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Fish Value Chain Dynamics: Livelihood Opportunities and Challenges for Small-Scale Farmers in Lusaka District

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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.

In Zambia, the fisheries sub-sector 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 per cent to the national GDP (Second Agricultural Policy, 2016). This economic segment also has the potential to induce the creation of sustainable jobs.

Quantitative and qualitative research methods were used 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 six 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 methods and examination of policy documents. The researcher analysed the data using descriptive statistics, thematic analysis, and content analysis. The response rate was 93 per cent.

The findings showed that fish value chains in Lusaka were 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 were policy setting and strategic planning; regulation and law enforcement, provision of financing, and also research and technical support. Donor agencies were largely involved in the provision of finance and also in providing technical assistance to the fisheries sector. The role of the formal private sector was to conduct research and provide technical services and also to provide finance. They were also leading players in commercial activities. Depending on their special designation, these organisations could be involved in fish extraction from natural water bodies or the production of fish in large to medium scale aquaculture. They additionally, conducted 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 were done on a strictly commercial basis. Informal private sector actors largely engage in fish extraction from water bodies, micro-scale aquaculture. Civil Society performs the functions of sub-sectorial policy setting and planning in coordination with the line government ministries. They also provided technical support and finance in coordination with government and donor agencies. Additionally, these organisations had commercial ventures at different stages of the food value chain.

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

End consumers were the ultimate beneficiaries of all policy initiatives in the fisheries sector. These stakeholders created demand for fisheries products and this demand was what would 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 were 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. Included 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 experienced a 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 was another bottleneck. In this respect, the small-scale entities were inhibited by a lack of information on organisations 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 impaired the capacity of small scale farmers to benefit from opportunities available in the food chain; opportunities which included a growing market demand for fish in Lusaka and other urban centres, funding and training initiatives launched by the government, the private sector and donor agencies.

The study concluded that small scale aquaculture enterprises had great potential to support sustainable development and assure food security, even though this potential remained under-realised. Unless well-targeted and coordinated interventions are implemented the value chain will still retain systemic barriers that will preclude these actors from competing favourably, from growing, and from becoming a viable component of the sustainable development in Zambia.

1. Introduction

Fish is among the most traded food commodities across the globe. Its trade has expanded considerably in recent decades, because the fisheries sector operates in an increasingly globalized environment. The way fish products are prepared, marketed, and delivered to consumers has transformed 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 commodities may cross national borders several times before their 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 globalised fisheries and aquaculture value chain. The first of these is the dramatic decreases in transport and communication costs. Added to this is the widespread outsourcing of processing to countries where comparatively low wages and production costs provide a competitive advantage (FAO, 2014b). Additionally, as populations grow and as new centres of affluence emerge, there has been an increase in the consumption of fish commodities (FAO, 2018). The mainstreaming of trade liberalisation 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). A rapid change in dynamic markets affects 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 explored and analysed the opportunities and challenges of the fish value chain in Zambia, specifically in Lusaka District. Thus, the pertinent questions that are addressed are: What opportunities and challenges existed 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 into 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 because 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 per cent to the national GDP (Second Agricultural Policy, 2016). This economic segment also has the potential to induce creation of sustainable jobs.

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 labour and low skilled production and processing occupations. The 12,000 registered farmers in the country will hire labourers 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 the year 2022.

To understand how fisheries may be a viable economic sector, it is necessary to provide an overview of the fisheries markets in terms of demand and supply trends together with the relative sizes of small and large scale activities. In Zambia, fish supplies more than 20 per cent of the dietary animal protein consumed by the population (Gellner et.al., 2019). For a low-income household in the country, fish provides a more diverse nutrition mix thereby averting malnutrition and strengthening their food security status. As other animal food sources increase in cost, fish has become a more affordable alternative for these households (Mofya-Mukuka & Kabisa, 2017).

The 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 per cent of the annual fish supply. As of the year 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 between the year 2015 to the year 2018. The fact that the

annual catch remains static- despite the increase in the number of catchers and despite an 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 to fisheries resources that are to be exploited sustainably. In contrast to production from natural fisheries, aquaculture has registered consistent growth increasing by 300 per cent from the year 2005 to the year 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 know-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 remains underdeveloped, and has a very minimal contribution, by quantity and monetary value to the fisheries market. Farmers, fishermen 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 limited access to inputs as well as a low level of technical know-how and technology.

This study explored the value chains in the small scale subsector to understand its composition as well as the opportunities and challenges therein. The study focused on the Lusaka District of Zambia.

1.2. Theoretical Framework

The theoretical framework for this study was anchored on the Value Chain Theory (VCT) because it gave a new framework for the integration of fish farming in a way that provided the best understanding of how value addition to fish could 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 conceptualised 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 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. Concerning geographical spread, the value chain can be clustered within a particular geographic area, spread out throughout 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 organisational structure, the power distribution value chain organisation, 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 it 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 lead to the successful integration of small-scale fish farming into the wider fish value chain in Lusaka. Based on this theory, this investigation demonstrated 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.

2. Material and method

A research design included how data was collected, what instruments were employed, how the instruments were used, and the intended means for analysing data collected (Ader and Mellenbergh 2008). The research used both quantitative and qualitative research design, hence the reason for adopting these methods was to ensure that information obtained using one design was complemented by the other. This research design was preferred as the

researcher wanted to get precise information by applying research instruments such as questionnaires which allow for the collection of data from a large number of respondents in a relatively short (Bowling, 2002).

