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Power and trust: an investigation into their effects on
livelihood relationships in the small-scale fisheries of Lake
Victoria, Uganda

by

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Abstract

Power and trust are key components of the social conditions that mediate livelihood activities in the small-scale fisheries sector. Both power and trust influence how fish move through the value chain, through what hands, as well as the livelihood outcomes for people engaged in small-scale fisheries. However, studies that focus on trust between value chain actors in small-scale fisheries are scarce and understandings of why and how trust is important and between whom in this socio-ecological context is limited. Power relations, on the other hand, have received more attention. Still, there is limited research that examines how power relations influence trust and impact trade relations, a topic with sufficient debate in other fields of study, particularly political science, but lacking in small-scale fisheries, despite the ubiquity of power in small-scale fisheries contexts.

This thesis aims to address this gap in knowledge using a case study of small-scale fisheries in Lake Victoria, Uganda. This study gathered insights from over 206 participants, including fishing crew, boat owners, fish traders and processors, across eight locations, through a combination of qualitative research methods including individual interviews (n=41), group interviews (n=13), and focus group discussions (n=9).

The study uses power to and power over approaches to investigate power in practice and draws upon sociological perspectives of trust – that focus on relational and

behavioural experiences of trust - to explore how trust is encouraged and undermined in small-scale fisheries trading relations. The study draws attention to the increasing complexity of cooperation in small-scale fisheries. The findings reveal the plurality of interpersonal power relations, and the fragility of trust within the socio-ecological context. It exposes how the precarious economy of declining fish stocks and weak governance systems overstrain livelihood relationships and contribute to a generalised environment of apprehension and mistrust.

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Chapter 1: Introduction

1.1. Fisheries livelihoods as embedded in social relationships

Fisheries are fundamentally about relationships: relationships between fishing communities and nature, but also relationships among fisheries actors including fishers, traders, government officials (Bavinck et al. 2018). Fisheries livelihoods are embedded in social relationships (Granovetter, 1985; Jentoft, 2020a). For example, for fishers to participate in fishing they depend on relationships with a wide range of actors, and they depend on these relationships as much as they depend on fish, their boats and fishing gear (Jentoft 2020a). Jentoft (2020a) maintain that in small-scale fisheries these relationships are rooted more in local communities than they are in markets. Furthermore, local communities involve a more complex set of social relations than markets and in turn, provide a more complex setting for livelihood interactions (Jentoft, 2020a). Communities are social systems in which collective values and norms create meaning, cohesion, stability, and social order and where people relate and interact in ways that are important for their well-being (Jentoft 2020a). Though, small-scale fishing communities are diverse communities, each contain contextual specificities and dynamics that shape how people interact with others and nature (Jentoft, 2020).

According to Jentoft (2020), small-scale fishing communities are seldom idyllic and harmonious, but contain inbuilt contradictions and deep-rooted inequities. Many of the relationships actors in small-scale fisheries participate in are potentially conflictive.

For example, fishers regularly engage with other fishers with whom they compete for fish resources, and traders with whom they negotiate prices, as well as formal authorities with whom they confer about the application of fisheries policy (Bavinck et al. 2018). This inevitably leads to tensions and struggles in value chain interactions (Bavinck et al. 2018).

Bavinck et al. (2018) argue that the mainstream fisheries literature is mostly concerned with relationships between fishers and nature and attaining a more sustainable human-environment relationship (Bavinck et al. 2018). While this is a subject of undeniable importance, they contend that relationships between fisheries actors in their human environment deserve more attention (Bavinck et al. 2018). Hence, they maintain that social scientists have their own responsibility in the fisheries field, and that responsibility includes more scholarly attention to the intensifying social struggles in fishing communities (Bavinck et al. 2018). This includes concern for struggles related to scarce resources, the distribution of resources and opportunities, conflicts of interest, political recognition, and perceived lack of fairness (Bavinck et al. 2018). Researching these social struggles requires attention to concepts like power, equity, social stratification, gender, and governance, for example (Bavinck et al. 2018). This research, in response to this plea, focuses on the relationships between fisheries actors, specifically issues concerning trust and power and their relational outcomes.

1.2. Trust and power as a determinant of livelihood relations in small-scale fisheries

Trust and power are key components of the social conditions that mediate relations between actors in the small-scale fisheries sector. Livelihood relations in small-scale fisheries are often informal and uncontracted, founded on reciprocity, and immersed in power relations (Ferse et al., 2012; Nunan et al. 2020). Trust and power influence the very logic of how fish are traded, through what hands, as well as livelihood outcomes for people engaged in small-scale fisheries (Turgo, 2016).

Trust is particularly important to livelihood relations in small-scale fisheries on account of the nature of livelihoods in the small-scale fisheries sector as informal, risky, and dependent on informal lending. Firstly, many people in small-scale fisheries in the Global South work in the informal sector – meaning their activities are not (or insufficiently) registered, regulated, or protected by the state (FAO, Duke University and WorldFish, 2023). As such trust plays an important role in governing livelihood relations. Secondly, fishery-based livelihoods are exposed to multiple risks and uncertainties - both natural and social (Platteau and Nugent, 1992). Fishing-based income is highly variable due to the uncertain nature of resource dynamics and environmental behaviour (Ferrol-Schulte et al. 2014). Fishery-based livelihoods are vulnerable to changes in the quantity, quality, and predictability of catch with harmful socioeconomic impacts and implications for cooperation (FAO, Duke University and WorldFish, 2023). They are also, alike all economic exchanges, vulnerable to risks and uncertainties concerning social relationships, interactions, and human behaviour. This includes risks of negative behaviours like exploitation, opportunism, malfeasance, coercion, self-interest seeking behaviour, greed, evasion of obligations or agreements.

Trust is particularly important in this context as it helps actors' embrace their vulnerability to risks, by building one's confidence that the trustee is not going to take advantage of their vulnerability (Emborg et al. 2020).

Power is a fundamental force in social relationships and pervasive throughout various livelihood interactions in small-scale fisheries. Power shapes how actors gain access to and interact with people and the environment, who participates in decision-making, who exerts control over technology, and distributive outcomes for people involved in small-scale fisheries (Lentisco and Lee, 2015; Arthur et al. 2022). Power imbalances between actors often create unequal struggles over resources that produce both winners and losers (Arthur et al. 2022). Power struggles exist between value chain actors at the same level in the chain, for example between different gear-users like trawls, long lines, and purse seines over access to dwindling fish stocks, but also between fishers and the authorities or between local resource users and large commercial interests (Chuenpagdee and Jentoft 2018). Unfortunately, those who have economic or political power tend to exploit natural resources in their own interests, often at the expense of others (Arthur et al. 2022). Thus, power imbalances are a critical issue in small-scale fisheries, and many other food systems, as they continue to impede progress towards social equity and equality, and sustainable resource governance (Chuenpagdee and Jentoft 2018; Arthur et al. 2022).

1.3. Situating the research in the existing literature on power and trust in small-scale fisheries

Literature that focuses on trust within livelihood interactions in small-scale fisheries is limited. More broadly, within development studies, business studies, sociology and food and agricultural sciences, there are a greater number of relevant studies that examine the importance of trust in trade relationships. Several of these studies focus on informal sector trade, since it is generally accepted that trust plays an especially important role in governing trade relationships in the informal sector, where the regulating influence of formal institutions is limited, and actors lack access to social security services (Rubbers 2009; Szabó, 2010; Odera, 2013). These studies have generally found positive links between trust and economic outcomes including reduced transaction costs and increased productivity, and non-economic outcomes including improved cooperation and expanded business networks (Szabó, 2010; Odera, 2013). However, studies that focus on trust in livelihood relationships in small-scale fisheries are scarce. Some studies somewhat passively acknowledge the importance of trust to trade relationships (e.g., Roberts et al. (2022)), credit arrangements (e.g., Crona et al. 2010; Matsue et al. 2014) and patron-client relations between fish suppliers and fish buyers (e.g., Nunan et al. 2020; Amarasinghe, 1989). These authors suggest that trust is important for trade in small-scale fisheries as trade relations are often informal and uncontracted, and founded on reciprocity (Nunan et al. 2020). Trust can help manage the risks and uncertainties inherent in resource-based livelihoods and trade relationships contingent on social behaviour by allowing the exercise of discretion in deciding on entering and remaining in a relationship (Nunan et al. 2020). As such, fish buyers seek reliable, trustworthy fish suppliers, and loans issued by fish buyers are strongly based on trust (Crona et al. 2010). As a result, those who have

trustworthy partners are better protected from cheating and loss. In summary, these studies indicate that trust can strengthen trade relations, facilitate trade networks and economic transactions in small-scale fisheries. However, these studies do not address trust as a central component of their examinations, and therefore the concept and findings in relation to trust are vaguely discussed. Many of the studies do not state explicitly in which ways trust is important, between whom, or why. Furthermore, there is limited examination of the factors that encourage and undermine trust within livelihood relationships, including how power influences trust.

Power relations within livelihood interactions in the small-scale fisheries sector has received more attention than trust relations. Researchers have highlighted the complexity and fluidity of power relations in small-scale fisheries (e.g., Nunan et al. 2020). Though studies rarely examine power in relation to trust. There is sufficient debate on this topic in other fields of study, particularly political science. This literature has drawn mixed conclusions regarding the influence of power on trust, specifically whether power drives out trust or if power is a requirement of trust. Some authors (e.g., ÖUberg and Svensson (2010)) have found a positive relationship between power and trust based on actors' need for predictability when deciding whether to interact with others or not. Others (e.g., Farrell, 2004) maintain the reverse is true - that power impedes the development of trust since the more power someone has over you, the less you trust them, because, for instance, they might be less dependent on the relationship or have greater alternatives and therefore have less need to be trustworthy or invest in the continuation of the relationship. Given the presence of

power in trade relations in the small-scale fisheries an analysis of the relationship between trust and power is missed.

This study aims to better understand livelihood relationships in small-scale fisheries by examining how the concepts of trust and power appear in and mediate the everyday interactions between value chain actors. In doing so, it contributes to several research agendas. This study aims to contribute to the limited research on interpersonal trust in small-scale fisheries. Furthermore, with its unique analysis of power in relation to trust, this study intends to contribute new insights to studies on power and its influence on cooperation in small-scale fisheries value chains. The study also contributes to theoretical debates concerning the relationship between power and trust with empirical evidence from an under researched context – small-scale fisheries. The research findings are relevant to cooperation, individual wellbeing, economic productivity, and resource governance and thus have important implications for management and development challenges in the sector.

1.4. The study and research focus

The overall aim of this thesis is to understand how power and trust influence trade and labour relationships in small-scale fisheries. This aim will be achieved through three interrelated sub-questions:

- 1) How do actors within small-scale fisheries experience a plurality of power relations?

- 2) How is trust encouraged and undermined in small-scale fisheries trade and labour relations?
- 3) How does power influence trust and in turn trade and labour relations in small-scale fisheries?

To fulfil these research aims and objectives the study uses a qualitative case study of the small-scale fisheries of Lake Victoria, Uganda. Evidence from multiple landing site locations representing different contextual conditions, and from various value chain interactions including relationships between boat owners and fishing crew, fish suppliers and fish buyers as well as horizontal relations between fish traders, is analysed to draw cross-case conclusions. Furthermore, the study uses qualitative methods to achieve an in-depth understanding of trade and labour relations in small-scale fisheries and capture the social nuances of these economic exchanges. The study uses interviews and focus group discussions to explore the concepts of trust and power in the everyday interactions between value chain actors.

1.5. The effect of COVID-19 on my research plans and progress

COVID-19 forced me to significantly re-design my research which seriously delayed my progress. I started my PhD journey in September 2019. Within the same academic year, in February 2020, COVID-19 had officially reached Europe and some countries started to introduce lock-downs. Before the pandemic I was planning to conduct fieldwork in Tanzania in Spring/Summer 2020. My research questions were designed to investigate women's participation in collective organisations at the community-level.

During the first lock-down period both myself and my supervisory team had hoped that I would be able to travel in 2021, so I continued to work on my original plans. I spent a large proportion of my time during the first year of my PhD writing my literature review and planning for this period of fieldwork. I completed a first draft of my literature review chapter and applied for various fieldwork grants and begun writing my ethical review application to enable me to conduct this fieldwork. However, when the second lock-down period happened in the UK (December 2020) it became clear that international travel would not be possible in 2021 and I had to change my plans. Hence, I spent time in December 2020 and January 2021 re-designing my research; the research questions, the methodology and communicating with various actors to devise a feasible and relevant research plan that did not require international travel and face-to-face communication. Consequently, the only output I produced during this time was a significantly revised research proposal.

My revised research proposal built upon the connections I had formed as well as the findings from research I conducted through a consultancy taken on during the period of COVID disruption in 2020. The objective of the consultancy was to investigate the impacts of COVID-19 on women fish processors and traders in sub-Saharan Africa (Atkins, McDougall, and Cohen, 2021). The consultancy required me to work with the African Women Fish Processors and Traders Network (AWFISHNET) to gather information on women's experiences of COVID-19. The research found that despite market closures, travel and border restrictions, digitally connected fishers and traders were able to continue to trade and even innovate to create new enterprises and

business opportunities (Atkins, McDougall. and Cohen, 2021). Traders in contact with their customers by phone were able to organise the sale of fish, delivery to the recipient's home and payment using mobile transactions. In Tanzania, women fish traders and processors with the required technological skills also used online social media platforms including Instagram and Facebook to advertise their products and reach consumers in the absence of physical marketplaces (Atkins, McDougall, and Cohen, 2021). These were mostly younger, educated women.

Since it was agreed that I could use the data I had collected during this consultancy for my thesis, my revised research proposal was designed to explore these findings further. This was also informed by the understanding that I would not have time to undertake the initial fieldwork and even if fieldwork became possible, a much shorter period of fieldwork was likely. The revised research objectives became focused on the role of digital technologies in women's livelihoods and empowerment. I presented this idea to African Women Fish Processors and Traders Network (AWFISHNET) in the hope that they would continue to work with me to implement this research plan. The proposal was well received by AWFISHNET as it showed there would be clear practical or policy outcomes, specifically for the expanding field of information and communication technologies for development (ICT4D). So, I moved forward with these plans, including re-writing my literature review to account for the significant change in research focus from women fish processors and trader's participation in collective organisations to their access to and use of digital technologies.

I initially designed this new proposal to involve online methods of data collection (as fieldwork still didn't seem possible or realistic). These would be a combination of WhatsApp interviews, content analysis of online groups' chat logs and digital diaries. In January 2021 I received ethical approval for this research and soon afterwards began reaching out to my contacts within AWFISHNET to begin data collection. But whilst I had some initial interest and engagement with this proposal, engagement with my research slowed and I went for long periods of time without hearing from people. Consequently, it was difficult to make any progress. I faced challenges related to the time constraints and pressures my intended participants and research partners were under due to COVID-19. AWFISHNET Board Members I had built relationships with and relied upon as both research participants and gatekeepers to other research participants were often unreachable. They were unavailable either because they had been deployed to work on COVID-19 related research or projects themselves. Some were absent from work because they had contracted the virus or were busy trying to recuperate their own fish businesses or catch up on other project work delayed by COVID. Some needed to care for sick family members, and were even coping with bereavement. Consequently, organising meetings to discuss my research, information gathering, and participant recruitment was very difficult.

By December 2021, after failing to recruit participants for this study remotely, my supervisory team and I decided it was necessary to change plans again. It was evident that a period of fieldwork was necessary to collect the amount and quality of data needed for a PhD thesis. Thus, I adapted my plans and the latest research proposal,

which included a period of fieldwork, focused on women fish processors and traders' use and access to digital technologies. I settled on a case study of Lake Victoria, Uganda, because I had managed to maintain contact with instrumental stakeholders and built new relationships in that region through additional research assistance work I conducted in 2021 on a project entitled 'Strengthening fisheries co-management, Lake Victoria, East Africa', led by my supervisor Professor Fiona Nunan. These contacts in Uganda were interested in and engaged in my research and were willing and responsive to my requests for help. One contact was particularly helpful and provided me with a preliminary list of people I could contact to request an interview, as well as their location around the lake. This information provided a useful starting point for further developing my fieldwork plans.

After receiving all the necessary ethical approvals and research permit, I travelled to Uganda at the end of August 2022 and conducted data collection between September 2022 and February 2023. However, after an initial period of data collection and analysis, in which I carried out 36 structured interviews with women fish processors and traders and five focus group discussions my research focus changed significantly. This data provided some information to address the research questions which were:

- (i) to investigate how women fish processors and traders' access and use digital technologies in the fisheries of Lake Victoria, Uganda; and

(ii) how are digital technologies impacting relations between women fish processors and traders and other value chain actors in Lake Victoria, Uganda, and what impact does this have on women's livelihoods?

But the use of digital technologies was far more limited (amongst the research participants) than expected, which is a finding, but one which would provide limited data to answer the research questions in enough depth, particularly the second research question which aimed to explore the impacts of digital technologies on gendered power relations. Instead, the data - through the open-ended questions that were designed to explore how digital technologies mediate relations between women fish processors and traders and other value chain actors - produced more information on how power and trust mediate trade and labour relations. So, I decided to collect more data to explore these findings further. I also decided to expand the target population to include other value chain actors, including boat owners and fishing crew in addition to fish traders and processors. This was because it appeared inappropriate to gather information and perspectives from one actor (e.g., the fish traders and processors) about their interactions with a second party (e.g., boat owners, or fishers) without also hearing from the second party. The methodology was also expanded to include men to gain a more holistic perspective of trade and labour relations in the study areas.

Whilst it was necessary to adapt my research again, this time in response to what was appearing in the data, these changes required another revision of the literature review

chapter; making it the second time I have had to re-write the literature review, in addition to the first draft. In summary, I have spent a large proportion of my PhD adapting and developing my research plans to difficult and dynamic circumstances.

1.6. Thesis outline

Chapter 2 provides some background information relevant to the context of this research. First, the small-scale fisheries sector is broadly introduced. This section emphasises the complex and dynamic nature of small-scale fisheries as a particular context of study. After, Lake Victoria's small-scale fisheries are described including relevant details about the geographical, ecological, market, livelihoods, and governance context. The chapter also introduces the small-scale fisheries value chain and provides a descriptive list of key value chain actors in Lake Victoria's small-scale fisheries. These descriptions helpfully set out the terms used to refer to groups of actors later in the thesis.

Chapter 3 provides a review of literature relevant to understanding power and trust relations in small-scale fisheries. The first section relates to power in small-scale fisheries trade and labour relations. The chapter begins by establishing a conceptual definition of power, then outlines the scope of literature on power in small-scale fisheries and introduces gender power relations and patron-client relations as key cross-cutting themes later used to understand power relationships between value chain actors in small-scale fisheries. The second section of the chapter goes on to

discuss interactions and power relations between (i) fish suppliers and fish buyers, (ii) boat owners and fishing crew, and (iii) horizontal relations between fish traders. The third section of the chapter outlines the scope of literature on trust in small-scale fisheries. It then examines existing information regarding the interaction between trust and power and provides some conceptual clarification on trust. The last section of the chapter establishes the conceptual framing of the research.

Chapter 4 establishes the methodological approach through which the aims and objectives of this thesis are examined. The chapter discusses the study's qualitative approach to studying trust and power and then outlines the philosophical underpinnings of the research. The chapter outlines the rationale for the selection of the case study and approach to the selection of study participants. Following this the chapter discusses the research in practice, including an overview of study participants and reflections on the research process, including some lessons learnt. It also explains how the research tools were designed to fulfil the research aims and objectives. This section is organised under each research method which includes structured individual interviews, focus group discussions, semi-structured individual interviews, and group interviews. The chapter also describes the data analysis process and ends with a discussion on emerging ethical issues and positionality.

Chapter 5 explores how actors within small-scale fisheries experience a plurality of power relations. The research findings are discussed within their specific interactions; power relations between fish suppliers and fish buyers are discussed first, followed by

a discussion of power in horizontal trade relations between fish traders, and lastly, a discussion of power relations between boat owners and fishing crew.

Chapter 6 explores how trust is encouraged and undermined in small-scale fisheries trade and labour relations. In keeping with the structure of Chapter 5, the first section of this chapter analyses the research findings on interpersonal trust between fish suppliers and fish buyers, and the second section examines the findings on interpersonal trust between boat owners and fishing crew. Afterwards, the chapter examines how the meso- and macro-level social, institutional, and environmental context influences trust in dyadic trade relations.

