write. Where the need arose, the researcher read all the questions one by one to the respondents. With this approach, it was easy to clarify any misunderstanding with the respondents regarding the meaning of the questions immediately.

3.5.2 Observations

Observation was a systematic and selective way of watching and listening to an interaction or phenomenon as it takes place (Kumar, 2005). There are many situations in which observation was the most appropriated way of data collection; for example, when you want to learn about the interaction in a group, ascertain the functions performed by a worker, or study the behavior and personality traits of an individual. It also appropriate in situations where full information cannot be obtained through a questionnaire, because respondents either are uncooperative or are unaware of the answers because it is difficult for them to detach themselves from the interaction.

In this study, observations were done using non-participant where the researcher does not get involved but observed and listen to its activities and drawing conclusions from them. After making several observations, conclusions were drawn about the activities of small scale fish farmers.

3.5.3 Interviews guide

The third method data collection tool was in-depth-interviews. In-depth interviews are a face to face encounters between the researcher and the informant focused on understanding the informants' perspective on their lives, experiences, or situations as expressed in their own words (Creswell, 2003). Because of the extended length of time spent with an informant, it is assumed that the rapport between the researcher and the informant was enhanced and the corresponding understanding between the two led to in-depth and accurate information.

Unstructured interview guides were used to conduct interviews with key informants from the Department of fisheries which is under the ministry of fisheries and livestock. These were used to amass data from the key informants. This involved face-to-face oral interviews. This was interpersonal and allows the researcher to establish rapport with the respondents thereby collecting adequate information. The reason for this type is that they are suitable for data collection from the informant's hamlet because the study sampled a relatively small number that is deemed representative enough and thus is easier to go round and interview them face to face (Creswell, 2003).

3.5.4 Documental Evidence

Additional primary and secondary data were sourced from different published works such as policy documents, past studies related to the subjects, journals, and official documents on the subject matter. The internet was consulted to access what has been published in other parts of the world on the topic. Consulting other publications was useful in identifying shortcomings in their methodology or the theoretical knowledge available on the issue. This helped in guiding the study to focus on those areas where more research is needed and avoiding those which have been exhaustively researched. This prevented it from being a mere repetition of what has already been done thereby ensuring that it remains relevant (Cooper and Schindler, 2010).

3.6 Data Analysis Procedures

Descriptive statistics were used in the analysis of both quantitative and qualitative data. Data analysis will be done by editing, coding, and tabulation of data according to the research questions. Kathuriand Pals (1993) points out that analysis means ordering, categorizing, manipulating, and summarizing of data to obtain answers to research questions. This was done by tallying up responses, calculating percentages of variations in response, and interpreting data in line with the study objectives and assumptions through the use of Microsoft Excel 2007. This helped the researcher to calculate frequencies and percentages. Tables, charts, and graphs will be used to illustrate and analyse the data that will be collected. The data collected from the open-ended qualitative questions were analyzed using conceptual content analysis.

3.7 Ethical Considerations

Therefore, research ethics was considered at every stage in the research cycle (Brinkmann & Kvale 2015). In this research, ethical considerations were built into all stages of the research. Before data collection, permission was granted by the University of Zambia for data collection. When requesting permission, the objectives and purposes of the research were communicated to the subjects of academic but important to influence policy formulation. Getting consent was very important as it builds confidence in the respondents and emphasizes on not harming the respondents or getting data under pretenses and assures confidentiality of the research subjects (Brinkmann & Kvale 2015).

3.8 Limitations of the Study

According to Best and Kahn (2008), limitations are conditions beyond the control of the researcher that may place limitations on the conclusion of the study and their application to other situations. However, the study projects the following limitations; time given to the study hindered the researcher from interviewing all the small-scale fish farmers in Zambia. It was based on this that the researcher drew a sample of the population of small scale fishermen, fish farmers, and traders in the Lusaka district.

Some respondents may withhold crucial information being sought by the researcher especially information that touched on financial issues as they fear being exposed to authorities like Zambia Revenue Authority. This problem was partially mitigated by assuring the respondents that their information would be solely used for study purposes only and that it would not be disclosed to anybody without their consent.

3.9 Summary

This chapter has presented the research methodology that was used in this study. It's a brief description of the study area, it also covered the research design, location, target population, sample size and sampling procedures, data collection techniques, data analysis procedure, ethical considerations, limitations, research instruments, processes, and analysis of fish farmers data.

CHAPTER FOUR

DATA ANALYSIS AND PRESENTATION OF FINDINGS

4.0 Introduction

This chapter presents the finding on the opportunities and challenges of the fish value chain in small-scale farmers in the Lusaka district. The findings were obtained from compiling data obtained from the field using questionnaires and an interview guide. Therefore, the findings were categorized in alignment with the three specific objectives of the study namely:

1. To understand policy frameworks guiding fish value chain expansion
2. To identify the key actors in the Fish Value Chain and their roles.
3. To examine opportunities and challenges for small-scale farmers involved in the fish value chain in Lusaka District.

The study targeted small-scale fish farmers of the Lusaka district which has six areas: Ngwelele, Lusaka East, Makani, Kabangwe, Kasupe, and Chalala. Hence, the study adopted a purposive sampling method to select a total of 60 small scale fish farmers that constituted the sample size from 60 small scale fish farmers in the Lusaka district. In this case, 60 questionnaires were distributed to respondents and 56 were collected and analyzed using Microsoft excel, and an 93% response rate was therefore attained, with only 56 small scale fish farmers managed to respond. According to Mugenda and Mugenda (1999), a response rate of 50% is adequate for analysis and reporting; a rate of 60% is good and a response rate of 70% and over is excellent. It therefore goes that the study registered an excellent response rate.

Table 8: Distribution of Fish farmers and Category of Respondents

Response rate	**Frequency**	**Percentage**
Returned	56	83%
Unreturned	4	17%
Distributed	60	100%

However, before examining the key findings, this section presents the demographic profile of the respondents. This is done to allow readers to appreciate the background and understand the findings in a definite context.

4.1 Background and Demographic Information of Respondents

In the study, respondents were asked to state their sex; the results indicate that the majority (79%, n=44) of respondents were males. Females were represented by (21%). Further, they were asked to state their age, results indicate that the majority (75%) of the respondents were above 35 years. Those between the ages of 30- 34 years apportioned 18% and those between 25-29 years dispended (7%).

Table 9: Demographic Characteristics of the sample (n=56)

VARIABLES	VALUES	FREQUENCY	PERCENTAGE
Gender	Male	44	79%
	Females	12	21%
Age	25- 29 years	4	7%
	30- 34 years	10	18%
	35 and above	42	75%
Marital status	Single	8	14%
	Married	44	79%
	Divorced	3	5%
	Separated	1	2%
How long, working as a fish farmer	Between 1- 5 years	24	42%
	Between 6- 10 years	23	41%
	Between 11- 15 years	7	13%
	Between 16- 20 years	2	4%
Level of education	Grade 9	4	7%
	Grade 12	18	32%
	College Certificate	9	16%
	Diploma	17	30%
	Bachelors	8	15%

They were also asked about their marital status and the results indicated that (79%) of them were married, those who were single had (14%), divorced had (5%) and those who were on separation had (2%). Further, they were asked for how long they been fish farmers, results show that the majority (43%) have been working as fish farmers between 1- 5 years, (42%) of them have been working between 6- 10 years, while (13%) have been working as fish farmers between 11- 15 years and 4% had between 16- 20 years. Also, they were asked to state the levels of education, results indicate that majority (32%) had Grade 12 certificates, (30%) of them had Diplomas, (16%)

represent those who had College Certificate, (14%) had Bachelors and the least (7%) had Grade 9 qualification. The above findings are represented in the table below.

4.2 Policy Frameworks Guiding Fish Value Chain Expansion

Policy documents were analyzed for content by analyzing textual data. A comprehensive list of themes and headings was developed during the reading stage, collapsing similar and overlapping headings (Hsieh & Shannon, 2005).The policies considered were those initiated in and active during the period 2013-2020 with regards to the fisheries sector in Zambia. The research sought to establish if there is an internal harmony that exists among these policies. Do they have a common developmental agenda? To what extent do they all align with this agenda? What strengthening and weaknesses do the policies poses that would strengthen or weaken their feasibility? Who are the key actors in implementing the agenda set out in the policies at a national, sectorial, and local level? These questions are answered under the themes set out below:

4.2.1 The Policy Hierarchy for the Fisheries Sector

This section describes the internal harmony that exists among the different policy frameworks. The analysis chose the sustainable development goals as the overarching policy agenda for fish value chains. As such the study analyzed the extent to which fisheries policies in Zambia are fulfill SDG 1 (Poverty Eradication); SDG 2 (Promotion of Food Security); SDG 8 (Viable Economic Growth and Creation of Decent employment); SDG 9 (Industry and Innovation) and SDG 14 (Sustainable Use of Marine Resources). The extent to which Zambian fisheries policies are consistent with the SDG imperatives is outlined in Table 3.

Table 10: Mainstreaming of SDGs into Zambian fisheries Policies

POLICY ISSUE	**NAIP 2013**	**NAP 2013**	**SNAP 2016**	**6NDP 2013 (Revised)**	**7NDP 2017**	**VISION 2030**
1. Fisheries Contribute to Poverty Reduction (SDG 1)	X	X	X	Y	Y	Y

2. Fisheries Development for Enhancing Food Security (SDG 2)	X	X	X	Y	Y	Y
3. Enabling Environment for Aquaculture Growth And Development`(SDG 8)	X	X	X	X	Y	Y
4. Provision of Employment and Income Generation through Aquaculture (SDG 8)	X	X	X	X	Y	Y
5. Aquaculture as a means of Economic Diversification (SDG 8)	X	X	X	X	Y	Y
6. Development of Fisheries Infrastructure, Research and Technology Development (SDG 9)	X	X	X	X	X	Y
7. Provide technical information required for Sustainable Fish	X	X	X	X	Y	Y

Production and Value Addition (SDG 9).						
8. Increase Fish Population (SDG 14)	X	X	X	X	Y	Y

NAP - National Agricultural Policy,; SNAP- Second National Agriculture Policy; 6tNDP -Sixth National Development Plan ; 7NDP-Seventh National Development Plan; NAIP -National Agriculture Investment Plan

X = Explicitly Mainstreamed Y=Implicitly Mainstreamed Z= Not Main Streamed

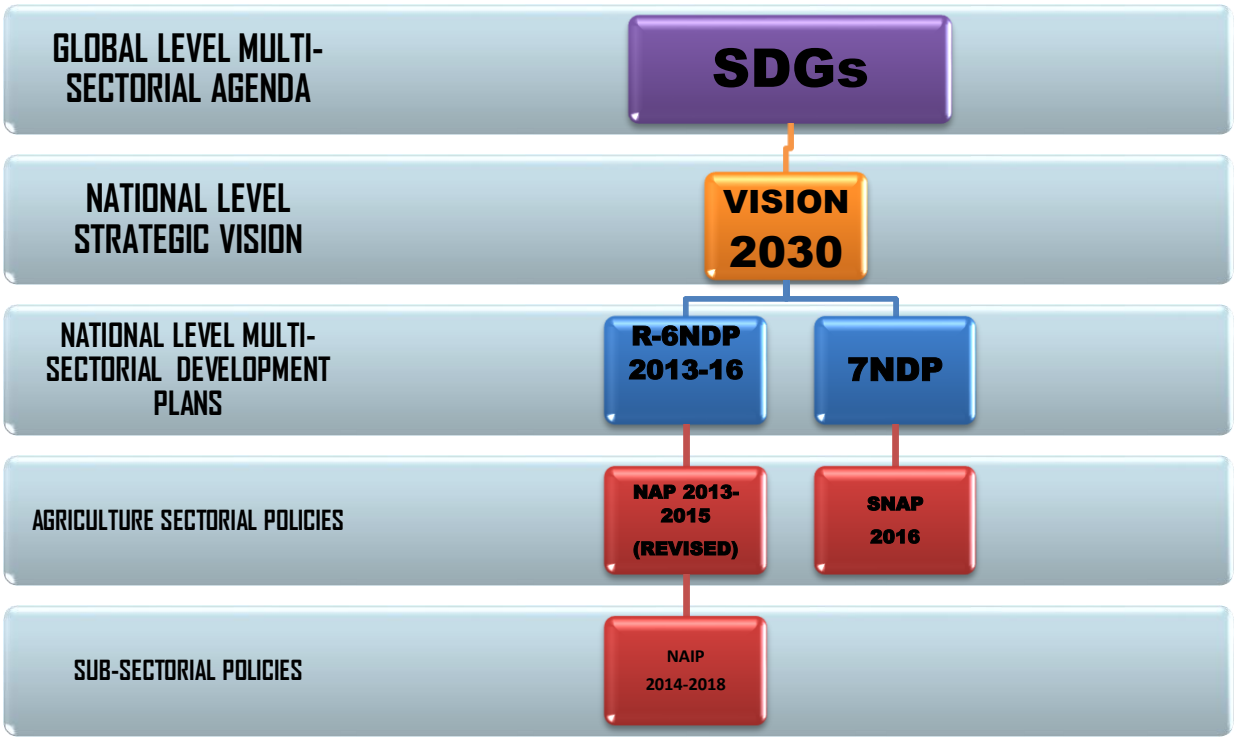
The extent to which policy issues were mainstreamed into each policy was graded into three rankings. The rank "Explicitly Mainstreamed" means the Issue is directly mentioned and the Policy Document contains a specific action plan and/or budget allocation for its attainment at the time of the study. "Implicitly Mainstreamed" means the policy issue is only indirectly mentioned and budget/policy action plan absent or mentioned in general terms. The ranking, "Not Mainstreamed" denotes that the policy issue is not mentioned at all and neither is there an action plan and/or budget committed to it at the time of the study.