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. The 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.

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 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 utilised as sources of both primary and secondary data.

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 analysed 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, minimises 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 sixty semi-structured questionnaire were administered to the small-scale fish farmers in the Lusaka district. This was 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.

The third data collection method 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 six 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 allowed the researcher to establish rapport with the respondents thereby collecting adequate information. The reason for this type was 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).

Additional primary and secondary data were sourced from six 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 was needed and avoiding those which had 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).

Descriptive statistics were used in the analysis of both quantitative and qualitative data. Data analysis was 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 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 were used to illustrate and analyse the data that was collected. The data collected from the open-ended qualitative questions was analysed using conceptual content analysis.

This chapter has presented the research methodology that was used in this study. It was 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.

3. Results and Discussion

3.1 The Policy Framework Guiding Fish Value Chain Expansion

The policies assessed in this study conform 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 rising 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 analysed in the findings possess the key elements of ecological sustainability. In this regard, they contain the values outlined in the SSF including, regulation of fishing activities to avoid overfishing; 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 freshwater 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 a stipulation that focuses 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 with 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 the provision of credit, the provision training, input support and technical support. The policies assessed in this study depicted effective financial commitments and tangible action plans needed to generate opportunities, for low-income groups to engage in small scale fisheries business in so doing making aquaculture and fisheries enterprise as a viable option for poverty reduction as argued by Kassam (2013); Kassam and Dorward (2017).

Aside 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 acquired 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 incompatible 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. The legislative frameworks did not also possess comprehensive mechanisms for dispute resolution. Dispute resolution mechanisms were embedded within the legislative elements supporting these policies. For this reason, there was a bias towards litigation and punitive measures. Alternative Dispute Resolution (ADR) mechanisms such as negotiation, mediation, and arbitration were not fully enshrined in the policy instruments.

The use of litigation and punitive interventions, was detrimental in that it made 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 risked alienating disputants and could weaken their capacity to corporate in future fisheries development initiatives. It also made 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 suggested 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" approach 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 would have been unbalanced development results between urban to rural beneficiaries and; large/medium as opposed to 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 the year 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).

3.2 Key Actors and their Roles

The players at the Commercial Level had to leverage all the opportunities and also adapt to any threats presented by the existing policy framework. They also had 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 shaped the strategic, tactical, and operational decisions of Commercial entities in the value chain.

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

For policies, legislation and programmes in the fisheries sector to be legitimised and sustainable, there was a need for all the different stakeholders to be consulted during the formulation and the planning stages (Peñas, 2016). However, unlike what is recommended in the OECD policy guidelines for the fisheries sector (OECD, 2019), consultation of key stakeholders within the fisheries sector has not been sufficiently participatory and inclusive. The

formulation and implementation of interventions have 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).

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

The findings above have shown that land ownership remained 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 impaired their ability to sustain and expand their business. Land ownership in Zambia remained a contentious issue. This is because the land was more than just an economic asset or factor of production. Land ownership invoked a sense of security, a sense of identity, and a sense of pride. Since the liberalisation 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 was a prominent bottleneck constraining the growth and development of small-scale aquaculture in Zambia.

It had also been shown that small-scale fish farmers were unable to expand their business because they could not access lucrative markets. As revealed by Genschick et al. (2017) urban high to middle-income fish markets remain dominated by large scale commercial farmers, whereas small scale farmers were 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 product sold, remained far below that realised by large scale commercial farmers. Without lucrative markets and strong market penetration into high to middle-income market segments, small-scale aquaculture enterprises could not generate sufficient revenue to recoup their operational cost and investment. It could also diminish their capacity to repay their debt exposing them to bankruptcy, legal problems, and asset seizures.

The finding also alluded to the low or no 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 gave large scale producers a greater supply chain advantage over small scale producers. In this respect, when it came to the sale of fresh fish, small-scale farmers and fish traders could only store their wares for a shorter period than large-scale suppliers. Thus, it was possible that due to the above differences in availability and access to supply chain infrastructure, small-scale fish farmers delivered their produce in smoked, dried and salted form as these had 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 had lacked the capital necessary for them to invest in business development and expansion. They could not invest in diversifying their portfolios and neither could they upgrade the value of their products and services. Thus, their business remained small-scale and confined to the immediate local vicinity rather than growing to becoming national or regional entities. Moreover, the lack of credit access means that these farmers did 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 had not fully leveraged opportunities available in the sector. They also pointed to the need for tailor-made policies in the sector that took into account the special needs of these actors. It pointed to the need for special interventions to level the playing field for all actors in the value chain. This meant that the formulation and implementation of case-sensitive policies, that provided equitable opportunities for all types of actors taking into account all their differences in capacity or characteristics; whether they were small, medium, or large-scale or whether they were rural or urban-based, or whether they aware male or female; local or domestic.

4. Conclusion and Recommendation

This study investigated the opportunities and challenges for small scale fish farmers in Lusaka's fish value chain. Firstly, do 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 explored the challenges and opportunities that exist in the fish-value chains, for small scale fish farmers. This chapter summarises the key insights generated from the research and gives final recommendations on the subject matter.

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-realised. Their peculiar vulnerabilities also entail 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 shall preclude vulnerable players in the value chain from competing favourably, 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 shall not be realised.

5. 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 mobilise 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 organisations need to establish contacts with similar players on a regional or global scale.

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