Chapter 7 examines how power influences trust and in turn trade and labour relations in small-scale fisheries. This chapter discusses additional research findings and draws together the research findings from Chapter 5 and 6 in an analysis of the interactions between power and trust. The first section discusses the effects of perceived power on perceptual trust. These dynamics are discussed first in relation to interactions between boat owners and fishing crew, and secondly in horizontal relations between fish traders. The second section of this chapter examines the effects of behavioural power on trust. This section explores the effects that both the exercise of noncoercive power, and coercive power have on trust, respectively. The chapter also discusses the implications of these dynamics for cooperation between value chain actors.

Chapter 8 provides a summary of the research findings and outlines the contributions of this research to the wider literature. The concluding chapter also identifies avenues for future research in this field and outlines some implications for policy and livelihood interventions.

Chapter 2: Background

2.1. Introduction to the fisheries of Lake Victoria, Uganda

Uganda's aquatic resources, comprising 41,743 km² of lakes, rivers, wetlands and swamps that cover almost one-fifth of the country's surface area, support abundant inland capture fisheries (Simmance et al. 2023). In 2019, fish catches were estimated at 603,000 tonnes (FAO, 2021). The capture fisheries sector provides the largest amount (81%) of fish to domestic fish supply, in comparison to the aquaculture sector (19%) (Simmance et al. 2023). Most of the fish in Uganda come from five major lakes: Victoria, Kyoga, Albert, Edward, and George. Half of all reported fish catches, between 2012–2018, were from Lake Victoria (49%), followed by Lake Albert (37%), Lake Kyoga (9%) and other water bodies (5%) (Government of Uganda, 2018, as cited in Simmance et al. 2023).

Lake Victoria is the largest lake in Africa and second largest freshwater lake in the world, covering a surface area of 68,800km² (Herschy, 2012). The lake is shared between three countries including Uganda, Kenya, and Tanzania, who govern 43%, 6% and 51% of the lake respectively (Herschy, 2012).

Today, Lake Victoria is dominated by three species of fish; Nile Perch (*Lates niloticus*), Silver Cyprinid (*Rastrineobola argentea*) and Nile Tilapia (*Oreochromis niloticus*) (Kolding et al. 2014). However, the fisheries of Lake Victoria have undergone

substantial ecological changes. The original fishery of Lake Victoria is said to have consisted of over 300 species of native East African cichlids (haplochromines) that dominated the landed catch (>80%) (Witte et al. 1992; (Mpomwenda, 2018). However, in the 1950s non-native Nile Perch and Tilapia species were introduced to the lake. By the late 1970s, the population of Nile Perch in the lake had exploded (Wilson et al. 1999; Kolding et al. 2014), and the catches of haplochromines had decreased (Witte et al. 1992). Predation by the Nile Perch, combined with increased fishing pressures (a result of improved technological efficiency), reduced the Lake Victoria fisheries from a diverse, multi-species fishery to one dominated by just three species – Nile Perch, Nile Tilapia and Silver Cyprinid (Kolding et al. 2014). Though a resurgence of the haplochromine species has been observed in the last decade (Mpomwenda, 2018), Lake Victoria is known for one of the greatest mass extinctions of fish species in modern times (Kolding et al. 2014)

2.2. Fishing operations on Lake Victoria, Uganda

All the catch from capture fisheries in Uganda is from ‘small-scale fisheries’ (Simmance et al. 2023). Small-scale fisheries¹ have been broadly defined by the Food and Agriculture Organisation (FAO) as “*traditional fisheries involving fishing households (as opposed to commercial companies), using relatively small amount of capital and energy, relatively small fishing vessels (if any), making short fishing trips, close to shore,*

¹ Other adjectives including ‘subsistence’, ‘traditional’, ‘peasant’ and ‘artisanal’ are used to describe small-scale fisheries (Kurien, 1998).

*mainly for local consumption*². Social, cultural, and political characteristics are less commonly used to distinguish between small-, medium- and large-scale fishery sectors, but include the significance of fishing as a livelihood, ownership of fishing gear or vessel and marginality (Smith and Basurto, 2019).

Small-scale fisheries flourish in many developed and developing countries. There is enormous heterogeneity that characterises small-scale fisheries and their surrounding communities and as a result the definition of the subsector varies considerably between countries (Delgado-Ramírez et al. 2023). Small-scale fisheries are also incredibly dynamic. Worldwide, they continue to evolve in response to a range of factors including globalisation, climate change, natural disasters, migration and management or regulatory regimes. In many areas, an export orientation to trade, expanding industrial processing operations and technology transfer, has changed the nature of small-scale fisheries (Kurien, 1998). Through the commercialisation of their products many small-scale fishing communities are now widely connected to regional and international markets (Delgado-Ramírez et al. 2023). This is true for the Nile Perch fishery in Uganda, which is a highly commercial export fishery. Though this sector is still considered small-scale in Uganda, because whilst large companies dominate the processing, airlifting, and overseas retailing of Nile Perch, the fishing itself is dominated by small-scale activity (Johnson 2010; Beuving, 2013). However, there is considerable variability within and between the three major fisheries. These differences are presented later in this chapter.

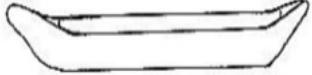
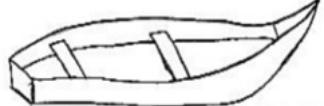
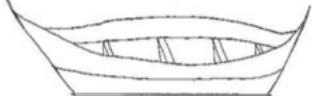
² FAO. Term Portal. FAOTERM. February 2023. Accessed 1/2/2023. <http://www.fao.org/faoterm/en/>

2.2.1. Overview of the fishing fleet, gears and methods used

Lake Victoria is characterised by a heterogenous fishing fleet with differences in gears and vessels used, and target species (Mpomwenda, 2018). The National Frame Survey conducted by the Lake Victoria Fisheries Organisation (LVFO) in 2020, recorded a total of 26,163 fishing vessels in Uganda, Lake Victoria (Nakiyende et al. 2021). This fishing fleet is dominated by *ssese flat boats* (84.2%) followed by *parachute boats* (12.3%), *ssese pointed boats* (1.2%), rafts (0.6%), catamarans (0.1%), and dugouts (0.05%) (Nakiyende et al. 2021). Table 1. provides an overview of these vessels in terms of their shape, size and use. In 2020, 65.3% of boats were propelled by outboard engines, 32.3% by paddles, 1% by sails, and 0.1% towed. Vessel motorisation has been increasing over time; between 2000 and 2014 there was a four-fold increase in the number of fishing vessels using outboard engines (Mpomwenda, 2018). Relatedly, between 2016 and 2020, the number of boats propelled by paddles and sails decreased by 51.1% and 69.2% respectively (Nakiyende et al. 2021).

Table 1. Description and illustration of the vessels used in Lake Victoria, Uganda.

Source: Ssemijja, D. Fishing gear technology. Makerere University. Lecture Slides.

Fishing vessel	Construction	Shape	Length	Mode of propulsion	Fishing areas	Target species	Fishing gear	Pictorial representation
Dugouts	Carved out of a tree log	Long and thin	4 - 5m	Paddle	Littoral	Tilapia	Gillnets and basket traps	
Parachute	Constructed from planks of timber.	Flat bottomed.	4 - 6m	Paddle	Littoral	Tilapia	Gillnets, cast nets and basket traps.	
Ssese pointed boats	Constructed from planks of timber.	Pointed at both ends. V-shaped bottom with a keel.	6 – 10m	Paddle or sails	Littoral and sub-littoral (up to about 3km from the shoreline)	Largely unspecialised	Used in the Mukene fishery with lift nets, and the Tilapia and Nile Perch fishery with gillnets.	
Ssese flat boats	Constructed from planks of timber	Flat at the back end. V-shaped bottom with a keel.	5 - 12m	Paddle, sail or outboard motor	Sub-littoral	Largely unspecialised	Used in the Mukene fishery with small seines, and the Tilapia fishery with gillnets, and the Nile Perch fishery with gillnets, longlines and handlines.	

In addition to boat-based fishing, the National Frame Survey conducted in 2020 recorded a total of 350 foot fishers, this is more than double the number of foot fishers (148) recorded in 2016 (Nakiyende et al. 2021). The majority (89.4%) of these foot fishers, captured in the 2020 survey, targeted Nile Tilapia (Nakiyende et al. 2021).

Several fishing gears are in use across the lake including gillnets (35.9%), longlines (21.9%), small seine (18.8%), monofilament (8.5%), handline (6.5%), cast nets (*tupa tupa*) (3.3%), beach seine (2.5%), boat seine (1.7%), traps (0.9%), scoop nets (0.3%) and lift/lampara nets (0.1%) (Nakiyende et al. 2021). Lake Victoria fisheries have also undergone dynamic changes related to the use of more efficient fishing gears (Mpomwenda, 2018). Over the last couple of decades, the number of fishers using traditional artisanal gears like basket traps has reduced by 85.1% since 2002, whilst the use of more efficient gears such as gillnets has increased by 47.4% since 2000 (Nakiyende et al. 2021). Fishers have also been seen to increase efficiency by increasing the net length and distance covered, in some cases by ‘stacking’ nets on top of each other (Lokina, 2008).

2.2.2. The Nile Perch fishery

Most (59.4%) of the fishing crafts in Lake Victoria, Uganda, target Nile Perch, known locally as *Mbuta* or *Mputa* (Nakiyende et al. 2021). Furthermore, the number of crafts targeting Nile Perch has increased by 59.7% between 2016 and 2020 (Nakiyende et al. 2021).

Ssese flat boats dominate the crafts used to catch Nile Perch (94.9%), followed by parachute boats (3.8%). No catamarans or dugouts are used to target Nile Perch (Nakiyende et al. 2021). The fleet is comprised of both non-motorised and motorised vessels. Though, the majority (>80%) of motorised vessels on Lake Victoria, Uganda, target Nile Perch (Mpowenda et al. 2022). The Nile Perch fishery predominantly uses monofilament gillnets and multi-hook longlines (Mpomwenda, 2018).

Nile Perch is the most economically valuable fishery in Lake Victoria as the fish is exported internationally to markets mostly in Europe, but also in the Middle East, China, Japan and the US (Mette Kjær et al. 2012; UFPEA, 2023). The fish export industry in Uganda generated US\$ 10.5 million in 2021, making fish the third most valuable export commodity, behind gold and coffee (UBS, 2021). Exports of fish products to international markets average above 29,000 metric tonnes annually (UFPEA, 2022).

The boom in Nile Perch stocks in the 1980s generated large-scale investments in industrial fish processing and international export (Wilson et al. 1999; Namisi, 2005). Attracted by the liberalisation of the sector and profitable European markets for frozen Nile Perch fillets private business owners established fish processing factories around Lake Victoria (Mette Kjær et al. 2012). Today, there are 16 operational fish processing factories in Uganda (UFPEA, 2022). These factories are owned by 11 companies. The factories are in the Eastern Region in Jinja, and the Central Region in Rakai, Kampala

and Entebbe (UFPEA, 2023). Most of the factories appear to be owned by non-Ugandans; including Kenyans, Koreans, Saudi Arabians, Indians, and Dutch (Namisi, 2005; Kantel, 2019). The factory owners are represented by the Uganda Fish Processors and Exporters Association (UFPEA), founded in 1993.

Over time, the commercial sector has been significantly affected by declines in the availability of Nile Perch that meet the fillet size requirements for international export (50-85cm) (Medard et al. 2019). At its peak, in 2005, 22 fish processing factories were operational in Uganda, but by 2016 the number of open establishments in the country had declined to 5 (UFPEA, 2022). Since 2016, the number of fish processing factories in operation has risen, however, most companies are said to be operating below 20% of their installed capacity (UFPEA, 2022).

This commercial, export-oriented fishery co-exists with an artisanal Nile Perch fishery on Lake Victoria (Lwenya and Yongo, 2012). Mpowenda et al. (2022) distinguishes between the commercial and artisanal Nile Perch fishery based on operational differences. They explain that the commercial fishers targeting Nile Perch, typically use motorised vessels and operate in the offshore areas of the lake, whereas artisanal fishers using paddled vessels operate largely inshore (Mpowenda et al. 2022). Other distinctions can be seen in vessel ownership; owners of paddled vessels targeting Nile Perch typically engage in fishing themselves, while owners of motorised vessels targeting Nile Perch mostly employ their fishing crew (Mpowenda et al. 2022). Furthermore, commercial fishers target Nile Perch purposely for the export market,

and artisanal Nile Perch fishers target fish sold to local and regional markets (Mpomwenda et al. 2022). Artisanal fishers also target juvenile Nile Perch, which although prohibited, have a high market demand in local and regional markets in the Democratic Republic of Congo and South Sudan (Mpomwenda et al. 2022). Due to their targeting of juvenile fish stocks, paddled vessels have been a targeted group in enforcing fishing regulations in Uganda (Mpomwenda et al. 2022).

Fishers harvesting for the export market use double and triple panels of their gillnet to increase fishing depth (Mpomwenda et al. 2022). Large sized Nile Perch (above 40cm), suitable for purchase by fish processing factories, are mainly found in the deeper parts of the lake (Mpomwenda et al. 2022). Hence, commercial fishers have mastered strategies, with the use of multi-panel gillnets, to obtain fish within the required 50-85cm size range established by fish processing factories (Mpomwenda et al. 2022).

Growth in the practice of net panelling is also attributed to the increased competition in the fishery and a need to search for new fishing grounds (Mpomwenda et al. 2022).

Furthermore, in Uganda, there is also a growing fish maw (swim bladder) industry, harvested from Nile Perch. Fish maws are traded fresh, dried and frozen, and exported to China and Japan, through Hong Kong (Bagumire et al. 2018). Nile Perch beyond the factory allowable size limit (larger than 85cm) are targeted by commercial fishers operating in the deeper parts of the lake for their fish maws (Mpomwenda et al. 2022). Since, the value of the fish maw is said to increase with the size of the fish (Mpomwenda et al. 2022). The per kg price of fish maws (50 USD) is 10 times more

than that of fish fillets (5 USD) (Mpomwenda et al. 2022). Maw worth 40 million USD is reported to have been exported from Uganda in 2017 (Bagumire et al. 2018). Maw is also obtained by the fish factories after filleting and sold to maw processors for drying, or exported as frozen maw (Bagumire et al. 2018). The growth of the maw business has increased the profits of fishing processing companies Bagumire et al. 2018). However, the unregulated fishing of these large size fish is said to threaten the population of the spawning stock of Nile Perch (Mpomwenda et al. 2022).

The longline Nile Perch fishery also drives a growing bait fishery. Haplochromine cichlids, tilapine species, lung and catfish are commonly used as bait on these longlines to catch Nile Perch (Mpomwenda, 2018; Nakiyende et al. 2021). In the Tanzanian waters of Lake Victoria, the total annual weight of baitfish (mostly undersized and illegally caught) was estimated at 7,465 tonnes (Mkumbo and Mlaponi, 2007). Though the impacts of the bait fishery on the recovery of the native tilapine species in the lake has gone largely unobserved (Mkumbo and Mlaponi, 2007).

Fish processing factories generally source their fish from specific 'gazetted' landing sites and some processing factories have established their own private landing sites. 'Gazetted' landing sites have higher hygiene standards to meet EU import requirements (Ponte, 2007; Mette Kjær et al. 2012)³. In 2005, 14 landing sites on Lake Victoria were officially 'gazetted' by the Department of Fisheries Resources (DFR) to

³ The sector received significant support from the EU to develop infrastructure to meet international food export standards and quality control following several bans on exports from Lake Victoria implemented by the EU between 1997 and 2000 (Ponte, 2007; Mette Kjær et al. 2012).

handle fish for export (Ponte, 2007). Fisheries Inspectors are employed by the DFR at these landing sites to inspect and certify fisheries products for export, monitor fish handling activities and ensure the safety of fisheries products (Ponte, 2007). Inspectors are mandated to check all incoming consignments of fish and issue local health inspection certificates that are required to transport fish from a landing site to a processing factory⁴ (Ponte, 2007). Processing factories apparently pay the landing site authorities a fee for each truck of fish transported from a landing site (Mette Kjær et al. 2012).

At these landing sites, fish of processable quality and required size is sold directly to factory agents (Mpowenda et al. 2022). Fish below and beyond the allowable size, and of poorer quality are sold to local traders (Mpowenda et al. 2022).

Fish processing factories generally procure fish through 'fish agents' who buy fish from fishers (Namisi, 2005). According to Namisi (2005) 80% of the fish factories procure fish using fish agents and 20% buy directly from fishers (Namisi, 2005). These agents own insulated vehicles that are filled with ice to transport fish from landing sites to processing factories (Mette Kjær et al. 2012). At larger, central, landing sites fish processing factories are said to employ resident agents (Wilson et al. 1999). Some of these agents even own boats and equipment and employ fishermen themselves to fish and supply the factories (Namisi, 2005). In other cases, arrangements are made

⁵There are currently no health and quality assurance standards or operating procedures for fish destined for local and regional markets (Ponte, 2007).

between individual agents and fishers whereby the agent provides the fishers with fishing equipment on credit and in return the fishers supply fish to the agent. In this way the fishers pay back their loan (Namisi, 2005). Wilson et al. (1999) found that processing factories are one of the largest sources of credit for fishing equipment in Lake Victoria, Tanzania (Wilson et al. 1999).

The commercialisation of the fish trade, particularly of Nile Perch, has brought both opportunities and constraints at a local level (Namisi, 2005; Eggert et al. 2015). Whilst commercialisation has increased fish prices (Abila and Jansen, 1997 as cited in Nunan et al. 2020) others contend that the transformation has reorientated what was a barter and local market-orientated economy to one that is increasingly shaped by global market demands. This can have negative effects upon food security, local economies and the incomes of the local fisheries actors (Eggert et al. 2015; Medard et al. 2019).

The factories demand affects the availability of Nile Perch for others and intensifies competition between factories and regional and local traders (Wilson et al. 1999; Medard et al. 2019). At landing sites where the factories have established a strong presence, they take a large majority of the decent-sized Nile Perch (Wilson et al. 1999). Consequently, regional, and local traders in Nile Perch must travel further to more isolated landing sites (Wilson et al. 1999). According to Wilson et al. (1999) some regional and local traders moved to collecting Nile Perch from smaller landing sites on behalf of the fish agents/middlemen. Evidence suggests that women who process and sell fish locally have been particularly affected by competition from the processing

factories and have resorted to frying and selling fingerlings/undersized fish which the factories do not want (Wilson et al. 1999).

Fishers consistently complain about low prices and factory owners claim that due to consumers' demand for low price products and competition from rival factories, they are forced to offer low prices in their pursuit of cost-effective business strategies (Namisi, 2005). Fish agents have been known to exploit fishers, buying at lower than agreed prices (Namisi, 2005). Fishers who have tried to by-pass the exploitation of the agents by taking their fish directly to factories, have been refused or their fish declared as 'rejects' and bought at throwaway prices (Namisi, 2005).

Furthermore, Wilson et al. (1999) argues that integration into the international market has increased the stratification of the fishing industry and changed relations of production. They contend that a smaller group of larger fishing operations control more and more of the fishing power (Wilson et al. 1999). This is, in part, because factories prefer to work with fishers they know who can provide collateral and records of their catches, favouring fishers who have larger operations (Wilson et al. 1999).

Researchers also report disparities in the benefits of the system at the local level, with more benefits accruing to the upper levels of the fish marketing chain (Abila et al. 2006). Wilson et al. (1999) found that boat owners have benefitted more than fishing crew from the expansion of the Nile Perch trade, particularly those operating at central landing sites connected to fish processing factories (Wilson et al. 1999). Consequently,

the gap between the owning and labouring classes within the industry has apparently grown together with the commercialisation of the fishing industry (Wilson et al. 1999). Furthermore, the career path from fishing crew to boat owner has reportedly become much steeper (Wilson et al. 1999).

2.2.3. The Silverfish fishery

Silverfish, locally known as *Mukene*, makes up the largest volume of fish catches from the lake (60%) (Kolding et al. 2014; Simmance et al. 2023). However, just 19.3% of all fishing crafts in the Ugandan waters of Lake Victoria target Mukene (Nakiyende et al. 2021). The Mukene fishery is dominated by ssese flat boats (98.3%), followed by ssese pointed boats (1.37%) and catamarans (0.34%) (Nakiyende et al. 2021).

Silverfish is fished at night, mainly during moonless nights, using kerosene pressure lamps or solar bulbs mounted on floating rafts to attract the fish (Lokina, 2008; Nakiyende et al. 2023). This form of light fishing was introduced to Lake Victoria in the early 1970s (Nakiyende et al. 2023). The fish, attracted to the light, concentrate around the light attraction device, are dragged out of the water in nets (Nakiyende et al. 2021, 2023). Most boats (97.9%) use small seines, followed by scoop nets (1.6%) and lift nets (0.5%) (Nakiyende et al. 2021).