As indicated in Table 1 the policies in the fisheries sector are focused on achieving sustainable development. The observed pattern is that the eight policy issues of sustainable development are explicitly mainstreamed into the sectorial level policies such as the National Agricultural Policy of 2013 and the Second National Agricultural Policy of 2016 and also in the national agricultural investment plan.

In the higher-level policies such as the sixth and Seventh National Development Plans and the Vision 2030 the status of the fisheries value chain they are only implicitly mentioned. This is to be expected because higher-level policies have a broader multi-sectorial focus than the lower level sectorial and sub-sectorial policies.

The higher-level policies have set outer the broader or long-term vision for agricultural development, done in concert with the development of other economic and social sectors while all of them aligning with the strategic imperatives set out in the global sustainable development agenda. These broad objectives are then narrowed down by sectorial and sub-sectorial policies which will set out specific plans and budgets for achieving the objectives.

Figure 7: Policy Hierarchy for the Fisheries Sector



Thus the study detects a policy hierarchy that consists of global level policies at the apex and sub-sectorial policies at the base (see Figure 2). At the apex of this hierarchy is the global agenda that seeks to achieve sustainable development. This has been agenda has been mainstreamed into national, sectorial, and sub-sectorial policies. In particular, the National Agriculture Investment Plan is placed at the bottom of the hierarchy. It represents the most detained sub-sectorial policy explicitly dedicated to achieving sustainable development in the fisheries sector. It concretizes the broad objectives that were set out in higher-level policies by outlining the plans of action, the sub-sectorial objectives, and the sub-sectorial budgets.

From the hierarchy above it can be surmised that the policies are crafted in a way that ensures the fisheries value chain in Zambia can then be leveraged to achieve sustainable development. In this regard, the existing policy framework enhances the potential for the sector to produce multiple spin-off developmental results such as poverty reduction, food security employment creation, technological development, employment creation through value addition, and industrialization.

Coupled with these spin-off effects is the goal of increasing the capacity for the fisheries sector to generate sustained economic growth and diversification driven by technological development;

improvement of technical knowledge and know-how; together with infrastructural development at every stage of the value chain. All this is achieved by providing an enabling environment that is favorable to large, medium, and small scale actors within the value chain.

While all these imperatives are pursued special regulations and initiatives have been enshrined to protect the ecological viability of natural marine resources from permanent degradation and/or depletion. This is done on the understanding that the whole value chain would collapse if the primary resource- Fish- becomes severely reduced in number, or severely diminished in quality. Hence protecting the biological viability of fish and its ecosystem is a core requirement in maintaining the long-term viability of existing fish value chains.

4.2.2 Feasibility Assessment of Fisheries Policies

This section scrutinizes the content of the individual policies to determine if they contain the essential components required for policy success. This assessment considered four main policy elements namely: The General Structural of Fisheries Policies; Policy Co-ordination and Development; Evidence-Based Analysis and Implementation Elements. Each Policy element was assessed using a series of criteria designated as "Policy Aspects". Insights for this assessment were drawn through detailed scrutiny of policy documents as well as from insights ventured by experts in the fisheries sector including policy analysts and programme implementers as well as monitoring and evaluation practitioners familiar with the indicated programmes. The results are summarized in Tables 1-4. The assessment ratings are as follows:

- **YES**-policy aspect is clearly defined and fully actualized
- **NO**-policy aspect is not identifiable
- **MIXED RESULT**-Policy aspect not clearly defined and/or partially actualized.

a. CONSISTENCY, CLARITY AND TRANSPARENCY OF POLICIES IN THE FISHERIES SECTOR

Table 11: General structural and content features of policies for the fisheries sector

POLICY ASPECT	NAIP	NAP 2013	SNAP	R-6NDP	7NDP	VISION 2030

1. Clearly Defined and Consistent Policy Framework	**YES**	**YES**	**YES**	**YES**	**YES**	**YES**
2. Transparency of the Policy-Making Process	**MIXED RESULTS**	**MIXED RESULTS**	**MIXED RESULTS**	**MIXED RESULTS**	**MIXED RESULTS**	**MIXED RESULTS**
3. Clear and Functional Legislative System	**MIXED RESULTS**	**MIXED RESULTS**	**MIXED RESULTS**	**MIXED RESULTS**	**MIXED RESULTS**	**MIXED RESULTS**
4. Clear Dispute Resolution Process	**N0**	**NO**	**NO**	**MIXED RESULTS**	**MIXED RESULTS**	**NO**
5. Clearly Defined Institutional Responsibilities	**YES**	**YES**	**YES**	**YES**	**YES**	**YES**

As indicated in Table 4 the policies reviewed had a clear and consistent policy framework. This entails that the documents used phrased objectives and conceptual terms, together with a logical progression of sections and subsections. Additionally, the policies were driven by an identifiable theory of change that showed how each aspect would contribute to the achievement of the overall goal and specific objectives.

This level of clarity and consistency meant that it was easier to translate the policies into tangible action plans and also to decipher feasible tools for measuring progress or evaluating success. Clarity also enhanced the capacity for different holders to possess a relatively uniform interpretation of the policy thereby minimizing disputes and also ensuring broad-based agreement on key priorities.

Concerning transparency of the policymaking process, to Key informants indicated that an incomplete consultation of key stakeholders within the fisheries sector during the formulation of all six policies under review. On one hand, the formulators consulted with legislators, donor

agencies, members of academia as well as members of civil society such as national farmers associations and cooperatives. However, there was insufficient involvement of small-scale actors in the fisheries sector such as rural-based fishermen and fish processors; small- scale, informal sector fish traders, and urban/rural based consumers. There was also a perception that the process was dominated by males with less inclusivity of women or women's groups.

This suggests that the formulation of the policies was not adequately inclusive. It was done in a top-down manner, driven by urban-based elites therefore lacking the input of rural, small-scale, and informal sector stakeholders. The policies were largely expert-driven rather than taking a comprehensive, multi-level participatory approach. Such limited participation in policy formulation induced challenges such as limited information on the policy content, limited understanding of policy intentions as well as sparse participation by excluded groups in the policy implementation process. It also reduced the capacity of excluded groups to identify the opportunities provided once the policies were implemented.

The study also revealed that there were mixed results with regards to a Clear and Functional Legislative System while legislative instruments were formulated there was a perception that they required several amendments to make them more functional. Respondents proposed amendments to legislation aimed at the following:

i. Revising key stipulations to bring them in line with the sustainable development agenda.
ii. To restructure institutional framework in a manner that promotes administrative, decentralization, community-based natural resource management, incorporation of e-governance, flexibility in decision-making hierarchies, and also to reflect the needs of climate-smart aquaculture.
iii. To enhance the enforcement powers and capabilities of regulators, judicial institutions, and security agencies concerning the protection, conservation, and management of marine resources.
iv. To maximize accountability and transparency in the management of the fisheries sector.
v. To harmonize local and national fisheries management systems with global marine management systems as presented under the sustainable development goal number 14.

The policy instruments under scrutiny did not possess comprehensive mechanisms for dispute resolution. Dispute resolution mechanisms were embedded within the legislative elements

supporting these policies. For this reason the there is a bias towards litigation and punitive measures. Alternative Dispute Resolution (ADR) mechanisms such as negotiation, mediation, and arbitration have not been fully enshrined in the policy instruments.

The use of litigation and punitive interventions, was detrimental in that it makes the process of conflict resolution to be slow, expensive, and more acrimonious than would be the case if more ADR mechanisms were incorporated. Having a bias towards litigation and punitive responses risks alienating disputants and may weaken their capacity to corporate in future fisheries development initiatives. It also makes the law enforcement process in the fisheries sector to be bloated and more expensive.

The policies under scrutiny were adjudged to possess well defined institutional responsibilities. In each policy, each institutional actor was identified and their role in decision making, policy implementation, law enforcement/regulation; research, monitoring and evaluation, and multi-stakeholder coordination were indicated (Refer to Section c below).

This clarity would enhance accountability and coordination of efforts. It would facilitate any future policy reform processes that may be required in eliminating contradiction of aims and duplication of efforts.

b. POLICY DEVELOPMENT, IMPLEMENTATION AND CO-ORDINATION ELEMENTS

Table 5: Policy Development and Co-Ordination Elements

POLICY ASPECT	NAIP	NAP 2013	SNAP	R-6NDP	7NDP	VISION 2030
1. Approved Investment Plan	**YES**	**YES**	**YES**	**YES**	**YES**	**YES**
2. Predictable Policy Agenda and Priorities Development	**MIXED RESULTS**	**MIXED RESULTS**	**MIXED RESULTS**	**MIXED RESULTS**	**MIXED RESULTS**	**MIXED RESULTS**
3. Functioning Coordination Process	**MIXED RESULTS**	**MIXED RESULTS**	**MIXED RESULTS**	**MIXED RESULTS**	**MIXED RESULTS**	**MIXED RESULTS**

4. Political Support and Approval	**YES**	**YES**	**YES**	**YES**	**YES**	**MIXED RESULTS**
5. Harmonious Continuity from Previous Policies	**YES**	**MIXED RESULTS**	**YES**	**MIXED RESULTS**	**YES**	**YES**

As indicated in Table 5, there is an approved investment plan for all the policy documents under review concerning the fisheries sector. Respondents argued that the National Agriculture Investment Plan (NAIP) serves as a final planning document that reflects how the objectives of the other five policies were implemented in the fisheries sector. It reflects the actual activities, timelines, and budgetary allocations dedicated to the realization of development objectives in the fisheries sector and narrows down what targets were achieved at the sub-sectorial level.

The study also found that mixed evidence on the existence of a predictable policy agenda and predictable priorities for development. Although policy intentions were indicated and even though the fisheries sector development was mentioned as a priority area, the budgetary allocation was relatively minor and the disbursement of funds was erratic.

This state of affairs resulted in delays in implementing relevant activities together with overruns in time and budgets. It also later on led to a failure to complete some policy targets such as technology development, disbursement of credit to aquaculture farmers, and the setting up of key infrastructure in the fisheries sector. Moreover, some activities were implemented haphazardly or incompletely due to failure to secure the resources budgeted. For instance, restocking exercises, enterprise development, and training programs manifested these incapacitations. There was a suggestion that despite being acknowledged as a priority area, the fisheries sector had a subsidiary status to crop production and terrestrial livestock sub-sectors. This was reflected in the fact that the fisheries programmes received a lower disbursement of funds than the latter two sectors. This state of affairs suggests that within the stated policies, fisheries were given a lower priority than the other agricultural development areas.

In assessing whether there was a functioning co-ordination process respondents the study also found intoned mixed results. In this regard though the policies allocated responsibilities to various actors, this did not translate into efficient co-ordination. Key informants attribute inefficiency to

factors such as duplication of efforts; the presence of extensive, tortious, and overlapping bureaucratic systems, and juxtapositioning of well-crafted policies over archaic administrative systems.

Coordination was further incapacitated by a discrepancy between the capacities of large and medium-scale fisheries enterprises and the small to micro-scale enterprises. The policies largely beneficial to large and medium scale enterprises and less so for small and micro-scale actors especially in the rural areas. The latter had less access to information on the policies and also less access to knowledge of the opportunities derive therein as well as how to leverage these opportunities.

It was also explained that most micro to small scale actors in the sectors manifested a high resistance to change. In this case, they did not fully understand the potential benefits of the policies and as such were reluctant to implement the new technical, technological, and operational behaviors that these policies required. They preferred to adhere to their status quo methods, knowledge, and operational orientations, most of which were based on indigenous traditional knowledge and in most cases less productive, innovative sustainable than those suggested under the new policies.

Micro-medium scale actors also had limited capacity to participate in policy implementation activities because the resources budgeted were largely appropriated by medium to large scale actors, with a smaller trickle down to them. Discrepancies in infrastructure development persisted with large to medium scale actors having a more developed infrastructural base than micro to small scale players.

Under the above-stated incapacitations and discrepancies, it was erroneous to adopt a "one size fits all" when it came to formulating and planning the policies. Rather there was a need to have disaggregated policies, with tailor-made priorities and implementation systems for large and medium scale actors and small/micro-scale actors respectively. Without this disaggregation, there have been unbalanced development results between urban to rural beneficiaries and; large/medium versus micro/small scale beneficiaries.

Additionally, despite the stated political approval and support associated with the policies, the operationalization of approved policies was not consistent with such approval. It was also

intimated that there was a conflict of interest between the political offices within the civil service and the purely technocratic arms of the civil service within the fisheries sector. The political actors (such as the ministers and their deputies; members of the legislature); had a partisan outlook on policies. This impaired the consistency in the way they carried out policies and also their level of political will in implementing these policies. For example, during election years such as 2015-16, public resources earmarked for fisheries programme were likely diverted to alternative projects deemed to have political capital such as the Farmer Input Support Programme (FISP) cattle restocking exercises, purchase of maize through the FRA, and so on.

This suggests that in terms of political support, the fisheries development aspects of the different policies had a lower political priority than other agricultural development areas.