Commonly, multiple small seine nets are vertically joined together in panels, with hauling ropes attached to both ends, to form an encircling net (Nakiyende et al. 2023).

A single seine net is typically 100m in length and 2m in width (Nakiyende et al. 2023).

Net panelling is a practice that has been increasing as fishers attempt to increase catches and exploit the deeper waters (Nakiyende et al. 2023). Nakiyende et al. (2023) report that on Lake Albert, Uganda, fishers targeting Silverfish use small seine nets comprising of between 12 and 20 panels. According to the current fishing regulations (Fish (Fishing) Rules, 2010) nets used to target Mukene should be a minimum mesh size of 10mm, and Mukene fishing must be done at least two kilometres from the shoreline. However, in 2020 at least 74% of the small seines used to target Mukene had a mesh size of 5mm and less (Nakiyende et al. 2021). Even though the number of small seines with a mesh size of 5mm and less has decreased by 34.8% since 2016 (Nakiyende et al. 2021).

Evidence suggests that fishing effort is gradually shifting from the Nile Perch fishery to the Mukene fishery due to the overexploitation of Nile Perch (Mpomwenda, 2018). Between 2016 and 2020, the number of boats targeting Mukene increased by 19.3% (Nakiyende et al. 2021). More people are reportedly joining the Mukene fishery because of better outputs (catches) and thus better wages (Mpomwenda, 2018). Though the Mukene fishery in the Ugandan waters of Lake Victoria is still considered underdeveloped in terms of the number of fishing crafts targeting Mukene (Nakiyende et al. 2021).

Mukene, after landing, is typically processed by sun-drying, salting and deep-frying (Nsibirano et al. 2023). Sun-drying is the most common processing method (Nsibirano

et al. 2023). Mukene is spread on the ground, on racks, or in solar tents, where it is exposed to direct sunlight (Nsibirano et al. 2023). Typically, Mukene takes 1-3 days to dry (Nsibirano et al. 2023). Though, it can take longer to dry the Mukene during the rainy season (Namwanje, et al. 2020). Additional people are often employed by fish processors to assist in processing activities, including to carry the fresh fish from the boats to drying areas, to turn the fish as it is drying and protect the fish from predators. After drying, sun-dried Mukene is typically stored and transported in hessian or polyester sacks. Dried Mukene can be kept for up to 3 months in storage (Namwanje, et al. 2020). Wholesale stores at landing sites typically wait until they have accumulated the quantity of fish determined by the customer (Namwanje, et al. 2020). Quantities stored by traders can vary between 6kg to 50 tonnes, depending upon the market demand for Mukene (Namwanje, et al. 2020). Hence, access to adequate storage facilities is particularly important in the Mukene fishery to avoid physical and quality losses, resulting in economic losses, especially during periods of glut (Namwanje et al. 2020).

In Uganda, Mukene is growing in importance as a low-cost animal-sourced food for human consumption, due to increased awareness of its nutritional value, and the declining catches of table-size fish (Nsibirano et al. 2023). Approximately, 70% of Mukene catches are destined for human consumption (Nsibirano et al. 2023). Furthermore, there is a substantial long-distance trade in Mukene (Lokina, 2008). Mukene is shipped to cities across Uganda and to neighbouring countries such as Burundi, Rwanda, South Sudan and the Democratic Republic of Congo (Lokina, 2008).

The remaining catch is predominantly used for animal feeds, mostly poorer quality fish contaminated with dust and dirt (Ankunda and Nanyonjo, 2023). Mukene sold for animal feed is sold at a lower price (71% of the price for consumable Mukene) (Ankunda and Nanyonjo, 2023).

2.2.4. Tilapia fishery

The tilapine fishery is the second largest fishery in Lake Victoria, Uganda, in terms of the number of fishing crafts (20.2%) (Nakiyende et al. 2021). Furthermore, the number of fishing vessels targeting Tilapia has increased by 20.1% between 2016 and 2020 (Nakiyende et al. 2021).

There are several tilapine species in Lake Victoria, but today, the Nile Tilapia (*Oreochromis niloticus*) dominates the commercial tilapia fishery (Yongo et al. 2021). In the 1960s, tilapine species native to Lake Victoria and its affluent rivers, including *Oreochromis variabilis* and *Oreochromis esculentus* supplied a lucrative fishery. However, these indigenous tilapines have declined significantly since the 1970s, due to various changes within the lake, including the introduction of the non-native Nile Tilapia, predation from Nile Perch, and other environmental and ecological changes (Outa, et al. 2019). Non-native Nile Tilapia was introduced into the lake in the 1950s to enhance the declining indigenous tilapine fishery (Outa, et al. 2019). Though, the Nile Tilapia has gradually outcompeted and replaced the native tilapine species (Outa, et al. 2019). Today, *Oreochromis variabilis* and

Oreochromis esculentus have almost disappeared from the catches within the lake (Outa, et al. 2019).

Tilapia fishing is conducted using parachute boats (47.7%), ssese flat boats (43.3%), ssese pointed boats (1.2%), rafts (2.8%) and dugouts (0.2%), as well as by foot fishers (5.9%) (Nakiyende et al. 2021). Most paddled vessels are said to target Tilapia and operate mainly in near-shore areas, since Tilapia are found mostly in areas that are less than 10 metres deep (Mpomwenda et al. 2022). Similarly, the majority of all of rafts (96.5%), and foot fishers (89.4%) were found to target Tilapia (Nakiyende et al. 2021).

Fishers use a variety of fishing gear to catch Tilapia, including gillnets, cast nets, handlines and traps. Traps are mostly used in shallow vegetated areas, floodplains and river mouths to target Tilapia and other riverine species (Nakiyende et al. 2021). Cast nets, also referred to as 'tupa tupa' are also used in the littoral zone and target Tilapia (Nakiyende et al. 2021).

Nile Tilapia is mainly consumed locally and sold by traders fresh, deep fried, smoked, or sun-dried (Mpomwenda et al. 2022). Juvenile Nile Tilapia also have a high market demand in local and regional markets in the Democratic Republic of Congo and South Sudan (Mpomwenda et al. 2022).

2.3. Fisheries livelihoods, Lake Victoria, Uganda

An estimated 3.2 million people depend, at least partially, on engagement in fisheries in Uganda (Simmance et al. 2023). The Ugandan shores of Lake Victoria host over 60,550 fishers, 11,730 boat owners, 4,800 fish traders, 5,790 artisanal fish processors, and 7,210 fish mongers (Nakiyende et al. 2021) and many others involved in pre-harvest activities like net making, mending and boat building (Nunan, 2021). Table 2. offers a summary of the key value chain actors in the fisheries of Lake Victoria, Uganda.

Most of the actual fishing is done by crews who do not own shares in the boat or fishing gear (Wilson et al. 1999). Usually, 2 or 3 crew members work on each boat (Nunan, 2010). Fishing crew are among the poorest group within the fisheries (Abila et al. 2006). However, fishers earn different levels of income dependent upon the species they target. Fishers of Nile Perch are said to earn the highest incomes, followed by those who target Silver Cyprinid, while fishers targeting Tilapia earn the least (Abila et al. 2006). Commonly fishing crew are paid for each day they work, mostly in cash, though sometimes in cash and fish (LVFO, 2008 as cited in Nunan et al. 2020). Most often fishing crew are paid by dividing the catch value into agreed portions, after deducting expenses (Abila et al. 2006). The catch value is usually shared equally between boat owners and all crew members, then the share for the crew is divided between the three crew members. This leaves them with relatively low earnings (Abila et al. 2006). The share for the collective crew on average amounts to 40% of the catch value after expenses have been deducted (Nunan, 2010).

Boat owners normally provide the investment for fishing inputs, manage the maintenance of fishing vessels, oversee catch sales and payment of the crew at the landing site when fishing crew return to shore (Abila et al. 2006). A lake-wide survey conducted in 2008 reported that the majority (60%) of boat owners owned just one boat, 26% owned two, and 14% owned more (LVFO, 2008 as cited in Nunan et al. 2020).

Boats are required to bring fish catches to demarcated landing sites. From there fish is either channelled to domestic or regional markets by local fish traders or purchased by factory processors, either directly or through fish agents (Mette Kjær et al. 2012). Both men and women are involved in the regional fish trade but it is dominated by women in Uganda (Lwenya et al. 2009). Fish destined for domestic or regional markets is also processed at landing sites, predominantly through sun-drying, salting, smoking and deep-frying. This business is also dominated by women (Lwenya et al. 2009).

Table 2. Descriptive list of key value chain actors in Lake Victoria's small-scale fisheries. Source: Author's own.

Actor group	Key characteristics
Fish suppliers	
Fishers	- Catch fish or other aquatic animals for income, subsistence, or both

	<ul style="list-style-type: none"> - Use various gears and technology to fish - They may be self-employed and own their fishing gear or work as labourers for boat owners. - Fishing crews are (often comprised of) usually young men, and sometimes migrant fishers
Boat owners	<ul style="list-style-type: none"> - Own one or more fishing vessels - Some may work as fishers on their boats, others may hire labourers to fish and recruit boat managers to manage the boat crew and fishing operations - Fishing licenses are often attached to specific boats and therefore in the boat owner's name
Intermediary fish buyers	
Fish traders	<ul style="list-style-type: none"> - General term applied to small- and large-scale traders - Can come from inside or outside the SSF community. - Buy directly from fishers or boat owners, and indirectly from other intermediary fish buyers - Commonly invest in fishing inputs - Involved in the storage and distribution of products - Sell to other intermediary actors, processors, exporters, or retailers

Fish agents	<ul style="list-style-type: none"> - Refers to fish traders connected to fish processing factories or specific retailers. - Sell whole fish, mostly Nile Perch - These actors often work for fish processing factories on commission - Buy in large quantities. - Buy directly from fishers or boat owners, and indirectly from other intermediary fish buyers - Commonly invest in fishing inputs - Commonly own insulated vehicles they fill with ice to transport fish
Fish processors	<ul style="list-style-type: none"> - Add value to fish products through a range of processing methods including smoking, frying, gutting, filleting, salting, and drying. - Buy directly from fishers or boat owners, and indirectly from other intermediary fish buyers - Retail their own products or sell to traders or retailers.
Fish processing factories	<ul style="list-style-type: none"> - Source whole fish (Nile Perch) from fish agents/middlemen - Process fish mostly for international export
Regional exporters	<ul style="list-style-type: none"> - Purchase fresh or processed products for regional export - Organise the distribution of fish across borders.

Retailers	<ul style="list-style-type: none"> - Includes independent retailers such as local market traders as well as supermarkets - Sell to consumers
Consumers	<ul style="list-style-type: none"> - Includes households, restaurants, and hotels.

2.3.1. Gendered livelihoods

Approximately 60% of people engaged in small-scale fisheries in Uganda are women.

Of these 96% of the women are involved in subsistence fishing for food, 20% in harvesting and 52% in post-harvest activities (Gee et al. 2023). Women typically participate in less lucrative markets for processed fish compared while men dominate the fresh fish market (Kadongola and Ahern, 2023). For instance, studies have found that around 97% of fish agents who work in the export-oriented Nile Perch fishery are men (Luomba 2007a and Lwenya et al. 2007 as cited in Nunan, 2021).

A lake-wide survey conducted in 2008, found that of the 609 women in the fisheries sector sampled, 5% were boat owners (LVFO 2008 cited in Nunan, 2021).

Carrying basins of fresh Silverfish from boats to drying areas is considered a woman's business (Ankunda and Nanyonjo, 2023). These basins full of fresh Silverfish are said to weigh about 30 kg. Women carry them on their heads and are reported to earn 400 UGX (0.11 USD) for every basin they carry (Ankunda and Nanyonjo, 2023). Turning Mukene is also considered as a woman's job (Ankunda and Nanyonjo, 2023). These

women who manage the sun-drying process earn around 1000 UGX (0.27 USD) per basin.

However, our understanding of women's work is limited. Data concerning women's work is often excluded from fisheries data collected by the Department of Fisheries (FAO et al. 2023). For instance, data on livelihoods is limited to fishing activities and does not extend to the post-harvest segment of small-scale fisheries value chains, masking women's contributions to the fisheries sector (Nakiyende et al. 2021).

The roles men and women occupy in Uganda's small-scale fisheries are mediated by cultural and socialised gender roles, responsibilities, labour divisions, behavioural expectations and traditions. At the household level, women are normally responsible for domestic and care work while men are typically tasked with earning income (Geheb et al., 2008; Timmers, 2013). Hence, women's household work is typically valued higher than their productive contributions. These gendered responsibilities at the household level also limit the kind of economic activities women can engage in. Consequently, women typically engage in activities that are conducive to their household work, or which can be integrated with their reproductive roles, particularly work that does not require them to travel far from their homes (Lwenya and Yongo, 2012; Timmers, 2013). Women are also perceived to lack the physical strength required for activities such as fishing (Timmers, 2013). Fishing is traditionally viewed as a man's domain and this perception is deeply embedded within the culture of small-scale fisheries in Uganda (Gee et al. 2023). In communities around the shores of Lake

Victoria, men are socialised and encultured from a young age to believe that they are destined to go fishing and take on the responsibility of becoming the family's breadwinner (Onyango and Jentoft, 2011). This division of labour is reflected in gendered patterns of asset ownership. Women own less fishing equipment than men but tend to own assets such as equipment for fish storage, transportation and processing (Kadongola and Ahern, 2023).

Although Uganda's statutory laws grant men and women equal rights, gender inequalities persist particularly in rural areas (UWONET, 2015). In addition to institutional issues which have hindered the implementation of these laws, social norms and practices observed at the community and household level present significant barriers to women's rights (UWONET, 2015). For example, women's ability to access and own productive assets and make decisions about their acquisition, use and disposal is linked with their intra-household decision-making power (Kadongola and Ahern, 2023). Evidence from Lake Wamala, Uganda, suggests that while women participate in some fishing activities, for example through boat ownership, men controlled these activities and the income generated from them (Musinguzi *et al.*, 2018). Women's inability to meaningfully influence these income generating activities limits their economic empowerment (Gee *et al.* 2023).

Women have varying levels of investable capital which mediate the activities they undertake. Women with comparatively large capital resources are reported to target markets in major urban centres, including cross-border trade (Kwena *et al.* 2020).

Women with modest capital focus on selling in local nearby markets (Kwena et al. 2020). Women with insufficient capital to buy fish themselves are hired at landing sites to undertake various fish processing activities (Kwena et al. 2020).

For many women, social networks, including relatives, friends and neighbours, provide important access to fish (Lwenya and Yongo, 2012). Lwenya and Yongo (2012) found that 'fish wives' - women with close relations to fishermen or boat owners including through kinship, marriage or romantic courtship – sometimes act as middlemen by acquiring fish from the boat and then selling to outside women traders at the landing site at an increased price. Whereas women without social networks, including many migrant women who have moved into fish landing settlements, are forced to access fish at a higher capital cost (Lwenya and Yongo, 2012). Where women cannot afford the cost of fish, they adopt various strategies to access fish, including cooking food for the crews on certain boats, trading in non-fish items to raise capital, becoming employed as labourers to process fish for other female traders, or engage in transactional sex (Lwenya and Yongo, 2012).

2.3.2. Diversified livelihood strategies

Participation in the fisheries sector is often informal, where people engage in fishing activities on a full- or part time, seasonal or occasional basis (Simmance et al. 2023). Men and women in Ugandan fisheries often combine multiple or seasonal livelihood

activities. Most households are reported to have at least one other source of income (Nunan, 2010).

Within fisheries-dependent households, about 70% of household income comes from fishing (Nunan, 2010). Other income sources include the trade of other commodities including second-hand clothes, charcoal, fresh fruit and vegetables (Medard et al; 2002; Medard et al. 2019). Farming is also a particularly important component of fishers' livelihood strategies on Lake Victoria (Nunan, 2010). Around 50% of fisherfolk, including boat owners, crew and women are involved in farming in Uganda (Nunan, 2010). Farming is mostly done on a subsistence level, or for subsistence with sale of surplus to local markets (Allison and Ellis, 2001).

Fisheries are believed to play an important role in the livelihood strategies of the rural poor in Uganda where there are few alternative employment opportunities and limited access to capital (Petty et al. 2022). Uganda has one of the youngest populations in the world, and the majority of these young people live in rural areas (Rietveld et al. 2020). The dearth of formal jobs in Uganda relative to the number of young people entering the labour force mean that most young people are engaged in insecure and informal casual work (Alfonsi et al. 2020). Hence common pool resources, which fisheries often are, provide important opportunities for young people in Uganda (Petty et al. 2022).

However, opportunities for developing diversified livelihoods are a privilege for those with access to affordable credit (Allison and Ellis 2001). For this reason, boat crew

were less likely to have other income sources than boat owners (Nunan, 2010). In Masaka district, landowners with between 4 to 5 acres of land were usually boat owners (Beuving, 2013). Larger boat owners tend to own more land, and use more land for cash cropping, and have more cattle (Beuving, 2013).

2.3.4. Mobile livelihoods

Movement between landing sites on Lake Victoria is important to many fisher's livelihood strategies in response to mobile fish stocks, seasonal income, and limited alternative sources of income generation (Nunan, 2010). Seasonal and circular migration are particularly relevant within fisheries (Nunan, 2010). Seasonal migration is described as resource related, whereby fishers seasonally shift from one landing site to another in search of better fish catches and higher fish prices (Odongkara and Ntambi, 2007 as cited in Nunan, 2010; Lwenya and Yongo, 2012). For instance, on the Tanzanian shores of Lake Victoria, boat owners and fishing crew set up temporary settlements known as 'fishing camps' following the movement of fish and changing productivity in different locations (Nunan, 2021). Additionally, in the Silverfish fishery, during the full moon, when catch is low, fishermen and women traders are said to travel to their rural homes to visit their families and tend to their crops (Kwena et al. 2020). Furthermore, in some cases, seasonal weather changes, including strong winds that normally blow from late July to October and heavy rains that cause flooding, can also lead to movement (Nunan, 2010). Circular migration, on the other hand, is typically related to economic and political conditions, rather than dependent on the

resource or the movements of fish alone (Overå, 2001). For example, fishers have been found to move to larger landing sites to get access to loans from fish factory agents to buy boats and gears (Nunan, 2010). This form of movement is referred to as circular, because fisherfolk generally return to their 'home' landing site (Nunan, 2010). Nevertheless, there is no apparent lake-wide pattern to the timing and spatial scale of movement. However, fisherfolk often engage in regular patterns of movement to repeated destinations (Nunan, 2021). Fishers generally move to neighbouring districts, but at times can move hundreds of kilometres (Nunan, 2021).

Movement between landing sites is particularly common on the islands within Lake Victoria (Nunan, 2010). For some, migration becomes a way of life as movement between landing sites is seen as a normal and essential characteristic of livelihoods dependent on Lake Victoria fisheries (Nunan, 2010). The ability and freedom to move is a particularly important livelihood strategy for boat crew, who have no formal contract with boat owners and therefore receive no pay when there are no fish (Nunan, 2010). Almost 50% of boat crew in Lake Victoria are said to move between landing sites over the course of the year (Nunan, 2010). Data from Kenya suggests that this is consistent for fishers targeting different species (Lwenya et al. 2008). Some boat crew move with the boat owner they have been working, others move to another site and seek employment once they get there (Nunan, 2021). Around 40% of the boat crew who move between landing sites are reported to work on other boats (Nunan, 2010). Typically, boat crew spend 3 to 4 months away from their permanent landing

site and within this time work on an average of two different boats and landing sites (LVFO, 2008b as cited in Nunan, 2010).

Given that fishing is a male-dominated role, young men constitute the majority of those who move within fisheries (Randall, 2005). Far fewer women (only 9%) are reported to move between landing sites (LVFO, 2008 as cited in Nunan, 2021). Women who do move either move with their husbands or as a trader to buy fish (Nunan, 2021). Furthermore, women's mobility typically involves shorter stays, for example between the landing site and rural areas for farming or to visit families, or between the landing site and urban centres or other fish markets (Nunan, 2021; Bahemuka et al. 2023). Women do not generally move from one landing site to another (Nunan, 2021). This is largely due to domestic responsibilities and keeping children in school, but also because of other social norms (Nunan, 2021). However, the size of fishing business is said to influence the distance women travel and the amount of time they spend away from their 'home' landing site (Nunan, 2021). Women fish traders operating on a larger scale were found to travel further and be away for longer than others (Medard et al. 2019; Kwena et al. 2020). Furthermore, women who trade in Silverfish were found to be most mobile (Nunan, 2010).

In addition to the benefits, migration and mobility can also bring adverse impacts to livelihoods (Ellis, 2003 as cited in Nunan, 2010). Migration and mobility are argued to increase vulnerability by perpetuating a dependence on declining fisheries resources (IMM 2003 as cited in Nunan 2010). Whilst those who do not move are believed to

benefit from investing in their 'home' landing site, including building a house, investing in other businesses, combining fishing with farming and through access to credit (Nunan, 2010).

2.4. Fishing communities of Lake Victoria, Uganda

2.4.1. Fish landing sites

In Uganda, fishing communities consist of one or more landing sites where people focus on fishing and fishing-related activities and live together in a defined geographical area (Kwena et al. 2020). In some cases, fishing communities coincide with administrative boundaries such as villages and wards (Kwena et al. 2020).

On the Ugandan shores of Lake Victoria there are 455 landing sites across 15 lake-side districts (Nakiyende et al. 2021). The highest number of landing sites on Lake Victoria, Uganda, are recorded in Buvuma district, followed by Kalangala. Both districts are made up of several islands less than 60km from the shoreline. These districts also have the highest number of fishers and fishing crafts (Nakiyende et al. 2021).

Landing sites vary between very small, to more established, larger settlements (Nunan, 2021). Fish landing sites are often very busy places that support many other economic activities connected to the presence of fish and fishermen, including transport services, local restaurants and eateries (Allegretti, 2019). However, landing sites differ in terms of social infrastructure development. Public service coverage at landing sites

is generally low, especially in rural areas and island-based landing sites (Nakiyende et al. 2021). As of December 2020, only 19% of landing sites on Lake Victoria, Uganda had access to electricity mains (Nakiyende et al. 2021). Less than half of the landing sites had potable water (27.47%), health clinics (40.9%), all-weather roads (47%), public toilets (46.6%), primary schools (43.4%) and banking facilities (14.5%) (Nakiyende et al. 2021). However, a large majority of landing sites had mobile network coverage (90.6%), and mobile money agents (74.9%) which support the fishing industry and other activities of communities at landing sites (Nakiyende et al. 2021).

Landing sites also differ in terms of access to fisheries infrastructure. In 2020, 44.3% of landing sites had boat repair facilities, 34% had engine repair facilities, 30.7% had net repair facilities, 11% had fish *bandas* (sheds for handling and displaying fish at landing sites, important facilities for fish safety and quality assurance), 5.9% had public fish stores, 1.3% had cold room facilities (0.4% were operational), 18.5% had smoking kilns, 12.7% had drying racks (Nakiyende et al. 2021). However, several landing sites have fish chilling facilities in the form of ice boxes and refrigerated trucks that deliver fish to fish processing factories. Four landing sites have also been installed with ice making machines⁵. Their use in other landing sites is severely constrained by the lack of mains electricity supply.

⁵ Ice making machines have been installed in Majanji in Busia district, Gorofa in Namayingo district, Bwondha in Mayuge district, and Mwena in Kalangala district.

Generally, the limited access to credit facilities, bad roads, poor processing and marketing facilities at landing sites stifles value chain improvements, the development of trading and processing enterprises, and contributes to post-harvest fish losses, including economic and nutritional losses (Torell et al. 2020). In addition, the lack of physical infrastructure can mediate trade relations and negatively impact the bargaining power of local fish suppliers. For instance, due to a lack of storage facilities and thus lack of alternatives, fish suppliers may be forced to sell their fish at low prices or dispose of their catch in the absence of fish buyers (Nakiyende et al. 2021).

Moreover, in recent years, social amenities and physical infrastructure have been impacted by issues related to flooding at landing sites. Flooding at landing sites has caused school closures and damaged roads for instance (Nakiyende et al. 2021). Media and government reports linked the heavy precipitation and floods to anthropogenic climate change, but this is yet to be proved by scientific attribution studies (Pietrojuti et al. 2024). In some areas, this has completely displaced fishing communities (Buregeya, 2024).

2.4.2. The dynamics and complexities of social life in Lake Victoria's fishing communities

For many small-scale fishers and fish workers, fisheries not only provide a job or livelihood but represent a way of life. The cultural consciousness of such communities and individual identities are often strongly related to the practice of fishing (Delgado-Ramírez et al. 2023). As such social structures, traditions and values within fishing

communities can be strongly anchored to the riparian environment (FAO, 2015; Widener, 2018).

Traditionally, in the lakeside communities of Lake Victoria, fish have underpinned the identity, practices, knowledge and ideas of community (Allegretti, 2019). According to Allegretti (2019) this association is most visible through the importance of fish in the domestic realm. For ethnic groups historically bound to the lake through fishing for their livelihoods it is a culturally sanctioned necessity to have fish on the table (Allegretti, 2019). Historically, fish has also been key to building and maintaining social relations, for instance through sharing and celebrating big catches with neighbours by inviting them into their home to eat the cooked fish (Allegretti, 2019).

However, these practices have been affected by the commoditisation of fish from Lake Victoria. Allegretti (2019) argues that the commoditisation of fish has triggered a transformation in the social foundations of fishing communities. The role of fish in determining identity and community has changed (Allegretti, 2019). Allegretti (2019) argues that fish has become a commodity detached from local collective identities. Communities that were once rooted in symbolic meanings and practices around fish, including fishing and fish consumption within the domestic realm, are today, to a greater extent, grounded by business-related values and ideals (Allegretti, 2019). As Allegretti (2019) explains, fishing today on Lake Victoria has acquired other functions, besides being a carrier of local identity. The commoditisation of fish has opened-up opportunities for income generation and become part of people's capital accumulation and income diversification strategies (Allegretti, 2019). Accordingly, at present,

principles and values related to making a living and profit maximisation play a significant role in the production of the shared identity of fishing communities around Lake Victoria (Allegretti, 2019). Whereas place-based, long-term social ties have become less important (Allegretti, 2019). In Ukerewe island, Tanzania, according to Allegretti (2019), this is most visible by the widespread habit among fishermen to refer to fish simply as money and use expressions such as “let’s go get money” when going into the waters for fishing.

The commoditisation of fish has also altered the composition of fishing communities. People have migrated from different regions to exploit the market opportunities presented by the commoditisation of fish in Lake Victoria (Allegretti, 2019). These individuals have diverse economic histories including former farmers, cattle keepers, taxi drivers, shop keepers, hotel works, and traders (Allegretti, 2019). For this reason, fishing communities around Lake Victoria are often heterogenous in terms of occupation and ethnicity (Nunan et al. 2015; Allegretti, 2019). Furthermore, the identities of individuals within these communities are also complex and heterogenous. Allegretti (2019) explains that for some, their identity as a ‘fisherman’ is only short-term, reflecting their temporary or seasonal participation in fisheries and presence at landing sites (Allegretti, 2019).

These dynamics have created new terrains on which people establish social relations. Allegretti (2019) argues that today, social life around Lake Victoria, is underpinned by a wider frame of shared identity, beyond local or territorial (i.e., ethnic) identities, founded upon the common objective to make money.

Nevertheless, there is mixed evidence in the literature on how migrants are received in fishing communities (Nunan, 2021). In a lake-wide study conducted in 2015, permanent residents at landing sites were overwhelmingly positive about migrant fisherfolk (Nunan, 2021). However, migrant fisherfolk were also said to 'keep to themselves', implying that integration is limited (Nunan, 2021). Difficulties in integration may result from competition for jobs, and challenges associated with there being different languages, norms and traditions (Nunan, 2021). Nevertheless, the fact that fisherfolk tend to move to landing sites they have been to before or move on the invitation of someone within their social network, is thought to reduce instances of conflict arising from movement and ease integration (Nunan, 2010; Nakamanya et al. 2022).

However, the arrival of newcomers is thought to somewhat alter social norms and relations at landing sites (Nunan, 2021). The mix of people from many ethnic groups is reported to provide greater opportunities to challenge existing social norms and practices and create new or hybrid ones, through exposure to different beliefs and ways of doing things (Nunan et al. 2015). Furthermore, mobility and migration are also thought to lead to behaviour that is less constrained by family influence, connected to the absence from home (Nunan, 2010). Changes in, or the rejection of social norms have presented people at landing sites with opportunities to generate an income they may otherwise be denied, for example bar work and commercial sex work, and important source of livelihood for women at landing sites (Sileo et al. 2016).

The abandonment of social norms in fishing communities has also been attributed to high levels of consumption of locally brewed alcohol (Pearson et al. 2013). Alcohol use is said to be prevalent at many landing sites, creating health and social problems (Nunan, 2021). Boat crew are said to spend a significant amount of their daily cash income on alcohol consumption. Such spending is exacerbated by a lack of facilities to save money at landing sites, and the number of bars at landing sites (Nunan, 2021). In 2020, there were a total of 3,280 alcohol joints across all landing sites, compared to just 66 banking facilities, and 186 health clinics (Nakiyende et al. 2021).

Among other things, alcohol consumption, driven by a masculine subculture that encourages hard drinking, is cited as a factor that contributes to a higher level of HIV prevalence in fishing communities (Nunan, 2010; Bahemuka et al. 2023). Some studies estimate that the HIV incidence rate within fishing communities in Uganda is 11 times higher than in adjacent rural, non-fishing populations (Kamali et al. 2016). Moreover, the HIV incident rate is particularly high for women. The proportion of women infected with HIV is twice as high as that of men of the same age (Kwena et al. 2020). In some age groups, more than half of the women in fishing communities on Lake Victoria are living with HIV (Kwena et al. 2020). The prevalence of HIV/AIDS is attributed to higher levels of 'risky behaviour' in fishing communities including unprotected sex with different partners, including with commercial sex workers and through fish-for-sex transactions (Chang et al. 2016). Besides the alcohol consumption, such 'risky behaviour' is reported to be driven by the mobility of fisherfolk and absence from

home, cash income and a lack of savings facilities at landing sites, and lack of access to alternative employment and income generating sources (Allison and Seeley, 2004).

2.5. Threats to the sustainability of small-scale fisheries on Lake Victoria

Lake Victoria fisheries continue to face several threats from overfishing and environmental changes (Simmance et al. 2023). Fish catches have dwindled since 2006. In 2012 fish catches were only a quarter of what they were in 2006 (Mette Kjær et al. 2012). It's believed that catches of Nile Perch - the most intensively targeted stock in the lake - are decreasing because of overfishing (Simmance et al. 2023). Fishermen claim to have to fish for longer hours and fish farther away from the shore, yet they still catch less fish (Mette Kjær et al. 2012). However, no official/lake-wide catch assessment surveys have been conducted since 2014 to confirm these trends (Simmance et al. 2023).

The lake's resources continue to face pressure from the increasing human population around the lake and the rising demand for fish (Lwenya et al. 2009). Increased eutrophication attributable to agriculture and urban expansion and climate change have caused major declines in water quality and ecosystem health and the overall productivity of the lake (Kolding et al. 2014).

Over the last few decades, the fisheries sector has developed rapidly in terms of technological efficiency stemming from the introduction of synthetic gillnets and outboard engines, resulting in a doubling of fishing effort (Kolding et al. 2014).

Increased capacities for fish processing also encouraged more people to enter the fisheries sector and increased demand for fish, contributing strongly to overfishing (Mette Kjær et al. 2012). The number of fishing boats operating on Lake Victoria are reported to have increased by 349% between 1985 and 2000 (Van der Knaap and Ligtvoet, 2010).

Poor governance is also said to have played a role in the over exploitation of fisheries' resources. Before 2008, the licensing of fishing boats was the responsibility of local governments. They saw this as an opportunity to gain rent; the more licenses, the more revenue for local government (Mette Kjær et al. 2012). Moreover, a lot of factories were licensed to operate in Uganda and the quantity they were allowed to process was later criticised as being too high (Mette Kjær et al. 2012).

Illegal fishing activities also threaten the sustainability of the fisheries. For instance, prohibited gillnets with small mesh sizes (<5inches) persistently used in shallow near-shore waters, commonly to catch haplochromine cichlids and tilapine species for bait in the longline Nile Perch fishery, are said to catch large quantities of immature fish, including juvenile Nile Perch, affecting the recruitment potential of these fisheries (Fish (Fishing) Rules, 2010; Nakiyende et al. 2021). Other prohibited fishing methods used in the near shore areas include the 'kikubo' or 'tycoon' method of beating of water to scare or drive fish into a net or trap (Fish (Fishing) Rules, 2010). However, since 2016, there has been a general decrease in the use of illegal gears including monofilament gillnets with a mesh size of less than 5 inches, small seine nets with a mesh size of less

than 10mm, and handline and longline hooks with a less than 13mm gape size (above hook size No. 9) (Nakiyende et al. 2021). The decrease in the use of illegal fishing gears is attributed to improved enforcement on the lake following changes to fisheries governance in Uganda, including the introduction of the Uganda People's Defence Force (UPDF) Fisheries Protection Unit (FPU) in 2017 (Nakiyende et al. 2021).

2.6. Shifting governance regimes on Lake Victoria, Uganda

In Uganda, at a national level, the Office of the President provides general guidelines and directions regarding fisheries management to the Ministry for Agriculture, Animal Industry and Fisheries (MAAIF), specifically the Department of Fisheries Resources. This issues policies and regulatory instruments, provides rules and guidelines and oversees the fisheries sector (Kantel, 2019). At the district level, District Fisheries Officers (DFOs) collect catch data, offer technical support and skills training, register boats and individuals (Kantel, 2019). At a local level and at gazetted landing sites, Fisheries Officers and Fisheries Inspectors employed by MAAIF monitor landing site activities, particularly fish handling practices so that they meet international market standards.

Management of Lake Victoria is coordinated through a specialised regional institution, the Lake Victoria Fisheries Organisation (LVFO), mandated under the East African Community (EAC) (Nunan et al. 2020). The LVFO brings together the fisheries departments and national fisheries research institutes of the countries that share the

lake basin. It coordinates the management of fisheries resources across the lake, directs policy making and reviews policy implementation. It also monitors fish stocks and ecosystem health and conducts value-chain research and socio-economic surveys (Nunan, 2010).

Between the late 1990s and early 2000s, the LVFO introduced a co-management approach to the Lake Victoria fisheries (Nunan et al. 2012). The approach was implemented through several initiatives, including the Lake Victoria Environmental Management Project (LVEMP), the Lake Victoria Fisheries Research Project (LVFRP) and the Implementation of a Fisheries Management Plan (IFMP) Project, with financial support from the World Bank and The European Union (Mpomwenda et al., 2022a).

Co-management is a well-established concept and practice within SSFs, promoted since the 1990s (Mpomwenda et al., 2022a). The approach developed in response to concerns about centralised, top-down natural resource management procedures⁶. These included issues relating to the disenfranchisement, marginalisation, and expropriation of local resource users. Hence, co-management, as a concept, is rooted in commitments to participation, representation, collaboration, and empowerment (Nunan, 2010; Tilley et al. 2019). At its core, co-management maintains a moral argument that those most affected by natural resource management decisions (e.g., resource-users) should be included in decision-making and management processes (Tilley et al. 2019). Furthermore, co-management, through its focus on fostering local

⁶ A legacy of colonialism in African inland fisheries that disrupted traditional governance structures (Mpomwenda et al. 2022a).

level ownership, is expected to improve local resource users' understanding of, and commitment to, management decisions. This produces instrumental results regarding the implementation and outcomes of management decisions (Tilley et al. 2019). In practice, co-management refers to the sharing of management responsibilities, authority and power between resource users. This can happen through formal groups or institutions, at the local level and with other government or non-government organisations at regional and national levels (Nunan, 2010).

As part of the co-management regime introduced by LVFO in Lake Victoria, community-based organisations known in the region as Beach Management Units (BMUs) were formed to enable local-level resource users to participate in fisheries management (Nunan, 2006). The BMUs were tasked with several activities including the registration of people working in fishing activities at the landing sites, registering fishing vessels and fishing gears used, monitoring fishing activities and enforcing regulations. They often worked alongside government fisheries officers; maintaining the landing site where fish is handled and sold, data collection and the development and implementation of fisheries management and beach development plans (Kolding et al. 2014). In Uganda, co-management was adopted and BMUs instituted in 2003. By 2006, 355 BMUs had been formed around the lake in Uganda (Nunan et al. 2012). However, the BMU co-management system on Lake Victoria faced several challenges including inadequate funds to enforce fishery regulations and imperfect involvement of communities (the co-management system has been described as instructive rather than participatory) (Mpomwenda et al. 2022a). Further challenges were limited judicial

power to apprehend offenders, power imbalances, inequalities in the engagement of women, corruption and differences in objectives (Nunan, 2006; Nunan et al. 2018; Nunan and Cepić, 2020). In addition, the system struggled to influence fishers' compliance with regulations and illegal fishing activities continued (Kolding et al. 2014).

In 2015, the Ugandan Government, through a presidential directive, abolished co-management and BMUs (Mpomwenda et al. 2022a). Following this, in 2017, the Government introduced a military body – the Uganda People's Defence Force-Fisheries Protection Unit (UPDF-FPU) - to enforce national fisheries regulations under the Fish Act of 2000 (Mpomwenda et al. 2022a)⁷. The changes that occurred within just fifteen months were significant and abrupt and surprised even top ministry officials (Kantel, 2019; Mpomwenda et al. 2022a). The official explanation cited corruption among members of local BMUs, and a failure to eliminate illegal fishing as justification for the changes (Kantel, 2019; Mpomwenda et al. 2022a). However, counter-narratives from former BMU members, resource users and political opposition members, suggest that the changes were made to (i) consolidate power around the most profitable export-orientated part of the fisheries (Lawrence and Watkins, 2012) (ii) as an attempt to

⁷ In addition, a two-person committee, appointed by officials within the Ministry of Agriculture, Animal Industry and Fisheries (MAAIF), at every landing site was created to assist enforcement activities (Mpomwenda et al. 2022a). These have become known as 'Fish Landing Site Committees' and have temporarily replaced BMUs at the local level (Kantel, 2019).

secure votes during the 2016 presidential election campaign (Kantel, 2019) and (iii) to increase the ruling elite's and state's power over fisheries resources (Kantel, 2019). The introduction of the Fisheries Protection Unit (FPU) was meant to be a temporary intervention in response to the declining fisheries (National Fisheries & Aquaculture Policy, 2017 as cited in Mpomwenda et al. 2022a). Though FPU soldiers continue to patrol the lake, with no plans for their withdrawal (Sekayinga, 2023). The FPU's activities focus on eliminating illegal fishing gear including beach seines, cast nets, monofilament gillnets and multifilament gillnets with a mesh-size smaller than 5 inches, hooks 10 inches and over, and vessels under 28ft (Mpomwenda et al. 2022a). Military-related law enforcement is also present in the country's forestry and wildlife sectors (Mpomwenda et al. 2022a). Such an intervention reflects broader trends towards so-called 'green militarisation' in African countries (see Massé et al., 2018; Duffy et al., 2019).

According to the UFPEA (2022), the introduction of the FPU has successfully reduced a certain level of illegalities which also saw the reopening of some fish processing factories. Though, the military interventions, which have involved widespread confiscations of boats and illegal gears, have been criticised for jeopardising the livelihoods of small-scale fishers (Mpomwenda et al., 2022a). Furthermore, fishermen frequently accuse the FPU of heavy-handedness in dealing with purported illegal fishing activities. Ugandan news media, including New Vision and the Monitor, have consistently reported incidences on Lake Victoria between FPU officers and fishermen, since the unit were introduced. In one article, published in 2018, the Monitor reported

on 10 enforcement-related deaths (Monitor, 2018). Other articles report accusations of torture carried out by FPU officers (Mutaizibwa, 2020). FPU officers have been accused of beating resource users with sticks, oars and iron bars and deliberately knocking canoes, causing fishermen to fall in the water and drown (Mutaizibwa, 2020; Monitor 2018). In 2022, the Kampala Metropolitan Police were investigating an incident where a fisherman was allegedly handcuffed, shot, and left to drown after FPU officers intercepted the fisherman's boat over illegal fishing (Masaba, 2022). In July 2023, there was another incident where a Kenyan fisherman was shot dead by a FPU officer on Lake Victoria (Awori, 2023) and later in the year, another FPU officer shot and injured a fisherman they suspected to be hiding immature fish in his boat (Kitunzi, 2023).