It can further be opined while except the National Agriculture Policy (NAP) and the Revised Sixth National Plan (R-6NDP), the policies under review had a harmonious continuity from previous policies. It can be suggested that the influence of partisan political interests within public bodies may have distorted the implementation of policy intents. For example, in 2013, the NAP and R-6NDP were recrafted to align with the manifesto of the new ruling party. The process of policy realignment paused some active projects and also interrupted some achievements of the previous policy, just when they were at an infant stage of implementation.

c. EVIDENCE-BASED ANALYSIS

Table 12: Inclusion of Evidence-Based Analysis in Fisheries Policies

POLICY ASPECT	NAIP	NAP 2013	SNAP	R-6NDP	7NDP	VISION 2030
1. Economic and Financial Analysis Completed as a Component of Planning	**YES**	**YES**	**YES**	**YES**	**YES**	**YES**
2. Performance Monitoring Measures and Targets Developed	**YES**	**YES**	**YES**	**YES**	**YES**	**YES**

3. Quality Data is available for Policy Making	**MIXED RESULTS**	**MIXED RESULTS**	**MIXED RESULTS**	**MIXED RESULTS**	**MIXED RESULTS**	**MIXED RESULTS**
4. Independent Analysis Capacity Exists	**YES**	**YES**	**YES**	**YES**	**YES**	**YES**

The researcher also assessed if the policies contained Evidence-Based Analysis. The first policy aspect was the evidence of Economic and Financial Analysis. Economic Analyses considered the macroeconomic fundamentals at a global and national sphere respectively. For all the policies under review, the analyses delineated how global economic trends impacted the domestic trends which in turn influenced the capacity to implement the sectorial policies in fisheries development.

The general pattern was that the years 2013-15 were eras of macroeconomic growth and relative stability as the world was recovering from the global economic recession of 2008-10; and also as Zambia was experiencing growth driven by increased investment flows, relative debt sustainability with the injection of new capital from three sovereign bonds secured by the new government.

Under these conditions, the government had a fairly large supply of capital, which increased its latitude to formulate and implement comprehensive, multi-sectoral, and far-reaching policies in the fisheries sector. Spurred on by a wide resource base combined with a strong political will to achieve development (there was a new ruling party, whose recent victory meant they still had strong political will and momentum to implement new policies); there was timely and adequate disbursement of funds to ensure policy success.

The periods 2015-20 were periods of economic crises at a global and national stage arising from: Climate-Related Distortions, the US-China Trade War and the Covid-19 pandemic. These headwinds were reinforced by the over-ambitious drive to borrow, which triggered an escalating public debt burden (CUTS, 2020). Of the three sources of crisis, perhaps the most disruptive was the Covid-19 pandemic as it led to a near-total shutdown of the global and national economy and the temporary suspension of major developmental programmes, including those in the fisheries sector. The crises moreover increased the level of public debt in addition to the diversion of budgeted resources to Covid-19 crisis management. These economic and financial disturbances diminished the scope and viability of government fisheries development ventures (AfDB, 2020).

The newly formulated Economic Recovery Programme of 2020-23 represents an attempt to provide fiscal adjustments and stimulus interventions that would create debt sustainability, mobilize additional resources (for example via an IMF bail-out package and a widened revenue base) while also integrating several growth sectors into a concerted drive for economic recovery. The fisheries sector has been identified as one of the priority areas for driving this recovery under this programme (MoF/MoNP, 2020).

The assessment also found that all policies had measurable qualitative and quantitative Performance Measurement Indicators. The inclusion of these indicators reflected not just a desire on the planners to track progress, but also a drive towards providing empirically verifiable indices for accountability. This inbuilt accountability exists in that it would become possible to establish a link between resource inputs and their corresponding outputs, making it possible to detect if resources are being used efficiently and also if all resources were used for their earmarked purpose. It was also consistent with the principle of Performance-Based Management- an approach to policy implementation that sought to maximize outputs, outcomes, and impacts per unit of resource inputs. The indicators were a transparent means of showing if the policies were producing tangible developmental results.

The presence of measurable indicators was also an attempt to apply the principle of Managing for Impact. This is a flexible policy management principle, where indicators are used as early detection systems for unforeseen opportunities and threats. Such early detection would then produce reactive operational changes in the way the policies are implemented and may also trigger changes in the higher strategic objectives and plans of the policies.

If efficiently implemented, this would result in a highly responsive policy implementation process. However, a cardinal requirement is that there must be a sensitive array of indicators that can be consistently monitored over shorter time intervals-perhaps on a monthly or quarterly basis. The indicators would also have to be disaggregated to reflect changes in specific parameters such as gender disaggregation, rural-urban disaggregation; regional disaggregation, and so on. The fisheries policies under review lacked these fundamentals. Therefore, they were measurable, but not sufficiently sensitive. This would impair the responsiveness of policy implementation. This weakness was more prominent in the vision 2030 and sectorial policies for the agricultural sector.

By contrast, the national development plans and the sub-sectorial NAIP had a more sensitive array of indicators and thus had the potential to be more responsive.

Concerning the Availability of Quality Data, for implementing a feasible M&E regime, it was adjudged that for all the policies, there were Mixed Results. This was based on the inference that the country did not possess sufficient capabilities to initiate a frequent monitoring regimen. Record management systems at the sub-sectorial and sub-regional levels were also not elaborate enough nor were they sufficiently updated. Furthermore, there was a massive information gap on the measurements for the micro-to small scale sectors as well as the rural sectors because activities at these levels occurred in the informal sectors of the value chains. Also although the country possessed trained professionals to conduct data collection and analysis, the numbers of deployed this personnel qualified to conduct these tasks were below critical mass.

This shortcoming in the quality of data risked weakening the effectiveness of monitoring and evaluation systems.

All the policies assessed in this study showed a clear aspect of independent analysis. To this end, they deployed technical expertise provided by strategic partners from the donor community, independent think tanks based in Zambia and abroad, and also independent consultants operating in the private sector. By combining the insights from external analysts with those of technocrats in the civil service, the policies displayed a more balanced analytical regime. It was balanced in the sense that analysts from public institutions had the advantage of a first-hand understanding of the internal workings of the civil service in Zambia.

Yet these internal analysts faced the disadvantage of not being thoroughly objective because of factors such as political interference and bureaucratic bottlenecks in information they were permitted to openly share in the policy documents (Zambia has not yet enacted workable Freedom of Information/Access to Information laws). External analysts were possibly more capacitated to remedy the shortcomings faced by internal analysts. As such their inputs counterbalanced and enhanced the objectivity of the policy documents.

4.3 The Key Actors Involved in Fish Value Chain in Lusaka District and their Roles

4.3.1 Actors in the Fish Value Chain in Lusaka

The Fisheries Value Chain consists of a diverse collection of actors whose relationships are interlinked and inter-dependent. Table 7 shows the different categories of actors and their respective roles.

Table 13: Key Actors in the Fisheries Value Chain in Lusaka

CATEGORY OF STAKEHOLDER	INSTITUTIONS	ROLES OF STAKEHOLDERS IN FISHERIES VALUE CHAIN					
		POLICY MAKING AND STRATEGIC PLANNING	REGULATION AND LAW ENFORCEMENT	RESEARCH AND TECHNICAL SUPPORT	FINANCE	PRODUCTION/ EXTRACTION; PROCESSING; COMMERCE	END CONSUMER
GOVERNMENT OF THE REPUBLIC OF ZAMBIA	1) Ministry of Agriculture/ 2) Fisheries and Livestock	X	X	X	X		
	3) Ministry of Finance				X		
	4) Ministry of National Planning	X					
	5) Ministry of Commerce Trade and Industry	X	X				
	6) Ministry of Local Government and Housing		X				

DONOR AGENCIES	**1) Multilateral Agencies e.g. FAO, WFP, WB; AfDB etc.**			**X**	**X**		
	2) Bilateral donor Agencies e.g. USAID; JICA; DFID; GTZ etc.			X	X		
PRIVATE SECTOR ENTERPRISES	**1) <u>Formal Private Sector</u>** ➢ **Banks and MFIs** ➢ **Large/Medium Scale Fish Production and Extraction Enterprises** ➢ **Large/Medium Scale Input suppliers** ➢ **Large/Medium Scale Fish processing Industries** ➢ **Transporters and Distributors**			X	X	X	

	➢ **Wholesale and Retail Enterprises**						
	2) <u>Informal Private Sector</u> ➢ **Micro/Small Scale Fishermen and Fish Farmers and Producers.** ➢ **Micro/Small Scale Fish Processors** ➢ **Micro level Fish Venders.**					X	
CIVIL SOCIETY	**Farmers Associations e.g. ZNFU,**	X		X	X	X	
	Traditional Authorities	X	X	X			
	Marketers Associations	X	X	X		X	
	Research Organizations e.g	X		X			

	CTPD, PMRC, ZIPAR, IAPRI						
CONSUMERS	**Lusaka Residents**						X
	Consumers Resident Outside Lusaka						X

KEY: X-institution plays the role indicated

Table 7 traces the stakeholder involved in the fish Value chains and the roles they play. It indicates that the roles of government institutions are policy setting and strategic planning; regulation and law enforcement, provision of financing, and also research and technical support.

Donor agencies are largely involved in the provision of finance and also in providing technical assistance to the fisheries sector.

The study found that the role of the formal private sector is to conduct research and provide technical services and also to provide finance. They are also leading players in commercial activities. Depending on their special designation, these organizations can be involved in fish extraction from natural water bodies or the production of fish in large to medium scale aquaculture. They additionally, conduct fish processing activities (freezing, drying, smoking, canning, infusion of additives, and so on); transportation and distribution as well as wholesale and retail activities, all of which are done on a strictly commercial basis. The fish is sold through supply agreements with supermarkets and designated shops. At times the fish companies will have an integrated value chain that incorporates every step from the production/extraction phase right up to the retail stage with their shops and warehouses to sell their product. Formal private sector enterprises tend to be large to medium-scale with a lower proportion operating on a small scale.

As explained by key informants, the informal private sector actors operate on a small (5-10) people) to micro-scale (1-5 persons). These largely engage in fish extraction from water bodies, micro-scale aquaculture (1-3 fish ponds with an annual catch of 0.5-1 tonnes). Their processing activity largely includes gutting and cleaning, sun-drying, salting, and smoking. Though the fish is mostly sold without packaging some entrepreneurs would package and brand their fish using plastic or reed and based packaging. The fish may then be made available to consumers at farm gate, at markets/street vending, or through a mobile sales strategy where individuals advertise fish especially on social media, and deliver the order directly to the end consumer.

Civil Society also had a function to play in the value chain. The farmers associations perform the functions of sub-sectorial policy setting and planning in coordination with the line government ministries. They also provide technical support and finance in coordination with government and donor agencies. These organizations additionally have commercial ventures at different stages of the food value chain.

Traditional authorities are key partners with the government in community-based natural resource management including the management of fisheries activities in rural areas. In this regard, they are the custodians of traditional fishing knowledge and customs and set out customary laws to govern how fish resources are used by their subjects. This way they perform the function of regulation and law enforcement. As custodians of traditional knowledge in fishing they operate through various traditional institutions like the family, initiation ceremonies, or fishing guilds provide informal technical services to their subjects.

Research organizations have a primary function of generating evidence-based analysis and overall statistics that will inform policy decision making and also facilitate the process of monitoring and evaluation of results. In so doing they create an information framework that results in well-targeted, responsive, and adaptable policy initiatives.

End consumers are the ultimate beneficiaries of all policy initiatives in the fisheries sector. These stakeholders create demand for fisheries products and this demand is what will determine the business strategies of commercial entities and the policy priorities set out in the fisheries sector. Consumers can also form a feedback loop with policymakers by providing information on the effectiveness of the policies, the efficiency of the value chain coupled with the possible changes and innovation that are needed in the sector in terms of new policy initiatives, new regulatory elements, new technological requirements together with new marine products/ or product presentations.

4.3.2 Stakeholder Analysis for Actors in the Fish Value Chain

The researcher classified the key actors of the fisheries value chain into four quadrants showing Level of Influence and Level of Need/Interest as shown in Table 8

Table 14: Stakeholder Matrix of Key Actors in the Fisheries Value Chain

1. HIGH INFLUENCE; LOW NEED/INTEREST	2. HIGH INFLUENCE; HIGH NEED/INTEREST
• Ministry of Agriculture • Fisheries and Livestock • Ministry of Finance • Ministry of National Planning • Ministry of Local Government and Housing • Ministry of Commerce Trade and Industry • Multilateral Agencies e.g. FAO, WFP, WB; AfDB etc. • Bilateral donor Agencies e.g. USAID; JICA; DFID; FINNIDA, GTZ etc. • Research Organizations e.g. CTPD, PMRC, ZIPAR, IAPRI	• Banks and MFIs • Large/Medium Scale Fish Production and Extraction Enterprises • Large/Medium Scale Fish processing Industries • Large/Medium Scale Input Suppliers • Transporters and Distributors • Wholesale and Retail Enterprises • Farmers Associations e.g. ZNFU, National Aquaculture Association of Zambia (NAAZ)
3. LOW INFLUENCE; LOW NEED/INTEREST	4. LOW INFLUENCE; HIGH NEED/INTEREST
	• Small- scale/ Micro level Fish farmers/Fishermen • Micro level Fish Venders. • End Consumers (Residents from Lusaka and from Outside Lusaka) • Traditional Authorities • Marketers Associations

Source: (The Researcher, 2021)

Table 8 represents the classification of actors in terms of their Influence collated with the Level of Need/Interest. As shown in the figure government, donor agencies, and research organizations have High Influence and Low Interest. The Private Sector, Farmers Associations, and End Consumers have High Influence and High Interest/Need. Traditional Authorities and Marketers Associations have Low Influence and High Interest/Need.

Influence denotes the power that an actor has to shape the process of policy formulation and decision making together with the business and economic decisions made by actors in the value chain. Interest Need represents the degree of benefit that actors enjoy as a result of policy, economic, and business decisions made in the fish value chain. The benefits can manifest when policies, business, and economic decisions meet the particular needs of the actor such as food security, income generation, and employment creation, and so on. Alternatively, the benefit can accrue in form of new powers and mandates that a local or sub-sectorial actor acquires as a result of decisions made by higher-level institutions at the national and sectorial level.

The criteria used to place the stake holders in the different quadrants is presented in Table 7 below. The criteria are derived from documentary analysis and the opinions of key informants interviewed by the researcher.