Individuals report that speaking publicly about the injustices committed by FPU officers has made them a target to the enforcement officers, forcing them to leave the area out of fear for their safety (Monitor, 2018). Some Members of Parliament, and Local Government officials from the fishing communities on Lake Victoria have publicly complained about the harassment and unlawful arrests of local fishermen by the FPU and have openly questioned the directive that led to the militarisation of water bodies (Masaba, 2022; Mutaizibwa, 2020). The FPU Commander Lt. Col. Dick Kaija, and other Government officials, have claimed that these are isolated cases of indiscipline which have been investigated and those found culpable have been charged in a military court (Masaba, 2022; Luwemba, 2023).

2.7. Chapter conclusion

This chapter has outlined the geographical, ecological, market, livelihoods, and governance context of this research.

Lake Victoria's small-scale fisheries face several threats from overfishing, increased human population, and environmental changes (Simmance et al. 2023). The fishery is under pressure from declining stocks of Nile Perch, resulting in reduced supply and higher prices. The commercialisation of fish trade has brought opportunities and constraints at a local level. Though the increased monetisation of fisheries products is said to have encouraged self-interested behaviour, increased economic stratification, and amplified social tensions (Wilson et al. 1999; Medard et al. 2019; Abila et al. 2006). Furthermore, integration into the international market has changed relations of production (Wilson et al. 1999) and is in turn, expected to influence trust and power relations between resource users.

The fisheries sector in Uganda has also undergone a major management transition. In 2017, fisheries management shifted from local co-management to state military enforcement (Mpomwenda et al. 2022a). These changes to fisheries management have been criticised for jeopardising the livelihoods of small-scale fishers (Mpomwenda et al., 2022a). Such an intervention reflects broader trends towards so-called 'green militarisation' in African countries (see Massé et al., 2018; Duffy et al.,

2019). Thus, the study is expected to produce important evidence pertinent to natural resource governance challenges in general.

Overall, these dynamics create a particularly interesting socio-ecological environment in which to examine the research questions around power and trust. Furthermore, these challenges are comparable to the threats confronted by small-scale fisheries globally. Therefore, this study is expected to yield relevant insights to the sector more broadly.

Chapter 3: Literature Review

This chapter begins with an introduction to the concept of power, gendered power, and patron-client relations as a key cross-cutting theme of power pertinent to understanding relationships between value chain actors in small-scale fisheries. These introductions provide some background and conceptual clarity to the following sections which discuss in detail the relations between key value chain actors, such as links between fish suppliers and fish buyers, boat owners and fishing crew, and horizontal relationships between fish traders. The existing literature concerning the relations between these value chain actors is discussed and analysed in terms of power. The second half of the literature review responds to the research questions (set out in Chapter 1) by critically analysing the available literature concerning the relationship between trust and power relative to trade and exchange links in small-scale fisheries. It then draws upon a broader body of literature to discuss the concept of trust and the dynamics between trust and power within relations of social exchange. The last section illustrates and explains the conceptual framework of the study, which draws upon the concepts and literature covered within the chapter.

3.1. Power in small-scale fisheries trade and labour relations

The following section introduces the concept of power, as well as gendered power relations and patron-client relations as cross-cutting themes pertinent to understanding relationships between value chain actors in small-scale fisheries.

3.1.1. Conceptualising power

The concept of power has been widely discussed and is heavily contested within the social and political sciences. Various theories of power exist including class theories of power, elite theories of power, pluralist theories of power and gender theories of power (Lukes, 2021). Scholars have focused on power vested in individuals, groups, institutions, or nations and within various types of interactions (Lukes, 2021). This literature review focuses on theories relevant to understanding power at the individual level and in dyadic interactions.

Broadly speaking, theories concerning the concept can be sorted under two dichotomous notions of power – they are ‘power-to’ and ‘power-over’. Power, in power-to theories, is viewed as generative, dispositional, and productive. It primarily relates to an individual’s ability to act for their own intended self-interest (Allen, 2005). In this light, power is anything that renders somebody capable and able of doing something (Allen 2005). As such, power can be understood as a resource that can be possessed by individuals in greater or lesser amounts (Allen, 2005). Such notions of power that focuses on the dispositional abilities of individuals have also been referred to as ‘action-theoretical’ and closely resemble the concept of ‘agency’ (Drydyk, 2013). Similarly, agency primarily centres on the individual and commonly refers to a person’s capacity to participate in, shape and choose a particular course of action to achieve one’s goals (Drydyk, 2013).

Some theorists (e.g., Young 1990) have argued that power-to theories imply power is static and criticised such models of power as an atomistic understanding of power. Instead, following ideas shared by Foucault (1980), they argue that power is a relation and must be understood as existing in ongoing processes or interactions. Theorists, including Young (1990) and Haugaard (2010), recommend a systemic conception of power. By contrast, the systemic conception views power as constitutive of the social world. It highlights the broad historical, political, economic, cultural, and social forces that instil certain abilities and dispositions in some actors but not in others (Allen, 2005). Saar (2010) argues that the systemic conceptions of power need not be understood as an alternative to the action-theoretical conception of power as power-to, but rather viewed as a more sophisticated variant of that model.

On the other hand, whilst power-to refers to the potentiality of power, power-over theories understand power as the actual exercise of power, specifically the exercise of power over others (Allen 2005; Lukes, 2021). Central to many deliberations within this overarching power-over framing, are the ways in which power can be exercised. Lukes (2021) categorised these various configurations of power (power-over) as: 'The One-Dimensional View' steered by theorists such as Dahl (1961). For Dahl, power is an observable behaviour whereby A successfully influences B to do something they would not otherwise do. As such, it is assumed that the exercise of power involves observable conflicts or disagreements in preferences among groups; 'The Two-Dimensional View' put forward by Bachrach and Baratz (1962) which reveals the second face of power

that is coercive and mobilised through structures of authority. In addition to overt displays of power, dominant individuals, groups, and authorities can demonstrate their power through suffocating voices and covertly removing opportunities for people to act for their self-interest; and 'The Three-Dimensional View' developed by Lukes (2021) in response to the previous models, further emphasises the insidious examples of power. Within this conception, conflict over group preferences is latent and overt conflict prevented through control and manipulated consensus. Control is exercised through processes of socialisation or indoctrination, enabled by socio-political structures, that essentially make individuals or groups believe that following the status quo is in their self-interest. Correspondingly, theorists have also conceptualised power as domination, referring to unjust, illegitimate, or oppressive power-over relations (Allen, 2005).

Philosopher Michel Foucault's model of power differs from Luke's (2021) three-dimensional view of power in that power is not only seen as a negative and repressive force but something that also produces things, induces pleasure, forms of knowledge and discourse (Allan, 2002). Thus, power can be both enabling and constraining (Allan, 2002). Foucault's understanding of power as productive and relational as well as repressive, has been influential to feminist theorising of power. Feminists, including Miller (1992), Hartsock (1983) and Hoagland (1988), in response to reportedly 'masculinist' conceptions of power as power-over that concentrate on domination and control, argued for a re-conceptualisation of power as the capacity to empower oneself and others. In contrast to other theories, these feminist theories of power

refer to power as transformational and creative rather than controlling. They include power-from-within and power-with theorisations of power.

'Power-from-within' has to do with a person's self-knowledge including a sense of their own capacity and self-worth (VeneKlasen and Miller, 2002). Power-from-within is developed through the process of self-reflection, including gaining an awareness of one's situation and realising the possibility of doing something about it. Within feminist discourse this transformative process is commonly referred to as 'consciousness-raising' (Carr, 2003; Eger et al. 2018). The 'conscientisation' approach, developed by Freire (1968), maintained that to liberate themselves and their oppressors, the oppressed need to identify themselves as members of an oppressed class, recognise the causes of their oppression, and discover themselves as 'hosts of the oppressor' and thus participants in their own oppression. This critical discovery is said to be a foundational point in the process for liberation; only then will the oppressed discover 'a yearning to be free' (Freire, 2018).

'Power-with' describes collective agency and refers to the power that comes from being united. Power-with includes both the psychological and political power gained from joining together with others, building shared understandings and taking collective action. Feminist researchers maintain that connecting, sharing and engaging with similar others can spur women for example, to identify, investigate and question their disadvantaged positions and the causes of their oppression (Carr, 2003; Ali, 2014). As Cornwall (2016) asserts, prior to the material gains from collectivisation, coming

together with other women to share experiences generates vital immaterial resources including respect and recognition. “[T]he solace of solidarity, the courage in collectivity, [and] the sociality of shared struggle” are just some of the valuable feelings that can arise from spending time with similar others and contesting the culturally embedded normative beliefs, understandings about gender and power that perpetuate the injustice suffered by women (Cornwall, 2016;350). Moreover, Kabeer (2011) suggests that individual women are unlikely to successfully tackle structural inequalities alone, and the effective removal of some of these obstacles is more hopeful when women act collectively. This collective ability and intersubjective emergence of power is created through relationships of solidarity between members of a group (Follet, 1942).

Gaventa and Cornwall (2001) explain that power-from-within and power-with should not be thought of as replacing or competing with other views of power, but complementary and as reinforcing levels of power. For instance, people need ‘power within’ to act because power-within allows people to recognise their ‘power-to’ and ‘power-with’. Therefore, it is useful to consider all the aforementioned aspects of power as interconnected and mutually reinforcing, rather than fundamentally different concepts that should be examined or applied separately (Allen, 2005).

Within the literature on interpersonal power, the multidimensionality of power is largely embraced and includes the individual, socio-structural, interactional, and outcome components (Dunbar, 2015). Multidimensional approaches to power commonly separate power into the following elements: (i) power bases - referring to

the resources that form the basis for control over others, (ii) power processes - referring to the strategies used to exert power in interactions with others, and (iii) power outcomes – referring to the resultant influence on others' thoughts, beliefs, and actions, and commonly characterised as the manifestation of power (Dunbar 2015).

Like 'power-to' theories, power bases represent the potential or latent power of an individual, whereas power processes and outcomes represent the exercise of power and correspond to the 'power-over' and 'power-with' theories described previously.

French and Raven (1959) in their investigations of the basis and sources of a leader's power and influence, identified six different power bases that individuals draw upon in their interpersonal relationships: reward, coercion, referent, legitimate, expert, and informational. First, an individual possesses 'reward power' when they have some sort of resource (tangible and non-tangible) for which the targeted person is willing to do something for (French and Raven, 1959). Bosses, for example, would have reward power because of their perceived ability to provide rewards such as giving workers raises and promotions (Carli, 1999). Second, 'coercive power' is held by someone who can threaten to punish or withdraw a reward, unless the other person complies with the power holder's wishes. Bosses would also have coercive power because of their perceived ability to deliver punishments such as firing or demoting workers (Carli, 1999). Third, a person who is admired or liked by the other has 'referent power'. In theory, if you like someone, you are more likely to comply with their requests than if you do not like or respect them (French and Raven, 1959). Therefore, friends, for instance, have referent power in relation to each other (Carli, 1999). Fourth,

'legitimate power' can be conceptualised as a form of entitlement. A person who possesses legitimate power has the right to exert influence over others, command their respect and expect their deference (Carli, 1999). A policeman for instance, has legitimate power to arrest citizens. Fifth, 'expert power' is based on the perceived competence of an individual, derived from their experience, independent of any formal positions (Carli, 1999). A surgeon, for example, commands expert power during an operation because of their specialised knowledge and skills. Sixth, an individual with 'informational power' has control over information that others need or want, and has the ability to withhold, share, manipulate or distort this information to leverage a desired behaviour (French and Raven, 1959). Within the workplace, for example, informational power tends to increase alongside an advancement in managerial positions, as individuals in higher managerial positions tend to have greater access to and possession of information that new hires are likely to have no knowledge about.

French and Raven's (1959) bases of power model is arguably the best-known framework for studying interpersonal power. Whilst the bases of power model was originally used by French and Raven (1959) to explain how people are influenced by leaders, since publication the model has been applied to various dyadic social interactions including relationships between husbands and wives, teachers and students, doctors and patients, salespersons and customers (Erchul and Raven, 1997).

Also central to many examinations of the basis of power is the power-dependency theory, developed by Emerson (1962), a social exchange theorist. Emerson (1962)

defined dependency as the structural basis of power and thus a major determinant of the interactions between individuals. Dependence is commonly described as the extent to which one's outcomes are contingent on exchange with another (Dunbar, 2015). Furthermore, dependence is considered an outcome of both value and alternatives (Molm, 2007). Firstly, an actor's dependence on the other increases with the value of the resources that the other provides (Emerson, 1962). Secondly, an actor's dependency increases when alternatives are few (Emerson, 1962). Thus, power is achieved in dyadic relationships when a person is valued as an exchange partner and when there are few alternatives (Emerson, 1962). Undesirable power imbalances are created between two partners when one person is less dependent on their partner because they have more available alternatives and do not value that exchange partner (Dunbar, 2015). Exchange relationships with such power imbalances are said to be associated with greater suspicion, insecurity, abuse of power and avoidance of interaction (Molm, 2007). Moreover, the power-dependency theory predicts that asymmetry in dependencies will produce a corresponding asymmetry in the distribution of benefits (Dunbar, 2015). Alternatively, mutual dependencies, or interdependence, can exist between partners when they possess equal levels of power and are both motivated to maintain the relationship (Rusbult and Arriaga, 1997). In contrast, mutual dependency is thought to enhance the stability of exchange relationships and reduce the potential for exploitation by either partner (Molm, 2007).

These conceptualisations of power are revisited at the end of this chapter, where these theories and concepts are used to explain the conceptual framework developed for this study.

3.1.2. Overview of literature on power in small-scale fisheries

Within the last couple of decades, a substantial amount of research has been published on power relations in small-scale fisheries. The literature is relatively broad and covers power relations between value chain actors, as well as power relations between resource users and the state, particularly regarding power sharing for natural resource management (e.g., Ho et al. 2015). Most relevant to this study, however, is literature examining power relations from a value-chain or commodity-chain subject level of analysis (e.g., Gibbon 1997; Fabinyi, 2013; Coronado et al. 2020; Galappaththi et al. 2021; Moreau and Garaway 2021; Ibengwe et al. 2022). Within this literature, several researchers have investigated power bases, and identified various sources of bargaining power (Matsue et al. 2014; Nunan et al. 2020), as well as resources important to resource access (e.g., Ferguson 2021) and decision making (e.g., Njaya et al. 2012). In addition, researchers have examined power processes, particularly micro-economic relationships between value chain actors, including credit relations and how they in turn shape interpersonal power relations (Carnaje, 2007; Ruddle et al. 2011; Crona et al. 2010; Parappurathu et al. 2019). In addition, Sudarmono and Bakar (2012) apply power-dependency theories to analyse power in patron-client relationships in Indonesia. Most studies focus on power outcomes in terms of influence on resource

extraction patterns, livelihood adaptability and fisheries governance capacities (e.g., Crona and Bodin, 2010; Crona et al. 2010; Ferrol-Schulte et al. 2014; Miñarro et al. 2016; Kininmonth et al. 2017) or income inequalities and flows of economic benefits (Wamukota et al. 2015; Miñarro et al. 2016; O'Neill et al. 2018; Jueseah et al. 2020; Moreau and Garaway 2021; Ibengwe et al. 2022).

Interpersonal power relations in small-scale fisheries are commonly explored through patron-client relations (e.g., Ferse et al. 2012; Ferrol-Schulte et al. 2014; Miñarro et al. 2016; Kininmonth et al. 2017; O'Neill et al. 2019; Nunan et al. 2020; Roberts et al. 2022), and gendered power relations (e.g., Weeratunge et al. 2010; Fröcklin et al. 2013; Pearson et al. 2013; Matsue et al. 2014; Fiorella et al. 2015; Murunga 2021).

Gendered power relations, intersectional power dynamics and patron-client relations are introduced in more detail below as key cross-cutting themes of power relevant to understanding relationships between value chain actors in small-scale fisheries.

Though, the content of this literature is examined later in relation to specific interactions in the small-scale fisheries value chain.

3.1.3. Gendered value chains and power relations

Gender is widely acknowledged as a power relation that affects individual choices and opportunities, and the distribution and negotiation of power between men and women in small-scale fisheries (Cruz-Torres 2012; Murunga, 2021). Gendered power relations are constituted and mobilised through social norms - omnipresent in social life and diffused through social relations, and which act as a form of regulatory power

(Allan, 2002). Normative gender arrangements govern the way men and women behave in particular places (Nightingale, 2006; Giddings and Hovorka, 2010), and thus influence the roles men and women occupy in small-scale fisheries value chains, and subsequently gender (in)equality (Williams, 2008).

Women and men often occupy distinct roles in fish value chains. On a global scale, men dominate the visible fishing sector and thus, fisheries have largely been seen as a male's domain. However, a growing number of publications have highlighted the substantial yet often unrecognised and undervalued role of women within the fisheries sector. From catch to consumption, women occupy important roles in small-scale fisheries in all regions of the world (Harper *et al.*, 2020).

On a global scale, men dominate the pre-harvest and primary production stage of the SSF value chain. Women only account for 15% of pre-harvest labour (including gear fabrication and repair, bait and ice provisioning, and boat-building activities) and 19% of commercial harvest labour (including vessel and non-vessel-based activities) (FAO, Duke University and WorldFish, 2023). However, women account for 50% of post-harvest labour (including processing, transporting, trading, and selling activities) (FAO, Duke University and WorldFish, 2023). The seafood industry, in many countries, depends upon women to provide temporary, part-time, and low-cost processing labour (Santos, 2015; Harper *et al.*, 2017).

Access to fisheries, and patterns of resource use is mediated by cultural and socialised gender roles, responsibilities, labour divisions, behavioural expectations, traditions, and knowledge (Bird, 2007; Fortnam *et al.*, 2019). For instance, socially prescribed gender roles such as childcare and other domestic duties can limit women's fishing activities, particularly their ability to travel for long or far to fish (Kleiber, Harris and Vincent, 2015). Mothers limit their participation to activities and environmental spheres that are suitable for supervising young children in Bahia, Brazil (Santos, 2015), Isla Arena, Mexico (Uc-Espadas *et al.*, 2018) and Kiribati (Tekanene 2006). Socialised behavioural expectations of men, and what it means to be a man, can also shape the way men target and extract resources. Alike many small-scale fisheries, in the Llŷn Peninsula, North Wales, fishing at sea is socially considered a masculine activity and mostly performed by men, based on the perceived physical abilities and technical competence it necessitates (Gustavsson and Riley, 2018). In many fishing communities, boat ownership is a significant component of masculine identities. Fabinyi, (2008) observed illegal fishing, in the Calamianes Islands, Philippines, as an expression of masculinity by young men and a means to gain social prestige and status, which was fundamentally connected to local understandings of masculinity including notions of courage, independence, economic prowess, and bravery. Women, on the other hand, are often excluded from these masculinised spaces. In the Lower Songkhram River Basin, northern Thailand, fishing is generally perceived as too risky and physical for women (Sriputinibondh, Khumsri and Hartmann, 2005). Traditions and myths may also exclude women from going to sea to fish (Torell *et al.*, 2019). For instance, in

Mozambique, women on fishing boats is considered to bring bad luck, and girls should not go in the water or swim (Fortnam *et al.*, 2019).

These gendered dynamics also influence the benefits men and women obtain from small-scale fisheries. Disparities in income between men and women have been cited in the shrimp processing sector in Bahia, Brazil (Santos, 2015), and between male and female octopus fishers in southern Madagascar, with men earning more money per fishing trip than women on an individual basis (Westerman and Benbow, 2013).

Fröcklin *et al.* (2013) suggests that the visible differences in income between male and female fish traders in Zanzibar, are an effect of female traders' inferior access to social and economic resources, profitable markets and high-value fish. Female fishers, fish processors and traders' economic activities are often restricted by their relatively limited access to social and economic resources, profitable markets and high-value fish (Bradford & Katikiro, 2019; Fröcklin *et al.*, 2013; Lawless *et al.*, 2019; Matsue *et al.*, 2014; Nagoli *et al.*, 2018). Consequently, men frequently outcompete women and dominate the most lucrative livelihood sectors (Bradford and Katikiro, 2019). In Zanzibar, female fish traders lack access to transport, strategic social networks and freezers, and were found mostly trading in inferior suburban markets and on the side of the road (Fröcklin *et al.*, 2013). Men, on the other hand, had access to: higher capital, credit, transport, freezers in main city markets making them more resilient to market changes, a broader contact network, a greater variety of customers, and more lucrative markets including trade within the tourism industry (Fröcklin *et al.*, 2013).

The particularities of these gendered power dynamics for each of the considered value chain interactions are discussed in more detail in the sections that follow.

3.1.4. Intersectional power dynamics

Besides gender, various other social, economic and cultural characteristics shape social identities and behaviour. Multiple aspects of a persons' identity, such as class, age, ethnicity, religion, marital status and educational level can intersect to shape a person's role and interactions in the fishery (Rohe, Schlüter and Ferse, 2018). For instance, the roles men and women occupy, and their behaviour can also be influenced by their age. In Bangladesh, pre-pubescent girls engage in fish processing activities and limited-level fish retailing in the markets along with their parents. But post-puberty, girls mostly do not participate in fishery activities outside of the home, reportedly due to fear of sexual harassment (Deb, Haque, C and Thompson, 2015).

The implications of gender differentiated access to fisheries resources and the distribution of benefits is further compounded for certain groups of women, already marginalized in society. Socio-economic factors including marital status, educational level, religion, and income interact with gender to influence women's access to markets, for example. In both coastal Kenya (Matsue et al., 2014) and Lake Victoria (Medard *et al.*, 2002) a high proportion of female fish processors are single, divorced or widowed, and in Malawi, Nagoli, Binauli and Chijere, (2018) found that less educated, resource poor female fish traders were concentrated in smaller rural

markets and faced greater difficulties obtaining fish. Similar to Muslim fisherwomen from wetland regions in Bangladesh, who have inferior access to semi-urban markets than Hindu coastal fisherwomen (Deb, Haque, C and Thompson, 2015).

Other socio-cultural variables including a person's place of birth, social status, religious denomination and tribal identity, for example, can influence a person's capacity to access and benefit from small-scale fisheries (Rohe, Schlüter and Ferse, 2018). In the South Pacific, for instance, those who had migrated into the village felt they had no influence on fisheries governance and decision-making, and women from the religious minority group experienced dual exclusion (Rohe, Schlüter and Ferse, 2018). In addition, spatial identities can determine access to fishing grounds, landing sites and fish. In Kerala, India, insider/outsider status determines a fisher's fishing operations and landing site, which can, in turn, influence market access and income (Hapke and Ayyankерil, 2018). Also, in coastal Kenya senior female fish traders were found to limit outsiders and newcomers access to fish, especially when catches were low (Matsue et al., 2014).

These examples highlight the plurality of power and the interconnected nature of various power dynamics with the small-scale fisheries sector, and illustrate the importance of understanding power from an intersectional perspective (Kawarazuka *et al.*, 2017).

3.1.5. Patron-client relations

Patron-client relations are central to the organisation and operation of many small-scale fisheries (Ferrol-Schulte et al. 2014; O'Neill et al. 2019). Hence, understanding patron-client arrangements is important to examining relationships between value chain actors in small-scale fisheries. The following few paragraphs introduce the concept before it is later applied to explain the nature of specific value chain linkages.

Patron-client relations have been defined as a mutual and often long-term arrangement between a person of power, status, authority, or influence (the patron), and a less powerful person who benefits from the patron's support, influence and/or protection (the client) (Roberts et al. 2022). These relationships are broadly characterised by reciprocity, loyalty, obligation, mutual dependency, and power asymmetry. Patron-client systems are prolific in many rural economies, including small-scale fisheries (Roberts et al. 2022). They are voluntary relationships that operate in small-scale fisheries without regulation (Ferrol-Schulte et al. 2014; O'Neill et al. 2019; Roberts et al. 2022). Patron-client types of relationships in small-scale fisheries have shown adaptability, evolution, and persistence over time, despite major social, economic, political, and ecological changes (Johnson, 2010; O'Neill et al. 2019).

Power is central to how patron-client systems are created and maintained. Patrons are generally seen as having more power and influence than the client derived from their social status, wealth, and ability to provide credit and fix prices (Ferrol-Schulte et al.

2014; Nunan et al. 2020). On the other hand, clients are known as the ‘price takers’ in this relationship as they are unable to negotiate better terms or find alternative credit or employment (Nunan et al. 2020). However, they are often described as mutually beneficial in the sense that both the patron and the client receive benefits of some sort. In small-scale fisheries, they generally involve the promise to supply a good, either fish or labour, in exchange for a capital advance (Johnson, 2010). Though, the exact nature of patron-client relationships varies across different geographical and social contexts in terms of the level of benefits, exploitation, and power dynamics (Johnson, 2010; Fabinyi, 2013; González-Mon, et al. 2019).

The economic functions of patron-client systems are generally reinforced through symbolic systems of social obligation (O’Neill and Crona, 2017; Nunan et al. 2020). These systems are strongly influenced by cultural norms of behaviour including expectations of empathy and reciprocity (Johnson, 2010; Sudarmono and Bakar, 2012; Turgo, 2016). Their relational character requires continuous enactment/performance of loyalty and reciprocity, for instance through gift or in-kind exchanges (Pauwelussen, 2015; Turgo, 2016). Moreover, there is often an affinity between the patron and the client based on kinship, ethnicity, religion, or some shared experience (O’Neill et al. 2019). Hence, the relational ties between patrons and clients are not only economic but also family and neighbourhood based (Miñarro et al. 2016).

Nevertheless, Platteau (1995) suggests there has been a change in the quality of patron-client relations in small-scale fisheries, specifically a decline in the broader

social assistance relations and a reduction to the core economic functions of securing long-term labour commitment for patrons and livelihood security for clients. Both Platteau (1995) and Johnson (2010) question the degree to which contemporary patron-client relationships are true patron-client relationships and argued that they should instead be more narrowly described as labour attaching or commodity flow securing relations.

3.2. Interactions and power relations between value chain actors in small-scale fisheries

The following section draws upon existing literature to explain and analyse relations between value chain actors. However, the study, and literature review, is limited to examining three key value chain links – including links between i) fish suppliers and fish buyers, ii) boat crew and boat owners. For each link, the review explains the nature of the relationship (including credit, labour and patron-client arrangements, economic and non-economic forms of exchanges), examines who is engaged in these relationships, and pays particular attention to the power relations between actors and discussions regarding who benefits from these arrangements.

3.2.1. Relations between fish suppliers and fish buyers

The following section analyses the existing literature concerning relationships between fish buyers and fish suppliers.

Several studies have focused on fish buyers and their complex relationships within value chains (e.g., Crona and Bodin, 2010; O'Neill and Crona, 2017). The term fish buyer encompasses a range of actors also known as intermediaries, middlemen, fish agents, brokers, traders, and auctioneers. These intermediary actors purchase products from fish suppliers including fishers, boat owners, collectors, or auctioneers at landing sites, and distribute and sell the products to other individuals, processing plants, restaurants, or hotels (Crona and Bodin, 2010; Coronado et al. 2020). In some cases, they are commissioned as agents for larger collectors (Crona and Bodin, 2010). Intermediary buyers are key actors in small-scale fisheries and found in most fishing communities, particularly in the Global South (Ferrol-Schulte et al. 2014). In the Global South, particularly in rural communities, the proliferation of intermediary actors in small-scale fisheries has been related to several conditions including the number and diversity (in terms of scale of activities) of producers seeking access to markets, the dispersed nature of fishing communities, the highly perishable nature of the commodity itself, and fisher's limited connections to and knowledge of markets, lack of transportation and access to storage facilities (Carnaje, 2007; Crona and Bodin, 2010; Moreau and Garaway, 2021). Furthermore, several authors claim (e.g., González-Mon et al., 2019) that the importance of these actors is likely to increase with the growth of global seafood trade.

Fish buyers have varying capacities in terms of capital, market access, and trade networks and thus operate at various scales and levels. Such differences have led some authors to categorise the different types of fish buyers. Wamutoka (2009) identified

four categories of traders in coastal fisheries in Kenya from wholesalers who deal with between 300-500 kilograms of fish per day, to small-scale traders who deal with 50-100 kilograms of fish per day or less. Ferse et al. (2012) in Indonesia, and González-Mon et al. (2019) in Mexico, differentiate between types of fish buyers based on some of the following characteristics: the number of fishers they are tied to and the nature of that relationship (including economic and social ties), gear ownership, their storage capacities, access to fishing permits, insider-outsider status, ecological knowledge, and links to companies.

The role is not only occupied by men, but women also operate as intermediary fish buyers. In Zanzibar, Fröcklin et al. (2013) observed an increase in the number of women traders. In Liberia, fisher's wives act as powerful middlemen in both the Kru cassava fish and Fanti bonny value chains (Jueseah et al. 2020). Jueseah et al. (2020) found that fisher's wives buy around 88% of the total Kru catch during the rainy season and 60% during the dry season and purchase roughly 85% and 90% of the total quantities of Fanti bonny traded during the dry and rainy seasons (Juesah et al. 2020). However, women traders' activities are often restricted by their relatively limited access to social and economic resources, profitable markets and high-value fish, compared to men (Fröcklin et al. 2013; Matsue et al. 2014; Nagoli et al. 2018; Bradford and Katikiro, 2019; Lawless et al. 2019). Consequently, men frequently outcompete women and dominate trade for the most lucrative species. In Zanzibar, Fröcklin et al. (2013) analysed differences in the material and economic resources of men and women traders and found that men had greater access to capital and credit and

accordingly observed substantial disparities in the capital used by men and women traders; whilst men purchased fish for about 64 USD, women used about 48 USD. In addition, they recorded differences in the fish traded by men and women; men generally sold fresh fish, whereas women sun-dried and/or smoked the fish before selling. Furthermore, men tended to trade with a variety of medium to high-value species including tuna and kingfish, whereas women's trade was mainly based on medium to low-value species including octopus and goatfish and in comparison to men, were not involved in trade of the most expensive species on the fish market - shark and lobster (Fröcklin et al., 2013). The capture of more lucrative trade by men and resulting displacement of women has been referred to as a process of 'masculinization' (Gustavsson 2020) and has been documented in the Tanzanian octopus trade (Porter et al. 2008), invertebrate fisheries in the Pacific (Williams, 2015), sea cucumber harvesting in Palau (Ferguson 2021). Fröcklin et al. (2013) also discovered differences in terms of markets, contacts, customers, and mobility. Female fish traders lacked access to transport, strategic social networks and freezers, and were found mostly trading in inferior suburban markets and on the side of the road (Fröcklin et al., 2013). Men, on the other hand, had greater access to transport, freezers in main city markets, a broader contact network, a greater variety of customers, and access to more lucrative markets including trade within the tourism industry (Fröcklin et al., 2013). Similarly, Nagoli et al. (2018) found in Malawi that less educated, resource poor women fish traders have inferior access to resources and are concentrated in smaller rural markets and face greater difficulties obtaining fish (Nagoli et al. 2018).

The links between fish suppliers and fish buyers in small-scale fisheries have been explored in various contexts, globally (e.g., Quimilat (2018) in the Philippines, O'Neill and Crona (2017) in Zanzibar). Links between fish suppliers and fish buyers are diverse, complex, and multi-stranded. Pre-determined trade arrangements between fish suppliers and fish buyers are attractive in small-scale fisheries because of several factors, including the uncertainty in fish catches, slow dissemination of market information to fishers (Crona et al. 2010). Hence, fish suppliers often choose to enter often long-standing relations with fish buyers to access markets and capital, and fish buyers are motivated to by the assurance of supply. However, coordination between fish buyers and fish suppliers can also be motivated by social ties (Coronado et al. 2020). O'Neill and Crona (2017) found some fishers in Zanzibar were connected to the same fish buyer because they were either neighbours, relatives or friends and do so out of social obligation rather than economic imperative.

Fish buyers who operate on a large scale can be tied to several boats or fishers, while others may only work with a few (Crona et al. 2010). Similarly, fish suppliers can be tied to several traders, obtain capital from all of them and divide their catches among them (Carnaje, 2007). Crona et al. (2010) found in South Kenya and Zanzibar that large scale fish traders were tied to as many as 40 fishermen.

3.2.1.1. Tied relations through credit arrangements

Economic relations in the form of credit arrangements and labour-tying loans between fish buyers and fish suppliers are widespread and have been extensively studied (Crona et al. 2010; Kininmonth et al., 2017). Through these labour-tying loans fish suppliers effectively become employees of the capital lender (Crona et al. 2010). Gibbon (1997) suggests that since the 1980s mechanisms of ‘tying’ fishers to fish buyers has become more common. Gibbon (1997) associates this trend with changes in fishing gears used, specifically the introduction of more productive, yet expensive, gill nets in Tanzania.

Traders commonly provide fishers with capital on credit as a means of securing priority access to catches and a steady supply of fish (Carnaje, 2007). By fixing their supply of fish in advance fish buyers secure against the risk of poor trade transactions and business turnover (Carnaje, 2007). In Tanzania’s Rufiji River floodplain fish buyers without pre-determined supply arrangements sometimes found it difficult to obtain fish or confronted less favourable purchase conditions (Moreau and Garaway, 2021). Free buyers were often obliged to buy in bulk whereas patrons had the privilege of counting and grading the catch by size before deciding a price (Moreau and Garaway, 2021).

Credit is extended to perform variable functions. Crona et al. (2010) distinguish between two forms of credit: i) capital extended for investment in the production process e.g., the provision of fuel, support for gear repairs, or investment in new gear, and ii) capital issued over extended periods of time and used to cover fishers’ basic needs during periods of low income. Credit extended to fishers and boat owners also

differs depending on the species they target. Crona et al. (2010) report that fishers who target high-value species such as tuna, kingfish or lobster receive larger loans. Generally, these arrangements are informal (no contracts are written) and no interest is charged (Crona et al. 2010).

The benefits of such arrangements for client fish suppliers include increased market access and income. Fish buyers provide producers, who often lack connections within the marketplace, with valuable links to external markets, for instance tourism or export markets which often yield higher profits (Crona et al. 2010).

Social insurance has also been cited as a positive implication for client fish suppliers. Patron fish buyers have been observed to finance personal expenses for fish suppliers, such as daily food expenses, especially in times of shortage or when fishers are unable to go fishing (Fabinyi, 2013; Ferrol-Schulte et al. 2014). In some cases, funeral expenses and medical fees are also paid by certain patron fish buyers (Gibbon, 1997). In Indonesia, wives of fishermen borrow from their husband's patron fish buyer and obtain goods from stores on credit provided by the patron. In times of hardship, borrowing from patrons was a key coping strategy in times of hardship and reduced households' vulnerability to fluctuations in fishing dependent income (Ferse et al. 2012). Moreover, financial assistance from patron fish buyers have been found to provide much needed finance in place of formal options for low-income households who face extreme income variance (O'Neill et al. 2019). The advantages of loans from patron fish buyers, as opposed to formal finance institutions include the ready

availability of credit arrangements and unintimidating procedures to access credit, flexible conditions, investment in technological change (e.g., gear investments), non-essentiality of collateral and the willingness of creditors to accept interest payments as a share of the harvest (Ruddle 2011; Ferrol-Schulte et al. 2014; O'Neill et al. 2019; Parappurathu et al. 2019).

Other benefits for client fish suppliers include protection from law enforcement, fishing licenses and registration (Ferse et al. 2012). However, the benefits of tied trade arrangements appear to depend on the length of time the two have been doing business and the degree of trust built up (Carnaje, 2007). Furthermore, in Indonesia, Ferse et al. (2012) found that big, multi-business patrons tended not to provide the social services or support in emergency situations that smaller-scale patrons rely on to secure their relationship with fisher-clients. These relationships were more often of an exclusively financial nature (Ferse et al. 2012).

3.2.1.1.1. Who is engaged in these tied trade relationships?

O'Neill and Crona (2017) reported that 55% of fishers in their study in Zanzibar had pre-determined sales arrangements. Whilst some authors have found no sociodemographic differences between fishermen engaged in tied relationship with patrons and independent fishermen (e.g., Miñarro et al. 2016), several others have observed differences related to participation in pre-determined sales arrangements between groups and according to the fish targeted, and gear used. In Zanzibar, O'Neill

and Crona (2017) found that rural male fishers using handlines and nets were more likely to have pre-determined sales arrangements than male fishers fishing from urban sites on small and large vessels using fish traps, and rural female foot fishers. The nature of the arrangements also differs between groups; in Zanzibar, O'Neill and Crona (2017) observed that rural male fishers receive more assistance than rural female foot fishers. Male fishers in rural sites reported receiving money or products for home consumption from traders, whereas female foot fishers in rural sites, claimed they did not receive any material or non-sales related help from traders (O'Neill and Crona, 2017). In Kenya, foreign, migrant fishermen accessed larger loans from middlemen, than local fishermen, 45-280 USD compared to 1-10 USD (Crona et al. 2010). The money was used for travel, permits, food and housing for more skilled migrant fishermen, particularly from northern Tanzania (Crona et al. 2010). Ferse et al. (2012) found that the number of fishers with pre-determined sales arrangements was higher in the ornamental coral fishery, than artisanal food fisheries. They associated this difference with the need for specific gear and licenses (Ferse et al. 2012).

Studies have also examined which group of fish buyers are more likely to provide assistance to fish suppliers. O'Neill and Crona (2017) found that male rural traders were more likely to provide help to fishers in the form of money and fuel. Several studies have found that women fish buyers also provide credit, boats, nets, and shelter to fish suppliers (Bennett et al., 2001; Walker, 2001; Nakato 2004; Overå, 2005; Jenyo-Oni, 2007). In Tanzania's Rufiji River floodplain, Moreau and Garaway (2021) observed that due to competition for fish at the trading site, particularly smaller, cheaper fish for

frying, women likely paid fishers in advance to avoid competition. In coastal Kenya, Matsue et al. (2014) observed that women fish traders provided credit to fishermen despite their limited economic power. They were even found to extend additional money to fishermen who had poor catches under the agreement that they will be paid back later in fish (Matsue et al. 2014). In Zanzibar, O'Neill and Crona (2017) found that amongst female traders, women based in rural areas were more likely to provide assistance to fishers than female traders in urban areas; 56% compared to 4.8%.

Arrangements between fishers and traders are also influenced by environmental conditions at sea. Crona et al. (2010) report that 53% of middlemen in their study in coastal Kenya and Zanzibar cited an increase in extended loans when the sea is rough during the monsoon season.

3.2.1.1.2. Power relations between fish buyers and fish suppliers in tied trade relationships

Despite the valuable provisioning functions of fish supplier-fish buyer arrangements, several authors have highlighted and heavily criticised the exploitative side of these relationships, including issues of power, dependency, and debt.

Roberts et al. (2022) found that patron-client status impacted autonomy over buying/selling prices. As a result of their debt relations, client fish suppliers are generally bound to sell their fish to that specific fish buyer at a price often determined by the fish buyer (Crona et al. 2010; Ferrol-Schulte et al. 2014). Only in cases when the

fish buyer is not available or cannot purchase the entire catch may fish suppliers sell to other fish buyers (Crona et al. 2010). In Indonesia, Roberts et al. (2022) found that 83% of patron fish buyers reported having sole control over the price of the fish they buy, compared to 33% of non-patron fish buyers. Whereas only 8% of client fish sellers reported having sole control over the price of fish, compared to 78% non-client fish sellers. The primary method of repaying these loans is through fish sales and commonly involves deducting the equivalent value of fish from the next purchase (Crona et al. 2010; Matsue et al. 2014). However, capital lending fish buyers have been found to purchase fish at lower than market prices as a form of interest on fish suppliers' loan repayment (Gibbon, 1997; Wamukota et al. 2015). Gibbon (1997) observed that in Tanzania, fishers would receive almost 20% less for prawns delivered to 'their' trader.

Some authors have argued that tied trade arrangements can entrap clients in a self-perpetuating system of exploitation and dependence, presenting barriers to socio-economic equality in fishing communities. Roberts et al. (2022) in their study of patron-client relationships in Indonesia found evidence to support the 'captive value chain' theory (Purcell et al. 2017) in which suppliers are dependent upon larger, more connected buyers for financial support and sales. Similar evidence of perverse dependency relations between fish buyers and fishers have been found in the Mexican octopus fishery (Coronado et al. 2020) and in the Philippines (Quimilat, 2018). Quimilat (2018) explains that in the Philippines, the patron-client system had enriched a small

number of traders at the expense of exploiting and reproducing the poverty of fishers (Quimilat, 2018).