Table 15: Interpretation of Stakeholder Matrix

Classification	**Classification Criteria**
HIGH INFLUENCE	• Actor is a key decision maker in policy and legislation • Actor is frequently consulted and their interests/submissions regularly taken in to account in policy formulation and regulation • Actor is the primary planner for all policies and programmes in the sector. • Actor is major financier of the policy making process and policy implementation • Actor is the major regulator law enforcement agent • Actor has authority to overrule all others in matters of policy, legislation, regulation and law enforcement.

LOW INFLUENCE	• Actor is sparingly consulted on matters of policy and legislation. • Actor sparingly engaged and involved in policy and programme planning and implementation. • Actor is consulted but their submissions are sparingly taken in to account in policy, legislation, planning and implementation. • Actor has little or no law enforcement powers
HIGH NEED/INTEREST	• Actor is the ultimate beneficiary of policy, legislation and programmes in the fisheries sector. • Actor is the most vulnerable entity in the sector in terms of access to knowledge, resources; in terms of the low technical capabilities and in terms of the very small scale of their commercial operations. • The Actor is more deeply affected than others in the problems that persist in the sector.
LOW NEED/INTEREST	• Actor is only benefits in an indirect manner and/or benefits to the least degree when compared to other actors in the fisheries sector. • Actor is a third party observer who derives little or no observable benefit from policies, legislation or programmes in the fisheries sector.

Actors in the fish-value chains have varying degrees of influence and importance. As indicated in Table 6. The actors fit into three different quadrants.

Actors are in Quadrant 1 Government Agencies/Ministries, and donor agencies. These have high decision- making power but relatively lower interest and need when compared to Quadrant 2 and 4. For these agencies to have the most impact in the value chain there is a need for them to have a strong political will to achieve reform and systemic change in line with the Sustainable

Development goals. They also need to spearhead stakeholder engagement initiatives aimed at enlisting the support and participation of all the actors in Quadrants 2 and 4.

Quadrant 2 stakeholders have High Influence and Interest. Can be considered as the most influential actors within the value chain. This quadrant largely consists of Large Scale Private Sector Commercial Actors, National Level Civil Society. These institutions are the prime movers of economic and market fundamentals in the value chain. The fish value chain must be governed by a unified and consistent strategic direction and a harmonious business environment that has a low level of vulnerability to market failure. For this to happen, institutions in Quadrants 1 and 2 must have clear lines of communication, established channels of alternative (out of court) dispute resolution, and strong systems of multi-sectorial cooperation.

Stakeholders in Quadrant 4 have low influence, but low power. Though they have the greatest need and although they have strong vested interests in the issues affecting the fisheries value chain, they have been largely excluded from strategic policy formulation and have relatively low influence in the formulation of regulation existing in the sector. They also may be the most vulnerable to the effects of market failure such as asymmetric access to information and asymmetric access to market opportunities. They are also the most vulnerable to exploitation by more privileged actors manifesting as unfair price setting, price manipulation (such as artificial shortages by suppliers or sellers), and sub-standard product quality. These actors may need to enhance their influence through the formation of coalitions with other actors within this quadrant and with actors in Quadrant 2.

4.4 Opportunities and Challenges for Small-Scale Farmers Involved in Fish Value Chain in Lusaka District

4.4.1 Challenges Faced by Small Scale Fish Farmers

a. Barriers Faced by Small Holder Fish Farmers in Securing Land Ownership

Challenges related to land ownership or access a primarily encountered by small scale aquaculture enterprises whose production activities are done in-land or on the banks of water bodies. Fishermen who extract their produce from natural water bodies; as well as farmers engaged in fixed cage aquaculture within the natural water bodies are affected only to a minimal extent. Land based

aquaculture enterprises incur multiple challenges related to acquiring land and obtaining security of tenure as explained below**.**

According to key informants from the Lusaka City Council, the rapid increase in population in Lusaka (estimated at 10-15, 000 additional persons annually) coupled with the expansion of economic activities in the district, there is an acute scarcity of land. As explained by these informants small scale fish farmers have to compete with residential developers, commercial developers, and mining firms. This has led to an increase in land disputes. The high demand for land has also led to an escalation in land prices such that the cost of land is unaffordable for most farmers. Within the boundaries of the district, commercial land prices suitable for small scale aquaculture can range from a minimum of ZMK 20, 000- 150, 000 in the water rich catchment areas such as those in Lusaka West, in the East and South East.

An official representing ZNFU explained the problem as follows:

> *"…there is no more unused or un-owned land within the city of Lusaka. In spite of this the demand for land is on the rise. This scenario propagates a scramble for land where only the most aggressive are able to secure it. The price of land in the city is also high such that those who feel unable to pay for it resort to violence as a means of grabbing land by force. Political cadres, speculators, conmen take advantage of this scramble for land by posing as sellers of land, thugs for hire or as peddlers of influence who can help a client to secure land with no questions asked. The scarcity of land in the city has created tense emotions ranging from frustration, anger, desperation, greed or fear all of which may increase the likelihood of conflict."*

Farmers lack sufficient information on how much land, where that land is found, and the market price for the land. One farmer declared that *"…only those with political connections have such knowledge on what land is available and where to access it. Those who are not in politics or belong to the opposition are barred from land ownership***".**

An interview with an official from the MLNR revealed that the ministry has not conducted a full land audit in the five years prior to the study (2015-2021). Therefore, the information on the current land use patterns, un-utilized land, under-utilized land or the acreage of land available for agricultural activities within the city of Lusaka has not been up-dated since 2010, due to lack or

resources to conduct the relevant surveys and also due to limited availability of modern technical equipment for conducting an accurate and detailed land audit (such as lack of satellite access for tracking vegetation cover, hydrological mapping and infrastructural mapping for the city of Lusaka).

Additionally, the respondent stated that the city does not possess a mature real estate/land demand to supply tracking system that could be useful in generating real time land pricing signals. Such a system would be vital for producing a rational and more uniform land trading framework, whose information could be available to all players including small scale fish farmers.

Farmers also lack knowledge on the procedure for buying and securing ownership of land especially land offered by the council and Ministry of Land. As stated by one female small-scale farmer:

> *"…I did not go far in school, usually only those who have been to school know how to enter those offices and to get land…those* people [officials at the LCC and MLNR] *just consider those with money and those are the ones they will help with the process of getting land."*

This view was further corroborated by another respondent, a prospective fish farmer who declared:

> *"… the process of getting land is long and very confusing, if you don't know anybody* [officials at MLNR or the LCC] … *you will be applying forever without success… I've been pushing for over five years, without success…one time they told me to reapply as they had misplaced my application…"*

Another fish farmer based in Lusaka West narrated as follows:

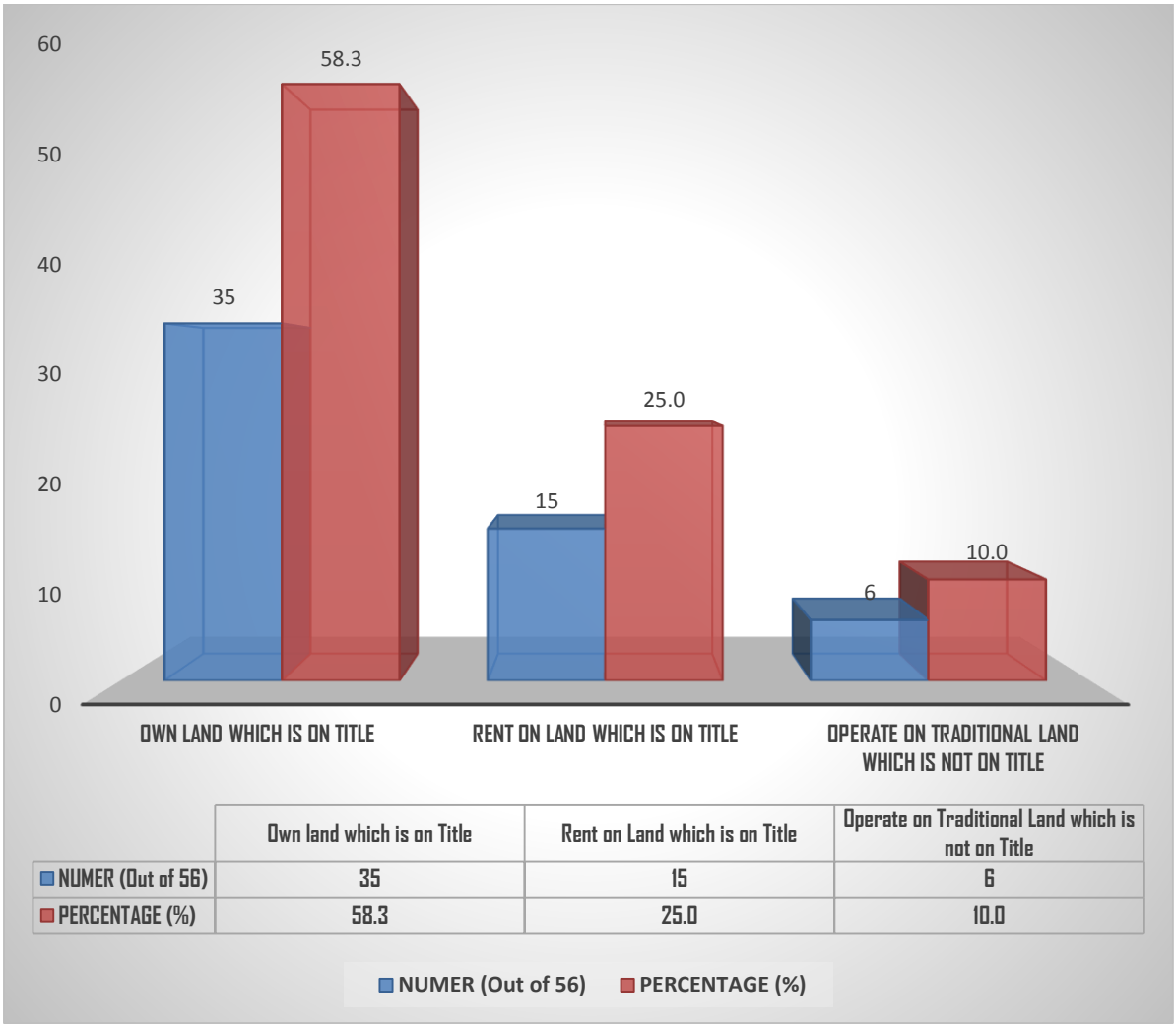
> *"…I bought land, it took two years to obtain the title deed … somebody else claimed they had bought the same land and had documents from the ministry…, the matter went to court… the process of verifying was very time consuming…."*

The above responses suggest that tedious bureaucratic procedures and delays make it difficult for small scale fish farmers to obtain land. The cost of processing land applications is also unaffordable for low income small scale fish farmers. This is compounded by the poor record-keeping at the

council and ministry of land which predicates multiple conflicts over land ownership as well as allocation of one piece of land to many different owners.

The researcher further inquired on the challenges faced by small-scale fish farmers with respect to land ownership and security of tenure. Figure 3 summarizes the findings in this regard.

Figure 8: Land Ownership Status among Fish Farmers in the Sample



	Own land which is on Title	Rent on Land which is on Title	Operate on Traditional Land which is not on Title
NUMER (Out of 56)	35	15	6
PERCENTAGE (%)	58.3	25.0	10.0

Figure 3 depicts that 58.3% of small-scale fish farmers in the sample owned land which was on title; 25.0 % rented on land which was on title and 10.0 % operated on traditional land which was not on title.

Fish farmers who operated on rented land did so on land where the infrastructure was already in place, but whose owners made a decision to lease it out to prospective fish farmers. The land was leased out at an estimated cost of ZMK 3000 – 10 000 per month.

With respect to farmers operating on traditional land, a key informant from the ZNFU indicated that fish farmers working on traditional land have insecure tenure as there are no title deeds. As such "*land can be grabbed from them anytime without compensation".* One farmer in the sample corroborated this in the following quote:

> *"…I lost my business when the land was given to a [investor of foreign origin] without our knowledge…as poor people we could not fight back"*

Another farmer narrated:

> *"…after my husband died…his family took over the land and I was left with nowhere to go…I stopped farming…they accused me of being responsible for my husband's death…"*

A similar sentiment was also shared by a third farmer as follows:

"…the [traditional authorities] *did not consult us before they gave our land over to someone who wanted to build houses for the rich people in Lusaka…we lost our land and the money they gave us has not been enough for me to start my fish business…."*

The key informant also highlighted the exclusion of some women in the rural parts of Lusaka from land ownership declaring that:

> *"…there are many women fish farmers on traditional who do not own land in their own right. Most of the land is owned by men, to whom they are related by marriage or by fraternal relation-such as a brother, cousin or uncle…in this regard such women are squatters and do not own the land in their own right…they can be disposed at any time…they are land insecure because they can be disposed of the land that they farm from also any ponds or other fixed assets they may have put up on the said land…this could happen to them without sufficient legal cover, because patriarchal traditions give women lesser right to possess productive assets…power to own productive assets is biasedly enshrined in men".*

A fourth farmer intoned that:

> *"…sometimes political party cadres take advantage of vulnerable farmers and grab land from them. This is especially rampant during election periods".*

The above statements imply that due to lack of title, small fish farmers lack any legal defense when their land is invaded by encroachers. It was also explained by a key informant from ZNFU that insecure tenure has made it difficult for the land to be used as collateral should they seek credit from banks or micro lenders.

b. Challenges in Accessing Markets

Fish farmers also face challenges in transporting their produce from the farm to markets in the central business district where it can be sold to fish traders and also sold directly to consumers. For farmers in the most remote parts of the district, there was a concern about the high cost of transport and poor state of overhead infrastructure.