In their study of seafood trade in Zanzibar and the Philippines, O'Neill et al. (2018) found that fishers felt they could not stop arrangements with trading agents mainly because of the debt they owe, as well as a sense of debt of gratitude toward the trading agent. Fishers were also concerned that terminating a relationship would create misunderstandings with the trading agents (O'Neill et al. 2018). They also feared profit loss and the fact that they might not get any more help from the agent (O'Neill et al. 2018). Similarly, Amarasinghe (1989) found that many boat owners felt trapped in boat-tying arrangements, because of their dependence upon fish merchants to buy their catch and thus, feared that if they were to free themselves from their arrangement other fish merchants would side with the aggrieved merchant and retaliate by refusing to buy their catch. Fishers may also find it difficult to terminate relationships with traders because of the social embeddedness of the relationship (Sudarmono and Bakar, 2012). For instance, the fact that the trading agent was their relative was one factor cited by fishers that influenced whether they could stop the arrangement (O'Neill et al. 2018).

However, despite scholars' identification of dependency relations, Ferrol-Schulte et al. (2014) report that whilst many client fishers named low pay and conflict with patron as disadvantages of their involvement in a patron-client relationship, very few declared issues of exploitation and dependence.

Furthermore, Nunan et al. (2020) argue that power between patron fish buyers and client fish suppliers is more fluid than sometimes portrayed. They assert that patron-client relations in small-scale fisheries are complex and nuanced, challenging generalised assumptions about the nature of these relationships (Nunan et al. 2020). O'Neill and Crona's (2017) research also demonstrates that tied trade arrangements are not as fixed, or one-sided as the definitions of patron-client relationships suggest.

Fabinyi (2013) argues that relationships between patron fish buyers and client fish suppliers are typically simultaneously exploitative and beneficial as they provide important opportunities in contexts where income and employment are constrained. Other authors (e.g., O'Neill and Crona, 2017) have observed and argued that exchange relations between tied fishers and traders are more symbiotic. Similarly, in their study on Lake Victoria, Nunan et al. (2020) observed and described an interdependency, as opposed to a dependency, between patron fish buyers and client fish suppliers, where fish buyers depend on fish suppliers and vice versa.

Moreover, at times, boat owners or fishers have been observed to act as the patrons of fish traders (Nunan et al. 2020). In many contexts, fishers have also been found to provide support to traders, including fish for home use, discounts, credit, and the option to pay later (O'Neill and Crona, 2017; Nunan et al. 2020). In their study of seafood trade in Zanzibar, O'Neill and Crona, (2017) found these assistance flows were more prevalent in their rural study site. Male fishers with large vessels were found to

provide more support than they received (O'Neill and Crona, 2017). Similarly, women fish traders in coastal Kenya, are both providers and recipients of credit. When catches are large they receive fish on credit from fishermen (Matsue et al. 2014). O'Neill and Crona (2017) found in Zanzibar that among traders based in rural areas, male traders were more likely to receive assistance from fishers than women traders, 67% compared to 40% respectively. These examples demonstrate that fishers do hold a degree of power over fish buyers, and power to achieve better prices (Nunan et al. 2020). Nunan et al. (2020) describe the sources of power for fishers as decreasing stocks of certain fish, strong demand for fish and for skilled and reliable boat crew. Wamukota et al. (2015) observed that in coastal Kenya, traders were willing to pay a premium to fishers who loyally supplied them due to increased competition between traders for access to fish.

Fixed or generalised portrayals of patron-client power relations can also be gender-blind. In women-men trader-fisher relations, Moreau and Garaway (2021) suggested that boat owners may act more as patrons owing to local gender norms and relations that cause women fish processors and traders to have less power in the relationship. They found that boat owners generally decided who to sell fish to and did not always keep to agreements despite accepting credit and gifts in advance from women fish buyers (Moreau and Garaway, 2021).

3.2.1.2. Fish for sex relations

In addition to economic ties, based largely on credit arrangements, fish is also accessed through social arrangements between fish buyers and suppliers including sex for fish exchanges, sexual networking and romantic courtship.

Relationships involving exchanges of fish for sex have been described as one of many ties of unequal exchange in a context of complex social interdependences and traditions of patron-client relationships (Swidler and Watkins, 2007; Fiorella et al. 2015). Transactional sex, defined as a relationship involving an exchange of money or gifts for sexual favours, is a phenomenon that has been observed in mostly inland fisheries in sub-Saharan Africa (e.g., in Lake Victoria fisheries (Fiorella et al. 2015; Pickering et al. 1997), Southern Malawi (MacPherson et al. 2012); and Kafue River fisheries, Zambia (Merten 2006 as cited in Béné and Merten, 2008). Declines in fish availability in recent decades have in some contexts elevated the importance of fish for sex relationships in accessing scarce resources (Fiorella et al. 2015). These relations are complex, multifaceted, and diverse. Fish for sex exchanges involve both risks and opportunities (Fiorella et al. 2015). Women engaged in fish for sex relationships have been observed to have easier, more regular, and often cheaper access to fish than those who do not, or than male fish traders (Béné and Merten, 2008). However, several studies (e.g., Béné and Merten, 2008; Mojola, 2011; Kwena et al. 2012; MacPherson et al. 2012; Camlin et al. 2013) have also emphasised that men and women engaging in transactional sex risk exposure to HIV.

The structure of the fishery is reported to play a role in fish for sex relationships (Fiorella et al. 2015). Fiorella et al. (2015) argues that fish for sex relationships are compounded by a “gendered economy” that constrains women’s job options, compensation, and power. Furthermore, Fiorella et al. (2015) claim that the structure of payments between boat owners and hired labourers influence transactional sex’s entrenchment in Lake Victoria fisheries. Whilst hired fishers reap smaller monetary rewards from fish sales than boat owners, they are positioned to negotiate extra-monetary benefits (sexual benefits) by allocating the fish given to them by boat owners, as part of their share agreement (Fiorella et al. 2015). Such share agreements between boat owners and fishing crew are described later in this chapter in section 3.2.2.

In many contexts, fish for sex is compared to prostitution and can carry considerable stigma, particularly for the women, and lead to social exclusion (Béné and Merten, 2008). However, Béné and Merten (2008) argue that these relationships should not be reduced to mere sexual exchanges, since they can involve longer-term social kinship and romantic courtship. In the Kafue flats, Zambia, women referred to these relationships as ‘temporal marriages’, and viewed the fishers with whom they have this relationship as ‘boyfriends’ (Béné and Merten, 2008). Furthermore, in addition to sexual intercourse, women who have boyfriends in the fishing camps were also expected to perform other ‘wifely duties’ including housekeeping, cooking and other domestic tasks in exchange for fish (Béné and Merten, 2008). Furthermore, whilst women are usually thought to be motivated by financial reasons, their motivations are

often more complex and should not be oversimplified (Béné and Merten, 2008). Besides the exchange of goods or money, these relationships, particularly with semi-regular partners, can also involve the provision of care, including food or housing, and emotional support (Fiorella et al. 2015). Motivating factors also include long-term economic security and higher economic status for young women who engage in transactional sex with older and richer men, and social status for women who receive luxury gifts, including nice clothes or perfume, from their partners (Béné and Merten, 2008). Nevertheless, Fiorella et al. (2015) observed, the nature of fish for sex relationships are changing alongside broader shifts in the fishing economy from “*a relational “anchor” into increasingly short-term transactional exchanges*” (p. 324).

Studies investigating who engages in fish for sex relationships have produced mixed results. Matsue et al. (2014) found that all women, regardless of age and marital status receive sexual demands from fishermen. However, several studies suggest that it is generally older women, either divorced or widowed, who engage in transactional sex with fishers. In Kafue, Zambia, Béné and Merten (2008) recorded that 57% of the single women engaged in fish trading had a ‘boyfriend’ in the fishing camp. Similarly, Fiorella et al. (2015) in Lake Victoria, Kenya, found that unmarried or single women, as well as women with lower educational status and more severe food insecurity, were more likely to exchange sex. The relatively poor economic position of single-mother households and of widowed and divorced women, is often used to explain these findings. However, Chatterji et al. (2004) found no clear relationship between women’s economic status and their likelihood to engage in transactional sex in sub-Saharan

Africa. Other factors identified as affecting engagement in transactional sex include the type of fishery. Fiorella et al. (2015) reported that men who engaged in transactional sex were more likely to fish for *dagaa* (silver fish). Furthermore, they observed that transactional sex mostly arises around fish that has no fixed price and can be bargained for (Fiorella et al. 2015).

Predominant narratives used to explain women's motivations for engaging in transactional sex focus on economic hardship or opportunistic entrepreneurship. Béné and Merten (2008) describe these narratives as the 'miserabilism' narrative and the institutional economic interpretation, respectively. A key distinction between the differing perspectives is whether women are victims or agents of this phenomenon.

Within the 'miserabilism' narrative, women are presented as victims of larger structural and cultural factors, including economic constraints and social norms of male dominance and physical control, that coerce them into risky sexual behaviours (e.g., Barker and Rich, 1992; Longfield et al. 2002 as cited in Béné and Merten 2008).

Fish for sex is perceived as a consequence of women's economic vulnerability and income-poverty, and therefore, women are thought to be 'forced' to offer sex to secure access to fish and sustain their livelihoods in low-income contexts. This narrative is underpinned by classical economics and utility theory and associated narratives typically emphasise the individual economic status of the woman engaged in transactional sex (Béné and Merten, 2008). Within this narrative statements such as "*the penniless women will sell themselves to pay for the fish*" ([Kageno, 2005](#) as cited in

Béné and Merten, 2008) and “*many helpless widows are forced to succumb to sexual demands of fishermen*” (Ouma 2005 as cited in Béné and Merten, 2008).

In comparison, within the institutional economic interpretation, women are depicted as active social agents, who choose their behaviours and negotiate their sexual relationship (e.g., Silberschmidt & Rasch, 2001). Therefore, fish for sex could be viewed as another type of ‘contract’ developed by women fish traders to secure access to fish supply, reduce risk and transaction costs in situations of high competition between fish traders, uncertain environments and imperfect market situations (Béné and Merten, 2008). Transactional sex is therefore viewed as a form of opportunistic entrepreneurship wherein women have learned that their sexuality is an economically valued resource and exercise agency to extract money or gifts for their sexual services (Baumeister and Vohs, 2004). To the extent that, in Congo, women are presented as the initiators of transactional sex for fish, and men are perceived as the victims tied up in multiple sexual relationships with women who ‘chase’ them up to the beach (Anon, 2004a as cited in Béné and Merten, 2008). This narrative is underpinned by new institutional economics (Béné and Merten, 2008) and associated studies typically focus on the interactions between women fish traders and fishers, particularly the transaction costs, rather than the individual’s economic status (e.g., Abbott et al. 2007).

Nevertheless, most experts agree that women experience something between these two portrayals (Béné and Merten, 2008). Whilst many women may actively choose to

employ this extra-monetary strategy of 'sexual networking' for easier, more regular, and often cheaper access to fish, these relationships occur within a setting of significant gender power imbalance (Béné and Merten, 2008). Moreover, these power dynamics have been affected in recent decades by declines in fish availability and increased competition for scarce resources. Matsue et al. (2014) observed that when catches are low, competitive negotiations disempower women and create opportunities for fishermen to pressure women fish traders to have a sexual engagement with them.

However, both narratives only partially explain the fish for sex phenomenon. Béné and Merten (2008) argue that it is also necessary to consider the socio-institutional dimensions of fish for sex since most of the cases of fish for sex are observed in some parts of Africa and nowhere else. The socio-institutional perspective considers fish for sex relationships within the broader socio-institutional contexts of marriage, extra-marital traditions, rules and norms regarding sexual relationships to understand why these relationships occur in some places and not in others (Béné and Merten, 2008).

As Béné and Merten (2008) describe, in the Kafue flats, in southern Zambia, extra-marital sexual relationships are socially accepted and recognised within traditional institutions. In marital and extra-marital relations women expect men to support them financially and/or buy gifts as a sign of affection and as part of their duty as a man. Furthermore, not all societies have a purely romantic concept of sexual relations (Béné and Merten, 2008). Consequently, the economically regulated exchange of sexual engagements might not be judged as shameful as it might be from a Christian or

Western standpoint. Hence, in the Kafue fishery, fish for sex relationships could be seen to reflect women fish trader's 'traditional rights'; the right to have control over their own body and to negotiate their own sexuality to strengthen their economic empowerment (Merten and Haller 2007).

3.2.1.3. Summary of relations between fish buyers and fish suppliers

In summary, trade relations between fish suppliers and fish buyers are diverse, complex, and multi-stranded. The interactions between fish suppliers and fish buyers in small-scale fisheries have been studied extensively. The literature suggests that many fish suppliers are engaged in pre-determined trade agreements with one or several fish buyers. These pre-determined trade agreements are solidified through credit arrangements and social arrangements between fish buyers and suppliers including sex for fish exchanges, sexual networking and romantic courtship. Though the number of fish suppliers engaged in tied arrangements appears to be influenced by the fish targeted, gear used, gender, and geographical location (O'Neill and Crona 2017). Credit is usually extended by fish buyers to fish suppliers as an investment in the production process, but credit is also issued to cover fish supplier's personal expenses during periods of low income. However, in some contexts, large-scale fish buyers are less likely to provide these social services than smaller-scale fish buyers (Ferse et al. 2012). The literature highlights the valuable provisioning functions of fish supplier-fish buyer arrangements (Ferse et al. 2012; O'Neill et al. 2019). Though several authors have criticised the exploitative side of these relationships, for example

in terms of fish suppliers lack of autonomy over fish prices in patron-client relations (Roberts et al. 2022). Nevertheless, recent studies have argued that power between patron fish buyers and client fish suppliers for example is more fluid than sometimes portrayed (Nunan et al. 2020). In many contexts and under specific circumstances, fish suppliers have been observed to provide support to fish buyers, and as such act as the patrons of fish traders (O'Neill and Crona, 2017; Nunan et al. 2020). Moreover, in relationships between men boat owners and women fish buyers, boat owners are reported to act more as patrons owing to local gender norms and relations (Moreau and Garaway, 2021). These findings demonstrate the importance of distinguishing between different categories of fish buyers. Though, such gendered nuances to patron-client relations in small-scale fisheries are relatively underexamined.

3.2.2. Relations between fishing crew and boat owners

The following section examines the literature regarding labour relations between fishing crew and boat owners.

In many small-scale fisheries, equipment ownership has become highly consolidated among the wealthier members of communities (Allison et al. 2012). Furthermore, equipment ownership is consolidated among men in small-scale fishing communities.

In the Western region of Sierra Leone, national surveys suggest women own just 0.5% of fishing vessels (Thorpe et al. 2014). In Uganda, most women boat owners were found to have inherited the boats after their husband's death (Kher, 2008). Some

authors argue that increased costs of equipment, including boats and fishing gears, influenced by modernisation and associated increases in the scale and complexity of fishing operations, has in many SSF communities produced an elite class of equipment owners (Isaacs, 2013; Alonso, 2022). In the Nile Perch fishery in Lake Victoria, local and regional businessmen may own up to 100 boats (Smith and Basurto, 2019).

At the same time, these dynamics have created a class of fishers and contract workers with few assets and who are capital poor (Isaacs, 2013; Alonso, 2022). Empirical evidence suggests that, in some communities, equipment ownership by individual fishers has decreased (Stevenson et al. 1982). Instead, fishers are commonly engaged in labour tying arrangements with boat and fishing gear owners (Villafuert and Bailey, 1982).

Such labour tying arrangements with boat owners and fishing crew are also regarded as an example of patron-client relations in small-scale fisheries. Boat owners act as patrons and normally provide operational costs, such as the fishing boat and gear, fuel, and food for the crew; maintenance costs; and advances credit for production and consumption purposes, whilst the client-fishing crew work as labourers, carrying out the patron's commands (Carnaje, 2007; Sudarmono and Bakar, 2012). Though, Miñarro et al. (2016) and Roberts et al. (2022) have both observed various levels of patronage as boat captains may also act as a patron to fishing crew.

The high degree of uncertainty of catch and the skills required for fishing make patron-client relations between boat owners and fishing crew particularly attractive because the arrangement provides insurance to both actors (Johnson, 2010). The boat owner's objective is to secure reliable fishing crews with the commitment to work, desired skills and experience to successfully undertake fishing. In Indonesia, debt creation was one of the main mechanisms by which boat owners and captains maintained the loyalty of their crew (Roberts et al. 2022). On the other hand, crew members expect in return that boat owners will provide them with basic subsistence provision when fishing conditions are bad and periodic loans to cover irregular costs (Johnson, 2010). In times of poor catch and when boat crew's subsistence is at risk, boat owners may reduce or waive their share, without asking for future compensation (Carnaje, 2007). Furthermore, the owners of boats usually allow crew members to take some fish home for consumption after each trip (Carnaje, 2007).

Alike in fisher-fish buyer relationships described previously, labour and employment relations tend to be highly personalised and socially embedded (Carnaje, 2007). Fishermen and boat owners often live side by side with one another (Turgo, 2016). In the Philippines, core crew members are usually relatives or neighbours of the owner (Carnaje, 2007). Social obligations embedded in these relationships include boat owners' responsibility for the safety, security and general wellbeing of their fishers and their families. Johnson (2010) argues that at this level of the value chain, some of the symbolic reinforcements of patronage are most pronounced. Distribution systems are

flexible and allow boat owners to make personal allowances for special social conditions on the grounds of equity and a sense of moral obligation (Carnaje, 2007).

In the Philippines, boat owners 'patronise' their crew members through gift giving, for instance at the birth of a child or death of a family member (Carnaje, 2007). As is their moral responsibility, they also use their connections and influence to solve his workers' other problems (Carnaje, 2007). In Indonesia, this includes the additional provision of housing (Nurdin and Grydehø, 2014). In Lake Victoria, boat owners are expected to take care of fishers' needs through the provision of credit, food, and treatment when one is sick (Nunan et al. 2020). The social obligations of boat owners towards their crew help to build good relations and thus retain the boat crew. If these social obligations are not met, boat owners risk crew leaving and moving to work on another boat (Nunan et al. 2020). In Indonesia, most crew members borrowed money from their boat captain and/or owner for daily needs, particularly in the windy season (Roberts et al. 2022). In the Philippines, boat owners pursue several strategies to incur loyalty and reduce problems of crew recruitment, including becoming godparents to their crew members, drinking with their crew and performing rituals together to increase the luck of the boat in fishing (Carnaje, 2007). In the seine fishery, seine owners were recorded to gift their seine workers with firewood, clothes, furniture, rice, jackfruit, breadfruit (Amarasinghe 1989). At the same time, seine workers and their families often offered their services to the seine owners in the form of unskilled agricultural work and domestic help at ceremonies (Amarasinghe 1989). In addition to the above tangible services, the crew workers reciprocated the services of the seine

owners in symbolic forms such as demonstrations of respect, enhancing the name of their employer (Amarasinghe 1989).

3.2.2.1. Power relations between boat owners and fishing crew

Boat owners have power over boat crew to the extent that they provide them with the boats, engines, and gears for fishing (Nunan et al. 2020). Arguably, from a Marxist perspective of labour relations, boat owners - referred to from this standpoint as the capitalist or bourgeoisie class - control the means of production and thus maintain power through ownership of capital and property (i.e., boat, gear, and licenses) (Damayanti et al. 2018). Boat owners use their capital to purchase and exploit labour. Boat crew- from this perspective the proletariat or working class – who own no resources besides their labour, work under the capitalist employer. The products (i.e., fish) created by their labour are taken and sold by the manager to produce profit. Wages are kept low and profit-sharing patterns are more profitable for owners, so they can accumulate and expand their capital, whilst preventing workers from gaining ownership of property, recreating the conditions for further exploitation (Kunyati and Marta, 2022).

However, this analysis is more applicable to boat owners who own multiple boats, gears, and licenses, employ many workers, and are directly involved in fish trade – commonly referred to as boat managers (Gibbon, 1997). Also present in small-scale fisheries are small-scale boat owners who still work their own means of production,

also referred to as owner-workers. This group own some property, but must also work themselves on the boat, as their capital is not sufficient to have all work done by employed crew (Damayanti et al. 2018).

Nevertheless, relationships between boat owners and fishing crew are often unequal, with clear differences in terms of power and pay (Isaacs, 2013; Alonso, 2022).