One farmer indicated that lack vehicles for transporting fish produce and the high cost of hiring transport makes it difficult to transport fish from the peripheral part of Lusaka *"…to the main markets in the town center such as City Market and Soweto Market…"*.

A farmer who owns his own vehicle complained that

> *"…the cost of fuel means it is expensive to transport fish from the farm to markets…. Due to bad roads, my vehicle means I have to spend large amounts of money on repairs and spare parts and many times the vehicle becomes grounded, thereby increasing the difficulty in transporting my fish to markets..."*

The third respondent also added that:

> *"…during the rainy season …feeder roads [in a named area] are dilapidated and almost impassable for most vehicles and transporters are reluctant to reach such areas or charge high fees".*

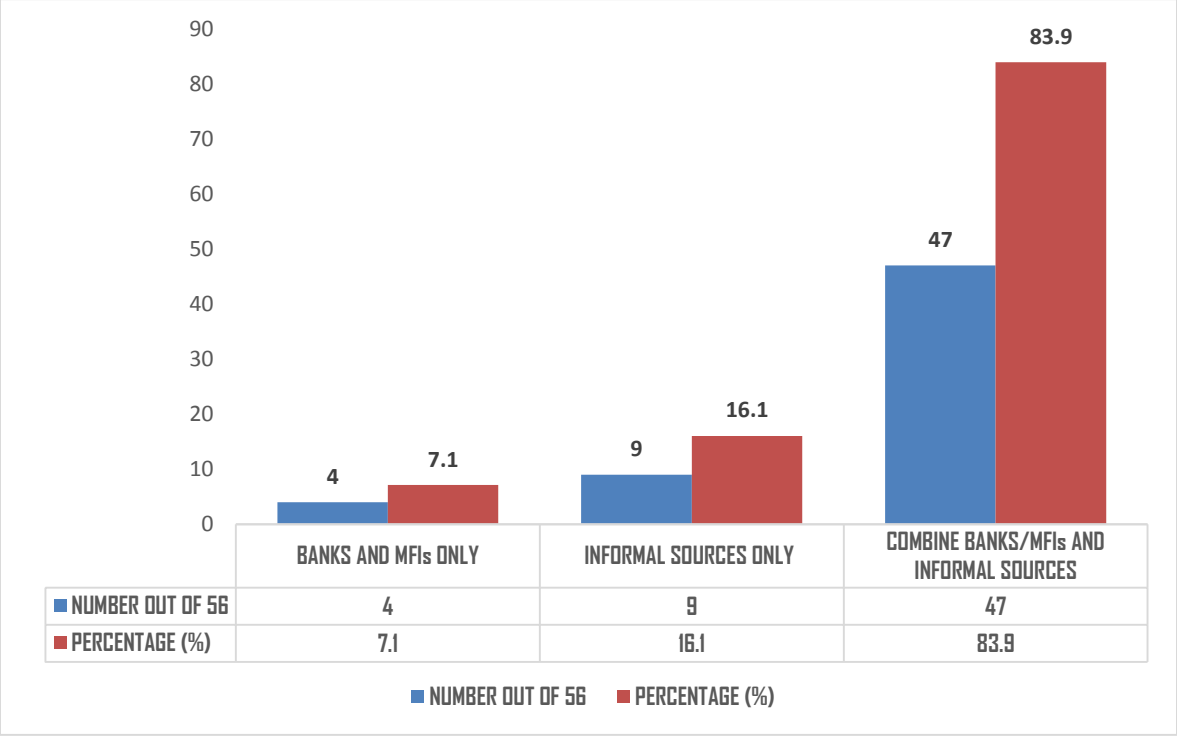
There was also a responded who argued that:

> *"... a critical shortage of facilities including , storage depots, ice production plants, refrigerated trucks and refrigeration facilities coupled with unreliable power supply...has in some cases led to spoilage of fish before it is sold...resulting in large losses..."*

c. Challenges in Obtaining Credit and Financial Services

The investigation explored if availability of diverse sources of Microcredit was an important determinant in farmers' access to microcredit. To start with the researcher asked farmers to state the most frequent sources from which they acquired credit. The results are shown in Figure 5

Figure 9: Sources of Microcredit for Small Scale Fish Farmers



As illustrated in Figure 4 about 7.1 % of respondents stated that Formal Banks and MFIs were their most frequently uses source of Microcredit. Approximately 16.1 % said they obtained most of their microcredit from informal sources and used Banks and MFIs sparingly. About 83.9 % of respondents declared that most of their credit was accessed from both Formal MFIs as well as

Informal sources. The credit facilities are often sources at different stages of the business cycle. The first capital-intensive stage was the start up stage as explained by the following statements:

RESPONDENT	STATEMENT
Resp. # 21:	*"…to start up my business, I obtained a loan through the CEEF and I was given ZMK 80, 000. This money helped me because it had an idea, but did not have the capital…."*
Resp. # 23:	*"…the time I wanted to start my business is the time when money was mostly required, after that most of the money for business comes from the money I make in the season before…."*
Resp. # 53	*"…at the beginning* [of the business venture] *I had to borrow money from friends, relatives and* [informal money lenders] *and also sold some of my livestock…."*

The credit was also most required when the business faced a crisis as narrated here after:

RESPONDENT	STATEMENT
Resp. # 33	*"…for a reason that I don't know up to now, my fish died…I had spent over ZMK 6, 000 to by the fingerlings , but they died…I made a big loss…so I got a small loan from Unity finance to start all over again…."*

Resp. # 47	*"…there was a drought in the area in 2018/19, my ponds dried up….if it wasn't for the loan I was given from CEEC I don't think I was going to recover…."*
Resp. # 56	*"…thieves stole my pump, and the pipes…plus some nets…. I was forced to borrow money to replace them…."*

The respondents were asked to State the main challenges they faced in accessing credit. The numbers and percentage of farmers who chose a given set of challenges is shown below:

Figure 10: Challenges Precluding Farmers from Obtaining Credit

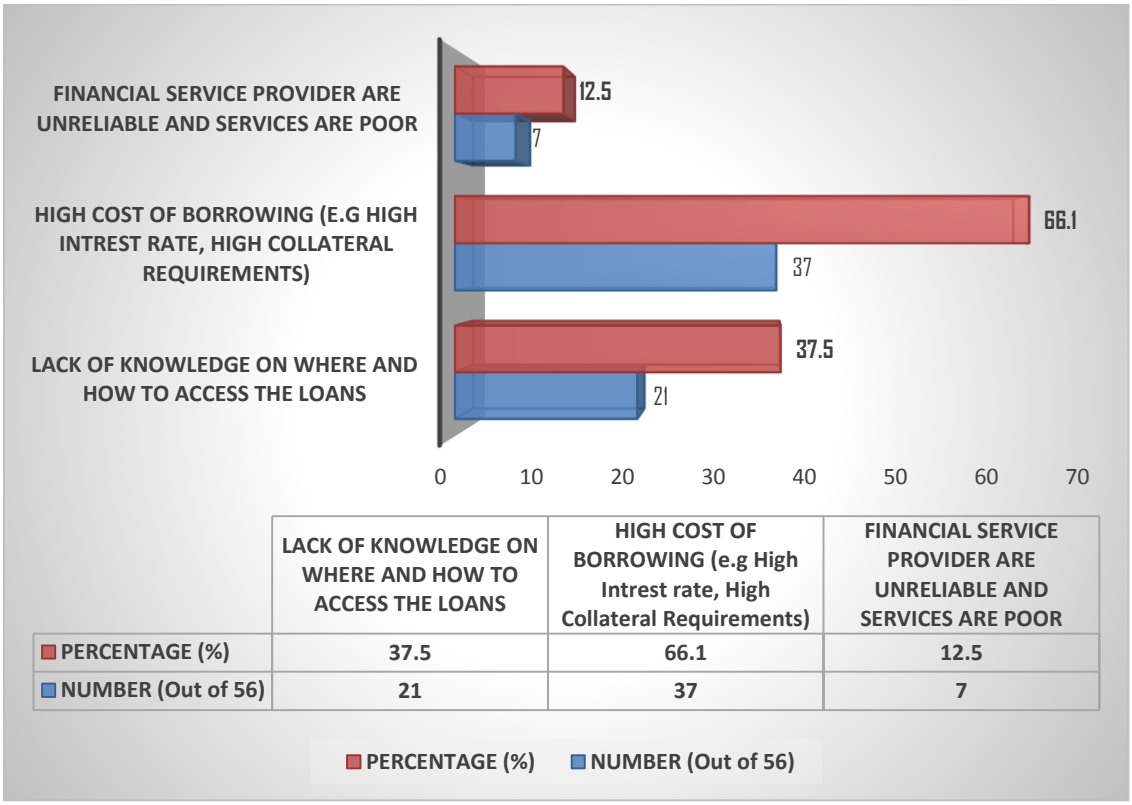


Figure 5 shows the challenges that farmers stated with respect to their capacity to afford to credit, their perceptions on the nature of the financial services had received, their willingness to seek out credit and the availability of knowledge on credit providers.

Figure 6 shows that 37.5 % indicated lack of knowledge on where and how to access business loans as a barrier to their ability to seek out and access credit. Some of the opinions in this regard are given hereafter:

RESPONDENT	STATEMENT
Resp. # 7	*"…the government or banks or credit companies that offer small loans for business are not open with respect to how much they are willing to give out, the payment terms and also the procedure for getting the loans…people like us who are not cadres or not well connected a kept form such information…."*
Resp. # 19	*"… I need more information on how to get the capital especially from government…the problem is that they mostly give cadres."*
Resp. # 37	*"…if I had known earlier about the government loans…I would not have made the mistake of getting money from* [informal lenders]."

About 66.7 % of respondents alluded to the high cost of borrowing as a barriers to their willingness and capacity to acquire loans. Selected responses to this effect are depicted hereafter:

RESPONDENT	STATEMENT
Resp. # 9	*"…borrowing from banks is difficult because they demand collateral and interest rates nowadays keep increasing, placing us as borrowers in a difficult position."*
Resp. # 23	"… [Informal lenders] *charge like thieves, but they are our only option because banks have hard conditions for us to borrow from business."*
Resp. # 34	*"… my business does not yet have the* [capacity] to *meet the collateral demands of the banks and some micro lenders…the assets I have cannot cover what is demanded by them…"*
Resp. # 49	*"…every year the Zambian kwacha has been in crisis…when they increase interest rates it becomes difficult to pay back our loans"*
Resp. 52	*"… the inability to repay loans has also led to the loss of assets as they are grabbed by debtors especially that owed to shylocks and MFIs".*

About 12.5 % indicated that they believe the credit and financial services offered by micro-lenders are poor. This entails a low level of satisfaction and confidence in the capacity of MFIs to provide the required capital for small-scale aquaculture as cited in the farmers quoted hereafter:

RESPONDENT	STATEMENT
Resp. # 9	"… [a named agriculture corporative] *took our names and claimed they had received funding from* [a named donor agency] *to provide loans for agriculture. The corporative was formed for the purpose of providing money for* [small scale farming activities]…*but they always tell us to register year after year, without delivering any loans…we are forced to get our money elsewhere"*
Resp. # 23	*"…these banks do not pay attention to* [low income farmers]…*processing our loans never really happens despite applying…it seems they do not considers the need that small scale farmers have for capital."*
Resp. # 33	*"…we applied for loans to* [a named micro-lender], *they only used our application fees to enrich themselves, but the money never came…I think they are thieves".*
Resp. # 47	*"...my application forms when missing, and when the money finally came, it was too, late, I postponed the project to the next year."*

Resp. # 50	"*…my project is big, I require a minimum of ZMK 100,000…I don't think there is a single* [Microfinance institution] *that can provide me that money in the shortest possible time, especially in this time of Covid….if they even provide* [the credit] *the process takes too long…."*

4.4.2 Opportunities for Small Holders in the Fisheries Value Chain

The researcher inquired from small-scale fish farmers, fishermen, and traders if they were aware of the opportunities available to them for growth and business development. The opportunities that they were able to identify are presented in Figure 6.

Figure 11: Opportunities Identified by Small-scale Fish Farmers in Lusaka's Fish- Value Chain

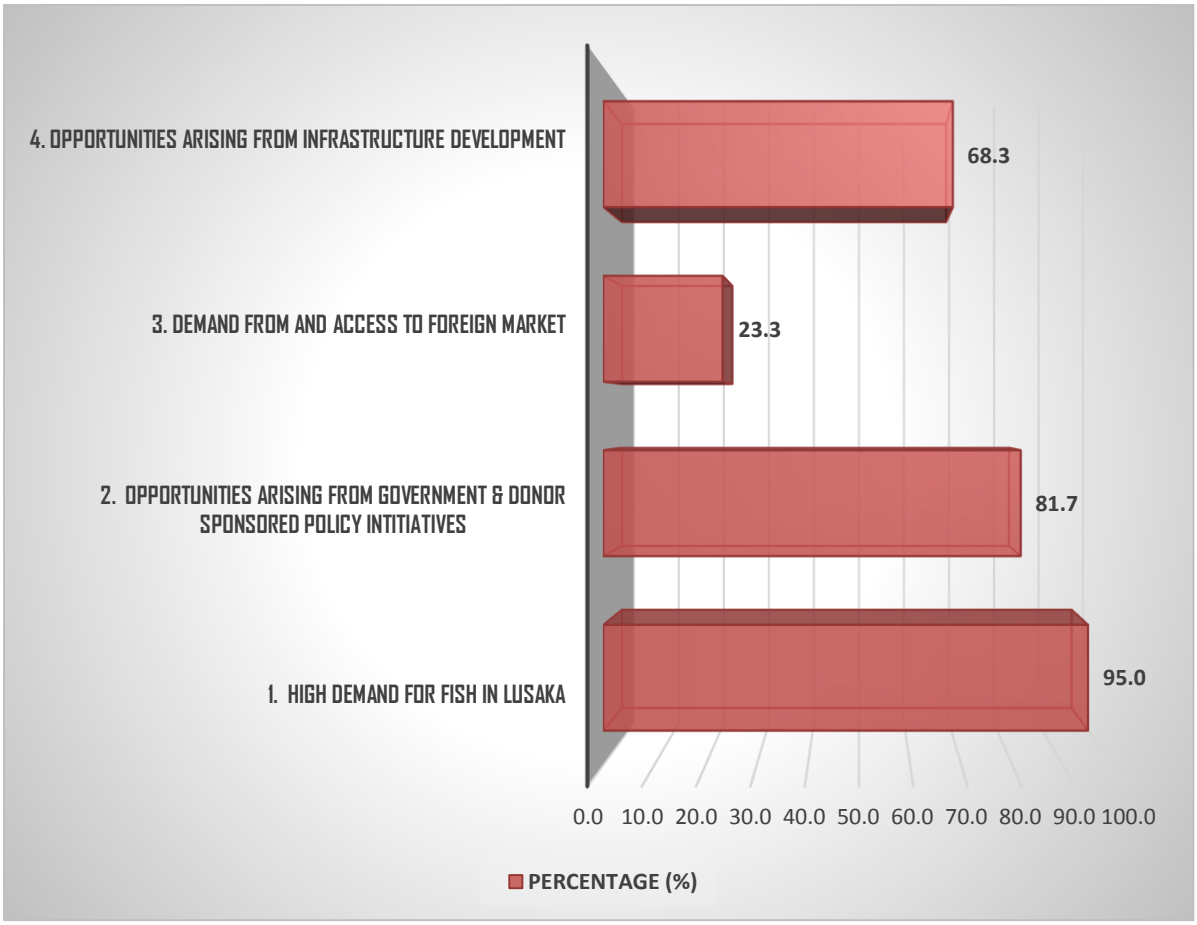


Figure 6 indicates that 63.3% of respondents identified input supply opportunities as a potential business venture in the value chain.

About 68.3 % of participants said infrastructure development in the sector had established new opportunities for them. As explained by one trader:

> *"…government has* [constructed] *new roads that have enabled us to acquire our fish from far-flung rural places such as itezhi-tezhi, the Zambezi plains in western province, Lake Bangwuelu in Luapula and so on. In the past such places were hard to reach…but now we can reach them and get good fish…"*

Another trader explained as follows:

> *"…more companies have set up cold storage and ice making facilities and depots near city market…this had made it easier to store our fish in a secure place and for a long-time at an affordable cost. Without these facilities, I could not have…* **[been successful]***…in my business as a wholesale supplier to traders at city market…"*

Approximately 23.3% of small scale farmers, fishermen, and traders identified opportunities in the foreign markets.

In this case, some participants identified potential market opportunities in Botswana and Namibia which do not have abundant inland freshwater fisheries.

This market opportunity was explained by one respondent who explained that:

> *"…due to its central position and its possession of the most abundant freshwater resources in Southern Africa, Zambia can become a hub for the regional fisheries sector. Smallholders can take advantage of supplying to neighboring countries during their especially during their off-season periods and also in those situations where neighboring fisheries activities are disrupted by disasters such as tropical storms, droughts, or the Covid-19 disruptions."* (Resp. # 23).

The respondent further opined that Zambia has had a relatively infrequent number of disruptions compared to fisheries in countries like Zimbabwe and Mozambique. When such countries suffer food insecurity due to climate disasters, Zambian smallholder fishers can exploit that gap in fish supply during times of disaster.

81.7 % of participants indicated opportunities arising from policies sponsored by the government in conjunction with government and donor agencies. Those with knowledge of the National Agriculture Investment Plan, Seventh National Development Plan and the Zambia Economic Recovery Programme argued that the fisheries sector has been prioritized as a focus for agriculture diversification. To this effect one of the farmers explained that:

> *"… Government is expected to implement those policy pronouncements through the provision of low-cost credit, low-cost inputs, and infrastructure development and technical assistance. If that be the case, then small-scale farmers and traders,*

working through cooperatives and associations can more easily access the incentives set up under these policies". (Resp. # 33)

Another farmer intoned as below:

".... government operating through channels such as the Citizenship Economic Empowerment Commission, the Presidential Empowerment Fund, and the Constituency Development Funds has provided Zero-interest loans to smallholders with no collateral requirements. This provides beneficiaries with the liquidity required to either set up, expand or diversify their fish businesses". (Resp. # 35)

As declared by one fish trader:

"...with the money received from [the Presidential Empowerment Fund] *I am now employing 6 people because my business has grown so much"*

These microfinance programmes have been paired with training in aquaculture. This has been done with a thrust towards developing agribusinesses based on fish farming and not just aquaculture as a source of food security for households. Out of the 56 participants in the study, 15 (26.8%) , were able to cite programmes funded by the World Bank, World Fisheries Programme, GTZ, and FAO as having such an orientation. It was explained that the programmes also had follow up extension services during the initial phases of business development.

The fish farmers moreover noted that policies aimed at restricting the importation of some fish and marine products have also minimized completion from foreign products and enhanced the market penetration by small-scale players. In such a sentiment was evident in the complaint that:

"...the foreign owned shopping chain do not sign supply agreement with local fish suppliers, but opt to import fish types that are readily available in Zambia...this problem can be solved by a statutory instrument regulating the importation of fish....stopping importation of fish varieties that are locally available would increase market demand for local supplies and this can be fulfilled by our farmers....more and more farmers are going into fish farming and so very soon we will be net fish exporters because if the market is protected we can have the incentive to tap into the new demand for fish especially among medium to high

income groups who shop from established malls and shopping centers in the central business district and different parts of Lusaka….The policy to also secure local fisheries in border areas from encroachment by foreign fishers has also had a similar effect" (Resp. # 54).

The farmers in the sample also suggested that there is need for strict enforcement of seasonal fish bans as this has enabled traders to capitalize on the temporal scarcity of fish during these periods, supplying fish as a fairly lucrative profit estimated by some respondents at ZMK 5,000-10,000 during the offseason period.

An argument was further made by key informants that integrating aquaculture as part of promoting sustainable, climate-smart agriculture has also generated new opportunities for smallholders. For example, these farmers previously had a bias towards crop farming and the rearing of terrestrial livestock. However, through technical assistance and funding from government and donor agencies, small scale farmers have been empowered to integrate crop and terrestrial livestock farming with aquaculture. This diversification has created multiple income streams for farmers and also presented them with a diversity of food sources for their sustenance, in this way improving their food security situation.

It was further, opined by key informants that the drive to promote aquaculture will likely ease the pressure on natural water bodies and also ease the pressure on these bodies that had arisen from rising fish demand and the rising number of fishermen who had sought to exploit these limited resources. Easing these pressures may enable natural capture fisheries to remain a sustainable income-generating resource for future generations, by averting rapid exploitation by the current generation. Hence an opportunity has been created for future fishermen policies that are prioritizing aquaculture development over natural capture fisheries.

About 95.0% said the high demand for fish in Lusaka was a source of opportunity for them. It was elucidated that the city has a large population and residents have disposable income throughout the month. As explained by one participant:

"Lusaka has a lot of people and there is a [high demand] *for fish from other parts of the country. Unlike the case in other parts of the country people in Lusaka always*

have money…they don't wait until the month-end to have money so there is always business for fish" (Resp. # 33).

Some traders also argued that the market opportunity also arises from the status of Lusaka as a transit city. One trader explained that:

"…many people come to Lusaka to do business as well as for other activities…these people come from different parts of Zambia and also from outside the country…before they leave Lusaka, these people buy our fish and often they even pay more and buy more than those who are Lusaka based…" (Resp. # 43).

There was also an opinion that the availability of market spaces through-out the city, coupled with the government's decision to allow street vending in the city center has improved the capacity of fish traders to access more customers and also give them the flexibility to shift trading locations from one part of the city to another. An example of this flexibility was evident in some vendors who used wheelbarrows to move from one location to another within the city center, to maximize their access to customers.

CHAPTER FIVE

DISCUSSION OF FINDINGS

5.1 Introduction

This chapter interprets the results presented in chapter four by stating the practical implications of the findings and also comparing the findings to the theories and empirical findings outlined in the literature review. The discussion is divided in to subsections that correspond to the specific objectives of this study.

5.2 The Policy Framework Guiding Fish Value Chain Expansion

The policies assessed in this study are in conformity to the principle of sustainable development. As the population of Zambia increases, demand for fish will also raise together with the market price and potential profitability of the fish business (Genschick et al, 2017, Nsonga 2015). Furthermore, this population increase and raising market demand attracts an increase in the number of persons involved in fishing activities within natural water bodies – as they will do so as a means of income generation and also for subsistence purposes (Genschick et al, 2017, Nsonga 2015; Musuka and Musonda, 2013).

The policy framework analyzed in the findings possess the key elements ecological sustainability. In this regard they contain the values outlined in the SSF including, regulation of fishing activities to avoid over fishing; the incorporation of fisheries technological development and scientific research, the leveraging of fisheries management systems to protect all aquatic resources and stronger regulation against pollution of fisheries resources (FAO, 2015; Bennett, 2018) . They promote ecological sustainability by creating conditions under which fishing in Zambia meets the demand of the present generation while at the same time conserving fish resources for use by future generations (FAO, 2020). In this case, fisheries policies in Zambia are formulated to control the rate of extraction of fish so that it does not surpass the capacity of the natural ecosystems to replenish the fish stocks. The measures in these policies that aim at promoting aquaculture as a supplementary source of fish supplies ; that operates side by side with fishing from natural fresh water fisheries will also strengthen this balance between fish demand , fish supply and ecosystem sustainability.

Additionally, the policies assessed have depicted a pivot towards the social equity dimension of sustainability. This is evident in the way they have stipulation that focus on leveraging the fisheries sector as a means of poverty reduction, strengthening food security among low-income groups and also employment creation especially among vulnerable communities. This aligns to the recommendations given by Barbesgaard, (2018); Bennett, (2018) and Singh, (2017). The policy frameworks have measures that lower barriers to entry for low income groups including provision of credit, the provision of training, input support and techicl support. The policies assessed in this study have depicted effective financial commitments and tangible action plans needed to generate opportunities, for low income groups to engage in small scale fishereies business in so doing making aquaculture and fisheries enterprise as a viable opotion for poverty reduction as argued by Kassam (2013); Kassam and Dorward (2017).

Aside from from possessing a congruency with the goals of sustainable development, the policies also possed the structural feature required to assure their effectiveness. In this respect , they had the policies reviewed had a clear and consistent structure. This level of clarity and consistency meant that it was easier to translate the policies into tangible action plans and also to decipher feasible tools for measuring progress or evaluating success. Clarity also enhanced the capacity for different holders to possess a relatively uniform interpretation of the policy thereby minimizing disputes and also ensuring broad-based agreement on key priorities (Soliman, 2014; Peñas, 2016).

The legislative elements under scrutiny were also out of sync with the contemporary challenges of the fisheries sector and thus there was a need for more reforms as suggested by respondents in Section 4.2.2. Also, the legislative frameworks did not possess comprehensive mechanisms for dispute resolution. Dispute resolution mechanisms were embedded within the legislative elements supporting these policies. For this reason, then there is a bias towards litigation and punitive measures. Alternative Dispute Resolution (ADR) mechanisms such as negotiation, mediation, and arbitration have not been fully enshrined in the policy instruments.

The use of litigation and punitive interventions, was detrimental in that it makes the process of conflict resolution to be slow, expensive, and more acrimonious than would be the case if more ADR mechanisms were incorporated. Having a bias towards litigation and punitive responses risks alienating disputants and may weaken their capacity to corporate in future fisheries development

initiatives. It also makes the law enforcement process in the fisheries sector to be bloated and more expensive (Potts, 2016; Soliman, 2014).

The policies under examination were adjudged to possess well defined institutional responsibilities. This clarity would enhance accountability and coordination of efforts. It would facilitate any future policy reform processes that may be required in eliminating contradiction of aims and duplication of efforts (Peñas, 2016; Soliman, 2014).

The findings suggest that despite being acknowledged as a priority area, the fisheries sector had a subsidiary status to crop production and terrestrial livestock sub-sectors. This was reflected in the fact that the fisheries programmes received a lower disbursement of funds than the latter two sectors (DoF, 2018) . This state of affairs suggests that within the stated policies, fisheries were given a lower priority than the other agricultural development areas.

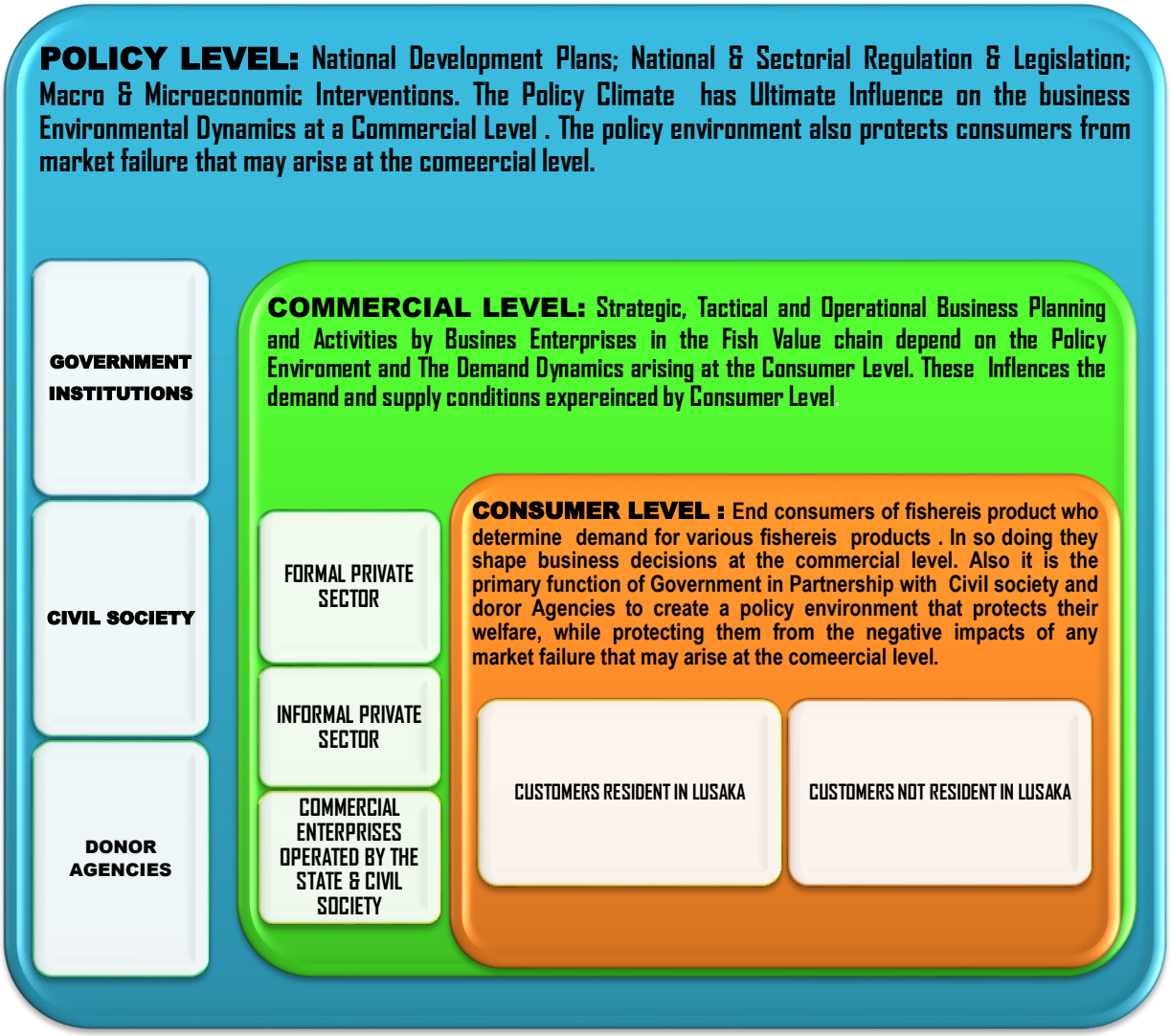
Under the above-stated incapacitations and discrepancies, it was erroneous to adopt a "one size fits all" when it came to formulating and planning the policies. Rather there was a need to have disaggregated policies, with tailor-made priorities and implementation systems for large and medium scale actors and small/micro scale actors respectively. Without this disaggregation, there have been unbalanced development results between urban to rural beneficiaries and; large/medium versus micro/small scale beneficiaries (AfDB, 2016).

Additionally, the findings provided subtle evidence that the influence of partisan political interests within public bodies may have distorted the implementation of policy intents. For example, in 2013, the NAP and R-6NDP were redrafted to align with the manifesto of the new ruling party (MoF, 2014) . The process of policy realignment paused some active projects and also interrupted some achievements of the previous policy, just when they were at an infant stage of implementation (The European Commission, 2018; AfDB, 2016) .

5.3 Key Actors and their Roles

Based on findings in Section 4.3.1 and 4.3.2, this study can represent the key actors in the value at three different levels, namely the Policy Level, Commercial Level, and the Consumer Level. Actors at these three levels exhibit mutually dependent forms of influences dynamics of influence amongst each other where stakeholders at one level shape the decisions and actions of those at the other two levels.

Figure 12: Matrix y of influence among various Categories of Organizations Operating in the Fisheries Value Chain



Source: (The Researcher, 2021)

Actors at the policy level have the broadest level of influence in shaping the overall power dynamics within the value chain, they create an enabling environment for the growth and development of players at the commercial level. At the same time, they ensure that the dynamics of commercial/business do not disintegrate into market failure while protecting consumers from the ravages of such failure.

The players at the Commercial Level have to leverage all the opportunities and also adapt to any threats presented by the existing policy framework. They also have to respond to demand

fluctuations induced by actors at the commercial level. The balance between the policy environment and the demand fluctuations presented by consumers is what shapes the strategic, tactical, and operational decisions of Commercial entities in the value chain.

The Consumer Level has shapes the business decisions made by commercial players. In addition to this, they motivate the policy priorities set by the state and other actors at the policy level. Thus consumers are the ultimate beneficiaries of decisions and initiatives that are enacted at the policy and commercial level.

For policies, legislation and programmes in the fisheries sector to be legitimized and sustainable, there is need for all the different stakeholders to be consulted in during the formulation and the planning stages (Peñas, 2016). However unlike what is recommended in the OECD policy guidelines for the fishereis sector (OECD, 2019) , consultation of key stakeholders within the fisheries sector has not been sufficiently participatory and inclusive. The formulation and implementation of interventions has been done in a top-down manner, driven by urban-based elites therefore lacking the input of rural, small-scale, and informal sector stakeholders (WorldFish/NEPAD, 2020) . The policies were largely expert-driven rather than taking a comprehensive, multi-level participatory approach. Such limited participation in policy formulation induced challenges such as limited information on the policy content, limited understanding of policy intentions as well as sparse participation by excluded groups in the policy implementation process. It also reduced the capacity of excluded groups to identify the opportunities provided once the policies were implemented (Bennett, 2018; Peñas, 2016) .

5.4 Opportunities and Challenges for Small-Scale Farmers Involved in Fish Value Chain in Lusaka District

The findings above have shown that land ownership remains a formidable challenge for small-scale actors in the value chain (these include small-scale fishermen and fish farmers, fish processors, and vendors) especially those in rural and peri-urban areas, who operate on traditional land. As such, this impairs their ability to sustain and expand their business. Land ownership in Zambia remains a contentious issue. This is because land is more than just an economic asset or factor of production. Land ownership invokes a sense of security, a sense of identity, and a sense

of pride. Since the liberalization of Land markets in Zambia, competition for land has been on the rise. This competition has been driven by increased economic activity, the rise in the indigenous population, especially in urban areas together with the influx of foreign nationals seeking settlement and investment in Zambia (Taylor, 2009). Consequently, land ownership and security of tenure is a prominent bottleneck constraining the growth and development of small-scale aquaculture in Zambia.

It has also been shown that small-scale fish farmers are unable to expand their business because they cannot access lucrative markets. As revealed by Genschick et al, (2017) urban high to middle income fish markets still remain dominated by large scale commercial farmers, whereas small scale farmers are relegated to cater for lower middle income, to low income customers. Thus the revenue derived by small scale fish farmers from aquaculture, per unit of produce sold, remains far below that realized by large scale commercial farmers. Without lucrative markets and without a strong market penetration into high to middle income market segments, small scale aquaculture enterprises cannot generate sufficient revenue to recoup their operational cost and investment. It may also diminish their capacity to repay their debt exposing them to bankruptcy, legal problems, and asset seizures.

The finding also alluded to the low to the scarcity of or low access to overhead infrastructure such as storage facilities, ice production plants, refrigerated trucks and storage depot as a challenge. This observation was also made by Genschick et al, (2017). It gives large scale producers a greater supply chain advantage over small scale producers. In this respect, when it comes to the sale of fresh fish, small scale farmers and fish traders can only store their wares for a shorter period of time than large scale suppliers. Thus is it possible that due to the above differences in availability and access supply chain infrastructure, small scale fish farmers deliver their produce in smoked, dried and salted form as these have lower storage expenses than fresh fish.

Furthermore, the lack of access to credit and financial services finance is a major problem. Without such facilities and resources, small-scale fish farmers have lacked the capital necessary for them to invest in business development and expansion. They cannot invest in diversifying their portfolios and neither can they upgrade the value of their products and services. Thus, their business has remained small-scale and confined to the immediate local vicinity rather than growing

to become national or regional entities. The lack of credit access moreover means that these farmers do not have contingency funds to use in times of crisis as pointed out by (Kaminski et al. 2016).

The challenges listed above may explain why the small-scale actors in the value chain have not fully leveraged opportunities available in the sector. They also point to the need for tailor-made policies in the sector that take into account the special needs of these actors. It points to the need for special interventions to level the playing field for all actors in the value chain. This means the formulation and implementation of case sensitive policies that provide equitable opportunities for all types of actors taking into account all their differences in capacity or characteristics; whether they are small, medium, or large scale or whether they are rural or urban-based, or whether they are male or female; local or domestic.

CHAPTER SIX
CONCLUSIONS AND RECOMMENDATIONS

6.0 Introduction

This study has investigated the opportunities and challenges for small scale fish farmers in Lusaka's fish value chain. Firstly, done an in-depth scrutiny of existing policies governing the fisheries sector to decipher how they conform to the principles of sustainable development, as outlined in the SDGs. Secondly, research has identified the key stakeholders in the fisheries value chain and their roles. Thirdly, the investigation has explored the challenges and opportunities that exist in the fish-value chains, for small scale fish farmers. This chapter, summarizes the key insights generated from the research and gives final recommendations on the subject matter.

6.1 Conclusion

The fish value chain in Lusaka is an integrated matrix of relationships between actors from the government, the private sector, civil society, and the donor community. These relationships are mediated by a common set of policies aimed at achieving sustainable development in the fisheries sector. The process of policy and legislative formation can be described as insufficiently inclusive because the inputs and special interests of informal, micro/small scale actors have not been fully taken into account. The state, donors, and large/medium scale actors in the value chain occupy a dominant position of influence, such that they exert a disproportionate level of influence over policy, legislative, and market fundamentals.

Thus, one can surmise that small scale aquaculture enterprises have great potential to support sustainable development and assure food security, even though this potential remains under realized. Their peculiar vulnerabilities also entails that they have the highest level of need. If that be the case the state, civil society, and other actors in the value chain must take active measures to engage and involve them in policymaking and also in increasing their ability to access and benefit from the opportunities available in the value chain.

Unless well-targeted and coordinated interventions are implemented the value chain will still retain systemic barriers that will preclude vulnerable players in the value chain from competing favorably, from growing, and from becoming a viable component of the national economy. Equity is a key tenet of Sustainability. Hence, as long as the policy and business environment in the value chain impairs the weakest and neediest actors, sustainable development will not be realized.

6.2 Recommendations

6.1.1 Policy and Practice

There is a need for policies Agricultural, Investment, Science and Technology and Trade sensitive to the special needs of small-scale actors within the fish value chain. These policies must contain provisions targeted at mitigating the unique challenges that these face in their businesses. They may incorporate interventions to mobilize and grant low-interest credit, reserved land quotas, targeted programmes to provide know-how, equipment, and inputs as well as targeted informational campaigns.

Small- scale actors in the fish value chain should also be encouraged to form more cooperatives or associations to increase their capacity to secure loans, conduct joint business ventures, and share knowledge. These organizations need to establish contacts with similar players on a regional or global scale.

6.1.2 Further Research

This research recommends the following as areas for further research:

1. The application of traditional fish processing methods in value addition within fisheries value chains in Lusaka.
2. Barriers to technological development within the fisheries value chains in Zambia
3. The impact of the dual land tenure system on the development of small scale aquaculture in Zambia.
4. A comparative study of availability of and access to opportunities for aquaculture development among rural and urban based fish farmers.

REFERENCES

Adèr, H. J., Mellenbergh, G. J., & Hand, D. J. (2008). Advising on research methods: A consultant's companion. Huizen, The Netherlands: Johannes van Kessel Publishing.

Agarwal, B. (2015). Participatory exclusions, community forestry, and gender: An analysis for South Asia and a conceptual framework. World development, 2001; 29(10): 1623-1648

Ardjosoediro I. and Neven D. (2008). The Ksenya capture fisheries value chain: An AMAP-FSKG value chain finance case study, United States Agency for International Development (USAID). USA

Ardjosoediro I. and Goetz F. (2007). A value chain assessment of the aquaculture sector in Indonesia, U.S. Agency for International Development, USA.

Asche, F. Eyjolfur, G. and Max, N., (2006). Revenue distribution through the seafood value chain. FAO Fisheries Circular No. 1019, Rome: FAO.

Bartkiene, E., Steibliene, V., Adomaitiene, V., Juodeikiene, G., Cernauskas, D., Lele, V., Guiné, R. P. (2019). Factors affecting consumer food preferences: Food taste and depression-based evoked emotional expressions with the use of face reading technology. BioMed Research International, 2019

Best and Kahn (2008), Research in Education, New Delhi, Prentice-Hall of India Private

Brinkmann, S. &Kvale, S. (2015). Interviews: Learning the craft of qualitative research interviewing. 3rd ed.London: Sage.

Central Statistical Office (2016). 2015 Living conditions monitoring survey report. Lusaka, Zambia: CSO.

Cooper, D., and Schindler, S. (2010). Business Research Methods. New York: McGraw-Hill Irwin.

Creswell, J. (2003). Research design: Qualitative, quantitative, and mixed methods approaches (2nd ed.). Thousand Oaks, CA: SAGE Publications.

Denscombe, M. (2007). The Good Research Guide: for small-scale social research projects. Maidenhead, Open University Press.

Department of Fisheries Zambia, (2011). Fishery statistical yearbook of Bangladesh 2008-2009. Fisheries Resources Survey System, Department of Fisheries, Dhaka, Bangladesh.

Department of Fisheries Zambia, (2019). Fisheries and aquaculture statistics: Annual report. Chilanga, Zambia: DoF, Ministry of Fisheries and Livestock.

De Silva, D. 2011. Value chain of fish and fishery products: origin, functions and applications developed and developing country markets. FAO Value Chain Project Reports. Rome,www.fao.org/valuechaininsmallscalefisheries.

Farnworth, C.R. Sultana N, Kantor P and Choudhury A. (2015). Gender integration in aquaculture research and technology adoption processes: Lessons learned in Bangladesh. Penang, Malaysia: WorldFish.

Food Agricultural Organisation, (2004) Advisory Committee on Fisheries Research. Report of 2nd session of the working party on small-scale fisheries. Bangkok, Thailand, 10-21 November 2003

Food and Agricultural Organization, (2004). The state of world fisheries and aquaculture. Accessed on 14 January 2020. http://www.fao.org/3/a-i3720e.pdf

Food and Agricultural Organization, (2006). The state of world fisheries and aquaculture. Accessed on 14 January 2020. http://www.fao.org/3/a-i3720e.pdf

Food and Agricultural Organization, (2010a). The State of World Fisheries and Aquaculture 2010.FAO, Rome.

Food and Agricultural Organization,(2018a). The State of World Fisheries and Aquaculture 2018.FAO, Rome.

Food and Agricultural Organization, (2011). The state of world fisheries and aquaculture. Accessed on 14 January 2020. http://www.fao.org/3/a-i3720e.pdf

Food and Agricultural Organization, (2014). The state of world fisheries and aquaculture. Accessed on 14 January 2020. http://www.fao.org/3/a-i3720e.pdf

Food Agricultural Oganisation, (2014) World aquaculture production of fish, crustaceans, mollusks, etc., by principal species in 2013. Yearbook of fisheries statistics 2014

FAO. 2014b. The State of World Fisheries and Aquaculture 2014. Rome.

Food and Agricultural Organization,(2016).National aquaculture sector overview: Sierra Leone. Accessed on 12 January 2020.http://www.fao.org/fishery/countrysector/naso_sierraleone/en

FAO. 2018. The State of World Fisheries and Aquaculture 2018 - Meeting the sustainable development goals. Rome. License: CC BY-NC-SA 3.0 IGO.

Grant, C. &Osanloo, A. (2014). Understanding, Selecting, and Integrating a Theoretical Framework in Dissertation Research: Creating the Blue print for 'House'. Administrative Issues Journal: Connecting Education, Practice and Research, Pp. 12-22 DOI: 10.5929/2014.4.2.9.

Genschick S, Marinda P, Tembo G, Kaminski AM, Thilsted SH. (2017). Fish consumption in urban Lusaka: Aquaculture yet to supply the poor. Aquaculture

Hempel, E. and Russell, D. (2007). Value addition: Assessment of Opportunities for Increased Value Addition and Improved Marketing of Namibian Marine Fish Products. Ministry of Fisheries and Marine Resources, Windhoek, Namibia.

Hempel, E. (2008). The strategic role of the value chain. Presentation at INFOSA Regional Workshop on International Markets for Fish and Fish Products. South Africa: Stellenbosch.

Hopkins and Wallerstein, (1986). Public and Private Standards for Food Safety and Quality: International Trade Implications, TheEstey Centre Journal of International Law and Trade Policy, Vol.11, pp 136-152.

Kaminski AM, Genschick S, Kefi SA and Kruijssen F. (2016). Commercial trends and upgrading in the aquaculture value chain in Zambia. Aquaculture.

Kaplinsky R and Morris M. (2000). A handbook for value chain research. Ottawa: International Development Research Centre (IDRC).

Kassam L and Dorward A. (2017). Comparative assessment of the poverty impacts of pond and cage aquaculture in Ghana. Aquaculture 470:110–22. http://dx.doi.org/10.1016/j.

Kathuri, N. J., and Pals, A. (1993). Introduction to Research, Kenya. Educational Media Centre, Egerton University

Kolding, J., van Zwieten, P., Marttin, F. and Poulain, F. 2016. Fisheries in thedrylands of sub-Saharan Africa – "Fish come with the rains": buildingresilience for fisheries-dependent livelihoods to enhance food security andnutrition in the drylands. FAO Fisheries and Aquaculture Circular No.1118. Rome, FAO.

Kothari .C.R.(2004) Research Methodology , Methods and Techniques .2nd Edition .New

Kumar, R. 2005. Research Methodology: A step-by-step guide for beginners. 2nd ed. London: Sage Publications Ltd

Lester, F. (2005). On the Theoretical, Conceptual, and Philosophical Foundations for Research in Mathematics Education.ZDM, 37(6), 457-467.

Lindahl J. (2005). Vietnam's seafood industry: A socially embedded division of state-owned and local Chinese owned enterprises in regional value chains? Roskilde University: International Development Studies.

Mugenda, O. M and Mugenda, A. G (2003). Research Methods: Quantitative and Qualitative Approaches. Nairobi, Acts Press.

Musuka CG and Musonda FF. (2013). Contribution of small water bodies and smallholder aquaculture towards poverty alleviation and enhancing household food security in Zambia. International Journal of Fisheries and Aquaculture. http://www.academicjournals.org/journal.

Nsonga A. (2015). Status quo of fish farming in the Northern Province of Zambia: A case for Mbala and Luwingu districts. International Journal of Fisheries and Aquatic Studies 2(6):255–58. http://www.fisheriesjournal.com/ archives/2015/vol2issue6/PartD/2-6-53.pdf

Précon, (2014). The Sierra Leonean fisheries value chain, a supply chain in statunascendi, The Netherlands: Précon Food Management BV. Sierra Leonean: The Précon Food Management.

Ravitch, S. M. & Carl, N. M. (2016). Qualitative Research: Bridging the Conceptual, Theoretical and Methodological. Los Angeles, U.S.A.: SAGE Publications, Inc.

Shamsuddoha M. (2007). Supply and Value Chain Analysis in the Marketing of Marine Dried Fish in Bangladesh and Non-Tariff Measures (NTMs) in International Trading, Participatory Research and Development Initiative, House 106/7, Monipuri Para, Tejgoan, Dhaka 1215, Bangladesh. Accessed 3rd January 2020, www.prdibd.org

Sankoh, SK. (2009). Aquaculture in Sierra Leone: Traditional systems and the prospect for market oriented development. Scotland: University of Stirling.

United Nations Development Programme. (2003). Trade in Fisheries and Human Development. UNDP.

United Nations Environment Programme (UNEP). (2009). The Role of Supply Chains in Addressing the Global Seafood Crisis, United Nations Environment Programme (UNEP),www.unep.ch/etb/publications/Fish%20Supply%20Chains/UNEP%20fish%20supply%20hains%20report.pdf

Vermeulen, S., Woodhill, A. J., Proctor, F., &Delnoye, R. (2008). Chain-wide learning for inclusive agri-food market development: A guide to multistakeholder processes for linking small-scale producers to modern markets International Institute for Environment and Development.

Wilkinson J. (2006). Fish: A Global Value Chain Driven onto the Rocks, SociologiaRuralis, Wiley-Blackwell, Volume 46, Number 2, pp. 139-153(15).

World Bank. (2012). Hidden harvest: the global contribution of capture fisheries. Washington, DC, World Bank.

WorldFish, (2016a). Inland valley swamp assessment study in Tonkolili District. Sierra Leone. Freetown, Sierra Leone:

WorldFish, (2016b). Report of the aquaculture assessment studies for Tonkolili and Bombali districts. Freetown, Sierra Leone: WorldFish.

APPENDICES

Appendix I: Consent Form

THE UNIVERSITY OF ZAMBIA

SCHOOL OF HUMANITIES AND SOCIAL SCIENCE

DEPARTMENT OF DEVELOPMENT STUDIES

Dear interviewee,

I am a post-graduate student at the University of Zambia, School of Humanities and Social Science under the department of development studies. I am conducting a research on opportunities and challenges of the fish value chain in Zambia: A case of Lusaka district. The main objective of this study is to explore and analyze the opportunities and challenges of the fish value chain in Zambia. You have been purposively selected to voluntarily take part in this study as one of the key informants through this interview. The information supplied will be considered confidential and used purely for academic purposes.

You reserve the right to accept or refuse to participate in this study. You may terminate your participation in this study at any time without having to explain. Your identity as a participant will be kept confidential as per legal requirements. If you are willing to participate in the interview of this study, sign.

Kafumukache Milu Elisha

(+260 976 279359).

Voluntary Consent

Interviewee's Signature: ……....

Consent ……..

Date: ……..

Interview guide for Key informants

(A) Policy and institutional frameworks guiding fish value chain expansion

1. In what ways have fisheries policies in Zambia mainstreamed the principles of sustainable development?

   .....

   .....

   ……

2. What are the key strengths of Fisheries policies in Zambia?

   ……

   ……

   ……

3. What would you say are the main weaknesses in the fisheries policies in Zambia?

   .....

   .....

   ……...

4. How can the weaknesses you have identified in (3) be rectified?

   ……

   ……

   ……

5. Is the formulation of fisheries policies participatory inclusive enough to involve all Stakeholders in the fisheries value chain?

   ……

   ……

   ……

(B) Roles of key actors in the fish value chain.

6. Who are the key stakeholders in the fish value chain?

   ……

   ……....

   .....

7. What roles do these stakeholders play within the commercial/supply chain operations of the fish value chain?

   .....

   .....

   .....

8. What roles do these stakeholders play in the formulation and implementation of policy, regulation and programmes in the fish value chain?

   .....

   .....

   .....

9. What roles do these stakeholders play in technological and capacity building activities within the fish value chain?

   .....

   .....

   .....

10. Which stake holders wield the highest influence in the formulation of policy, regulation and programmes within the fisheries value chain? Please give reasons for your answer.

    .....

    .....

    .....

11. Which stake holders wield the lowest influence in the formulation of policy, regulation and programmes within the fisheries value chain? Please give Reasons for your answer.

    .....

    .....

    .....

(C) Opportunities of fish value chain.

12. What kind of opportunities does the fish value chain have for small-scale farmers?

    .....

    .....

13. How do the opportunities mentioned in question 11 benefit small scale fish farmers?

    .....

    .....

14. How opportunities mention in question 11 benefit consumers?

    .....

    .....

(D). Challenges of fish value chain

15. What challenges do small scale farmers face in developing their aqua cultural enterprises, within Lusaka's fish value chain?

    .....

    .....

16. What strategies would you recommend strengthening small-scale actors participation in the fish value chain?

    .....

    ……..

End of Interview

Thank you for your time

Appendix II: **Consent Form**

THE UNIVERSITY OF ZAMBIA

SCHOOL OF HUMANITIES AND SOCIAL SCIENCE

DEPARTMENT OF DEVELOPMENT STUDIES

Dear interviewee,

I am a post-graduate student at the University of Zambia, School of Humanities and Social science under the department of Development studies. I am conducting a research on opportunities and challenges of the fish value chain in Zambia: A case of Lusaka district. The main objective of this study is to explore and analyze the opportunities and challenges of the fish value chain in Zambia. You have been randomly selected to take part in this study voluntarily through this questionnaire. The questionnaire has six (6) sections; A, B, C, D, E, and F. You are requested to respond to all sections and questions of this questionnaire as truthfully as possible. Indicate your responses as instructed. The information supplied will be considered confidential and used only for academic purposes.

You reserve the right to accept or refuse to participate in this study. You may terminate your participation in this study at any time without having to explain. Please do not indicate your name or contact details on the questionnaire. Your identity as a participant will be kept confidential as far as the law allows.

Your participation is deeply appreciated.

Yours sincerely,

Kafumukache Milu Elisha.

(+260 976 279359)

Questionnaire for fish farmers

Instructions: Kindly tick [√] or indicate your appropriate response (s) in the spaces (…) provided.

(A). Background Information

1. What is your gender?
   a. Male [ ]
   b. Female [ ]

2. What is your age group?
   a. 19- 24 [ ]
   b. 25- 29 [ ]
   c. 30- 34 [ ]
   d. 35 and Above [ ]

3. What is your marital status?
   a. Single [ ]
   b. Married [ ]
   c. Divorced [ ]
   d. Separated [ ]

4. How long have you been working as a fish farmer?
   a. Between 1-5 years [ ]
   b. Between 6- 10 years [ ]
   c. Between 11- 15 years [ ]
   d. Between 16- 20 years [ ]
   e. More than 20 years [ ]

5. What is your level of education?
   a. Grade 9 [ ]
   b. Grade 12 [ ]

c. College Certificate [ ]

d. Diploma [ ]

e. Bachelors [ ]

f. Masters [ ]

g. Other (specify) ……..

6. When did you start farming?

a. 4 years ago [ ]

b. 3 years ago [ ]

c. 2 years ago [ ]

d. 1 years ago [ ]

e. This year [ ]

7. What made you start farming?

a. Love farming [ ]

b Source of income [ ]

c. To take my children to school [ ]

8. Ever since you started fish farming; have you ever received any support from government/donors or any other organization?

a. Yes [ ]

c. No [ ]

9. If your answer is '**Yes**' to question 9 above, what kind of support have you received?

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10. Where do you sell your farming produce?

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11. Are you satisfied with the policy frameworks guiding the fish value chain?
    a. Yes [ ]
    b. No [ ]

12. Please Explain your answer given in question 11

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13. Are small scale farmers engaged and involved by government in the formulation and implementation of policies, legislation and programmes in the fisheries value chain?

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(D). The opportunities and challenges encountered by Small scale Farmers in the fish value chain in Lusaka District

14. What opportunities are available to small scale fish farmers within Lusaka's fish value chain?

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15. What challenges do small scale fish farmers face in growing and developing their enterprises in Lusaka's fish value chain?

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End of Questionnaire
Thank you for your time