Employment arrangements between fishing crew and boat owners commonly take the form of share contracts, or contract fishing. Within a share contract the labourer is paid by the share of output (Carnaje, 2007). Such profit-sharing arrangements often reflect the relative values placed on labour and invested capital and provide insights into broader socioeconomic relationships (Villafuert and Bailey, 1982). The proportion fishing crew receive varies, and can depend on several principles, including the crew member's experience, level of responsibility, the physical risk they endure, the degree to which each crew member contributes to the total yield, and the catch (Carnaje, 2007). Operational and maintenance costs are usually deducted before sharing takes place and in general, the largest share goes to the boat owner (Carnaje, 2007). The higher the amount of fixed capital required for a particular type of fishing, the higher the share received by the owner(s) of capital (i.e., boat owner) (Carnaje, 2007). In the Philippines, boat owners pay a cash share to crew either after every fishing trip or every two weeks, but some also pay shares irregularly (Carnaje, 2007). According to Carnaje (2007) most seining boats in their study sites in the Philippines, distribute their shares based on thirds, where the owners get two parts of the catch, including one part to compensate for the provision of operational costs and the other for owning the

boat and fishing gear; and the crew divide the remaining part among them. In Indonesia, each fishing crew member received on average 3%, compared to 43% for the boat owner and 13% for boat captains (Roberts et al. 2022). Hence, client fishing crew often occupy the lowest revenue grouping in small-scale fisheries value chains (Roberts et al. 2022).

Whilst share systems are thought to mitigate the precarity of fishing by sharing the ups and downs of the industry between boat owner and crew (Turgo 2016), share systems have an obvious advantage for boat owners and boat captains over fixed wages, who are unlikely to want to pay a fixed salary when catches are poor (Carnaje, 2007).

Nevertheless, Nunan et al. (2020) suggest that boat crew have some power over boat owners since boat owners are dependent on boat crew for a good catch, regular income and looking after their investment (i.e., boat and equipment). Moreover, skilled, and experienced crew especially know how valuable they are, and have the power to demand higher shares, income, and other provisions (e.g., credit) (Nunan et al. 2020). In addition, reduced fish stocks and the subsequent need for skilled and experienced fishers, has strengthened the bargaining power of boat crew (Nunan et al. 2020). Nunan et al. (2020) also observed that power within labour relations between boat owners and fishing crew is also influenced by the potential for crew members to move to another boat owner (Nunan et al. 2020). In the Philippines, the practice of stealing another boat's captain by offering higher shares or percentage of the catch has caused problems for boat owners as labour turnover and monitoring is costly, but

the competition between boat owners for experienced crew has increased opportunities for fishing crew to bargain for better conditions (Carnaje, 2007).

3.2.2.2. Summary of relations between boat owners and fishing crew

In summary, labour relations between boat owners and fishing crew tend to be highly personalised but are often unequal, with clear differences in terms of power and pay (Isaacs, 2013; Alonso, 2022). The literature indicates that fishers are increasingly engaged in labour-tying relationships with boat owners. In such relationships boat owners act as patrons and provide the operational costs of fishing whilst the client-fishing crew work as labourers carrying out the patron's commands. Fishing labourers are typically paid through share agreements. Though some authors argue that these share systems are more advantageous for the boat owners, who take a larger share of the profits (Carnaje, 2007). However, authors have observed that at this level of the value chain the social obligations of patronage are most pronounced (Johnson 2010; Roberts et al. 2022). Considering low wages and extreme income variance, the social services that boat owners provide help to build good relations and thus retain the boat crew (Nunan et al. 2020).

Furthermore, despite the glaring power differences between an elite class of equipment owners and a capital poor labouring class (Stevenson et al. 1982; Isaacs, 2013; Alonso, 2022), recent studies have observed that boat crew have some power over boat owners (Nunan et al. 2020). This power is connected to boat owners'

dependence on their crew for a good catch and regular income, under increasingly competitive conditions (Carnaje, 2007; Nunan et al. 2020).

3.2.3. Horizontal trade relations between fish traders

The following section analyses existing literature on horizontal trade relations between fish traders.

Whilst some traders sell to consumers, horizontal trade relationships also occur between traders; traders can also buy from other traders, sometimes referred to as dealers, agents and processors (González-Mon et al. 2021). Traders occupy different roles depending on their position in the trade network and connectivity patterns (González-Mon et al. 2021). Rural female traders in Zanzibar, are apparently well connected through deals to their fellow traders (O'Neill and Crona, 2017). Traders, as well as fish suppliers, are often tied to next-level buyers through pre-determined sales, and binding deals (O'Neill and Crona, 2017). In the Philippines, a similar number of traders reported being tied in arrangements as fishers (O'Neill et al. 2018). Other forms of cooperation between these actors includes collective buying, pooling products to sell, credit provision, lending and borrowing money (O'Neill and Crona, 2017; Nunan et al. 2020; Ibengwe et al. 2022). In Tanzania, middlemen receive financial support from traders for organising collection, transporting, and transiting dagaa across the border (Ibengwe et al. 2022). In Indonesia, large-scale patrons

employ assistants (or trading agents) who act as small-scale patrons to deal directly with fishermen (Ferse et al. 2012).

These horizontal relationships can produce complex networks of credit relations. For instance, in Tanzania, middlemen can extend the credit supplied to them by traders to fishers to cover operational costs (Ibengwe et al. 2022).

O'Neill and Crona, (2017) report that traders perceived themselves to be more constrained by their trading arrangements and the social pressures in realizing them, than fishers. In the Philippines, trading agents felt they could not stop their arrangements because they lacked other outlets to sell their fish (O'Neill et al. 2018). In one of their study sites in Zanzibar, more traders than fishers reported an inability to stop their arrangements citing the same reasons as fishers, including social obligation and concerns about misunderstandings (O'Neill et al. 2018).

In summary, trade relations between fish traders represent an important link in small-scale fisheries value chains. However, fewer studies have examined these horizontal relationships compared to other value chain interactions. Nevertheless, the existing literature suggests that there are important power relationships that exist between these actors who operate at various levels and scales and are also variously tied through pre-determined trade arrangements. It's possible that the power relations actor's experience in one exchange relationship affect their other value chain relationships, however these dynamics are seldom addressed.

3.2.4. Section summary

This section of the literature review examined existing literature concerning trade and labour relations between selected value chain actors in small-scale fisheries and analysed available literature on power relations between these actors. Accounts of the links between fishers and fish buyers, boat owner and fishing crew, and fish buyer and other fish buyers highlight the social embeddedness of trade and labour relations in small-scale fisheries, and the complexity of power relations existent within small-scale fisheries value chains.

Several studies have established that power relations significantly affect access to fisheries resources and the distribution of benefits among value chain actors. However, fewer studies have analysed how power influences cooperation, satisfaction, perceived fairness, and trust for instance, within trade and labour relations.

The literature submits that power relations between value chain actors in small-scale fisheries are complex. Individuals can act as a patron with significant power in their relationship with one actor, and at the same time serve as a client with less power in their relationship with another actor (e.g., fish buyers may act as a patron to suppliers, but serve as a client to other large-scale fish buyers) (Roberts et al. 2022). However, limited studies have examined horizontal trade relationships between fish traders and

addressed how the power relations actor's experience in one exchange relationship affect their other value chain relationships.

In addition, recent studies have demonstrated the fluidity of power in patron-client relations (e.g., Nunan et al. 2020). Evidence across many small-scale fisheries contexts indicates that power between actors can shift depending on environmental, market and labour conditions. However, whilst some authors have identified several context specific sources of power, for example Nunan et al. (2020) pinpoints decreasing stocks of certain fish and strong demand for skilled and reliable boat crew as sources of power for fishers, further characterisations of the different forms or types of power that actors possess in their exchange relationships are limited.

3.3. Trust and power in small-scale fisheries and trade relations

The following section examines the scope of literature on trust in small-scale fisheries. It then examines existing information regarding the interaction between trust and power in small-scale fisheries value chains and provides some conceptual clarification on trust.

3.3.1. Scope of literature on trust in small-scale fisheries

Literature that focuses on trust in fisheries is particularly limited. Turgo's (2016) study of market practices in brokerage houses in a rural fishing community in the Philippines, is one of the few studies that decisively explore relations of trust among fishers and fish traders in small-scale fisheries value chains. Turgo (2016) examined trust through

locally-identified norms – reciprocity, empathy, and shame – that mediate trust in market relations. Besides this work, much of the available literature, concerning small-scale fisheries, examines the impact of (dis)trust for natural resource governance (e.g., Hamm, 2017; Toman et al. 2021). These are largely instrumental examinations of trust, rather than in-depth analyses of the nature of trust relations. For instance, Toman et al. (2021) examines the influence of trust on acceptance of management practices, and willingness to adopt best management practices. Rojas et al. (2021) investigates, through experimental economic games, how pro-social and bargaining behaviour, including trust, is influenced by people's socioeconomic context, conducted in fishing associations in Chile. Pro-social behaviour, including trust, is understood as essential for sustainable fisheries governance, including enforcing local rules, solving conflicts, transferring knowledge, and ensuring sustainable extraction (Rojas et al. 2021). They found that gender, having a secondary income source, age, and being the main income provider for the household had an impact on pro-social behaviour, including trust (Rojas et al. 2021). Rojas et al. (2021) found that women trusted and reciprocated more than men. However, their findings lack empirical explanation. Previous studies concerning the role of gender on trust and trustworthiness have found mixed results. This ambivalence has been contributed to the methodological approach, specifically trust games which are said to confuse trust with risk. In such trust games women have been found to trust less than men, but this is arguably because women can be more risk averse than men, rather than less trusting (Rojas et al. 2021).

Nevertheless, there are a wider selection of papers that - whilst they do not explicitly focus on trust within their research objectives - acknowledge trust as an important finding within their studies. Within this literature, there is a general acknowledgement regarding the importance of trust in patron-client relations in small-scale fisheries. In their study of patron-client relations in Lake Victoria fisheries, Nunan et al. (2020) found that trust is necessary for such social relations. Similarly, in their study of a fishing community in South Sri Lanka, Amarasinghe (1989) found that trust is instrumental to patron-client relations between fish merchants and craft owners. Trust played a major role in seeing that each actor follows through on their promises (Amarasinghe 1989). Likewise, Roberts et al. (2022) found that trust and family are important to trade relationships in an Indonesian-island based fisheries system. Though, this finding is not discussed further. Nevertheless, this finding regarding the importance of family is reflected in other studies. For instance, Sudarmono and Bakar (2012) describe how large-scale middlemen/patrons often recruit clan members to assist with their business as they are generally loyal and dedicated to him, and therefore trustworthy.

Several studies have highlighted the importance of trust in credit arrangements between actors in small-scale fisheries. Turgo (2016) explain that for market arrangements that thrive on credit, trust is the defining socio-cultural ethos that enables the market to operate. *“Fish traders would trust fishmongers that payment will be delivered as promised, that they will not abscond. Fishmongers, on the other hand, by paying on time (or even if sometimes being delayed for a number of days)*

would trust that fish traders will continue to allow them to trade in brokerage houses on a regular basis thus providing them with livelihood" (Turgo, 2016; 84). In coastal communities in coastal Kenya and Zanzibar, Crona et al. (2020) found that 78% of middlemen engaged in credit activities, and the loans which are issued to fishermen are strongly based on trust as no contracts are written and no interest is charged. Matsue et al. (2014) found that for women fish traders on the Kenyan coast, trust determined access to credit. As such, newcomers found it difficult to access credit from fishermen, as fishermen generally lend to traders they know and have built a working relationship with, rather than risk lending to a newcomer who might not pay back (Matsue et al. 2014). Similarly, Turgo (2016) found that being trusted has tangible benefits. More 'trusted' and 'known' fishmongers are given better payment schedules than others, depending on how long they had been in the business, their financial transaction history and their relationship with fish traders (Turgo, 2016). Broader literature examining trust and trade, for instance in agricultural markets have also found positive links between trust and socioeconomic outcomes. Szabó (2010), in their study on the role of trust in agricultural marketing cooperatives, concluded that trust is one of the main factors that can help cooperative members realise economic and non-economic aims, because it can reduce transaction costs. Odera (2013) in their study of their study on the importance of trust in business operations in the informal sector in Africa, found that trust facilitates partnerships and business cooperation in the informal sector, thus possibly leading to increased productivity (Odera, 2013).

Whilst trust is often necessary for patron-client relations and credit arrangements to function, the processes and performance of these relations also contribute to trust. To sustain and deepen trust relies on the everyday performance of trust (Turgo, 2016). As partners prove themselves trustworthy trust develops and in turn, exchange often expands. As Turgo (2016) illustrates, fishmongers working with traders in brokerage houses in a rural fishing community in the Philippines perform trust through everyday practices of reciprocity, empathy, and shame. In this case, fishmongers gift fish to traders, in addition to what is bought, to foster trust (Turgo, 2016).

In addition, Turgo's (2016) study detects the so-called 'dark sides' of trust. They found that trust also provided opportunities to perform fraud and other forms of wrongdoing, with serious consequences in terms of financial losses for some brokerage houses.

3.3.2. Scope of literature on the interactions between power and trust

As indicated by the literature already discussed, power and trust between actors are two central concepts in social exchanges. However, few relevant studies in the fisheries sector have analysed the relationship between power and trust. Studies have explored other factors e.g., gender and socioeconomic characteristics and their influence on trust and trustworthiness. For instance, Rojas et al. (2022) in their study examining the influence of socio-economic characteristics on trust found that income affected individual propensity to trust. Personal income had a positive relationship with propensity to trust. They claimed that this may be related to risk tolerance, as

higher levels of income can make people more willing to send money in hopes of higher returns (Rojas et al. 2022). Whilst this finding has some relevance to insights on trust and power, the literature provides limited understanding of this topic in the context of small-scale fisheries.

ÖUberg and Svensson (2010) argue that empirical evidence on the relationship between power and trust is generally lacking in the broader social science literature, however, several studies have theorised about the effect of power on trust. There is significant conversation around this topic in political science, business, and entrepreneurship literature and social exchange theory. Power is seen to influence trust because it influences the partners' evaluation of the relative worth of the exchange relationship and the kinds of cooperation that take place (Farrell, 2004). Much of the debate centres on whether power is a requirement for trust, or if power drives out trust.

Many studies argue that power negatively affects trust, especially in cases of significant power asymmetry, and using coercive power. Multiple authors suggest that trust is difficult to achieve when considerable power asymmetry exists between actors (e.g. Farrell, 2004). Cook et al. (2005) argue that power inequalities create "*fertile ground for distrust*" (p. 40). From this perspective, it is the level of power one actor holds over the other which is important to the exchange process. Some actors may be too powerful to be trusted. Farrell (2004) explains this from the encapsulated interests perspective (Hardin, 2002); they propose that when one actor holds considerable

power over another, they are unlikely to take the other actor's interests into account and thus cannot be trusted. This relates to the actors' evaluation of the relative worth of the relationship (Farrell, 2004). The more powerful actor is perceived by the other actor to hold less value for the relationship (Farrell, 2004). This idea concerns the set of possible alternatives the actor has if the relationship were to breakdown; in other words, it relates to their dependency on their partner which is determined by their structural power (Farrell, 2004; Huo et al. 2019). If the actor has many alternatives, there is less reason for them to take the other's interests into account and can more credibly threaten to remove opportunities for bargaining within the relationship (Farrell, 2004). They will also have less incentive not to renege on their commitments (Farrell, 2004). Consequently, it is unlikely that the other actor will trust them based on their knowledge of how their power affects their motivations or interests in the relationship (Farrell, 2004). Hence, perceived power impacts trust relations. As stated by Ap (1992), "*when the form of relation involves an imbalance and is asymmetrical, the disadvantaged host actors' perceptions will be negative*" (p. 683). In fact, they are likely to rationally 'distrust' (Farrell, 2004).

Other authors differentiate between coercive power and non-coercive power and maintain that it is coercive power which results in negative consequences within relationships (e.g., Jain et al. 2014). Coercive power refers to when an actor attempts to exert control over their partner through negative actions such as punishments or threats to withhold support or commitments (Huo et al. 2019). These authors argue that structural power (i.e., the presence of power asymmetries) does not equate to the

use of power, but coercive power addresses this behavioural aspect of power (Huo et al. 2019). Tactics of abusing include pricing control (e.g., demanding lower prices or quantity discounts), operational control (e.g., setting stringent quality standards and dictating customised products), channel structure control (e.g., bypassing links in the supply chains and limiting freedoms to deal with others) and information control (e.g., withholding, or distorting information) (Low and Li, 2019). The use of coercive power can result in the other person feeling a lack of autonomy, vulnerable, frustrated and less satisfied with the relationship (Huo et al. 2019). Some scholars have found that the use of coercive power can increase opportunism – self-interest seeking behaviour – among the targets of coercive power (e.g. Handley and Benton, 2012; Wang et al., 2015). However, the literature reveals an inconsistent relationship between power and opportunism (Huo et al. 2019).

Conversely, several studies suggest that power has a positive effect on trust and thus the social exchange process (e.g. Oskarsson et al. 2009; ÖUberg & Svensson, 2010). ÖUberg and Svensson (2010) find a positive relationship between power and trust, in the case of labour market politics in Sweden, based on actors' need for predictability when deciding whether to interact with others or not which they argue grows with increasing power. Furthermore, they also found, in disagreement with previous findings, that symmetry in power relations is not a guarantee of trust. They observed, in the same institutional setting in Sweden, that actors with symmetric low power do not trust each other because of the uncertainty of powerless actors' capacity to keep promises (ÖUberg and Svensson, 2010).

Moreover, Farrell (2004) argues that there are times when trust is possible between actors of unequal power. Being powerful does not always serve the interests or benefit of those with the power since people may avoid dealings with them because they cannot be trusted. Therefore, trust may co-exist with asymmetries of power under some circumstances (Farrell, 2004). Farrell (2004) suggests that in cases where the less powerful actors are unsure as to whether power disparities and interests are such as to make trust impossible or not, it is down to the more powerful party, if in their interest, to create the possibility of cooperation. They might achieve this by constraining their power to defect, so that others may have less reason to distrust them. Alternatively, they might employ their power in a non-coercive manner. Non-coercive acts of power may provide benefits to exchange partners and can include the exchange of information and rewards (Jain et al. 2014). In this case, powerful actors make a behavioural choice to use their power to strengthen the exchange relationship (Huo et al. 2019).

In summary, the literature is mixed and suggests that the relationship between power and trust is both complementary and opposing (Nunkoo and Ramkissoon, 2012).

3.3.3. Trust conceptualised

Trust can be defined as "*an expectation from one actor (the trustor) about the specific behaviour of the other (the trustee), at a specific time and in a specific context*" (de Vries et al. 2022; p.3). Trust is premised on vulnerability, since all interactions involve an element of risk and potential doubt (Lewis and Weigert, 1985; Bandura, 1986;

Hamm et al. 2020). Accordingly, trust has commonly been described as the trustor's willingness to accept their vulnerability to the agentic actions of an interdependent other, based upon positive expectations of the intentions of the behaviour of another (Rousseau et al. 1998; Hotte et al. 2019; Ford et al. 2020; Hamm et al. 2020). However, trust is multi-faceted, and has distinct cognitive, emotional, and behavioural dimensions (Lewis and Weigert, 1985). These dimensions are explained in the paragraphs below.

Scholars across a broad range of disciplines, including anthropology, economics, psychology, sociology, political science, and business have considered trust. As a result, trust is typically approached from specific disciplinary or contextual paradigms (Hamm et al. 2020). Subsequently, trust has been defined in many ways, and there is considerable variation in how trust has been conceptualised.

3.3.3.1. Theories of the sources of trust

Conceptual differentiation exists around motivation-based and non-motivation-based theories of the sources of trust. Motivation-based theories of trust differ in what type of motivation is required to trust, and include encapsulated interest theories, and will-based theories. These theories distinguish between cognitive-based trust, founded on calculus, knowledge, and deterrence; and affect-based sources of trust, based on goodwill. This differentiation has been described as the 'affective-cognitive duality of trust' (Emborg et al. 2020). For some philosophers, e.g., Hardin (2002), it is self-interest

that motivates trust. Hardin's (2002) 'encapsulated interests' account of trust proposes that trustworthy people are motivated by their own interests to maintain the relationship they have with the trustor. Hence, they are encouraged to maintain the relationship when the interests of the trustor have been considered in their own interests. Accordingly, trust is appropriate when the trustor can expect the trustee to encapsulate the trustor's interests in their own. Hardin's theory is valuable in explaining trust relationships between people who can predict little about one another's motives beyond where their self-interest lies (McLeod, 2021). However, this perspective has received substantial criticism. In Hardin's theory, the central motivation of a trustworthy person is a desire to maintain a relationship, however, McLeod (2021) explains that maintaining a relationship (especially when driven by self-interest) does not require all the interests of the trustor to be cared for. The trustee's interests may be perverse and in conflict with the trustor's other interests (McLeod, 2021). Hence, as McLeod (2021) states, this does not make on trustworthy and as such appears to describe reliability rather than trustworthiness (McLeod, 2021).

From the same utilitarian perspective, trust is seen as a rational judgement based on a calculative assessment of a person's trustworthiness, based on good evidence; and the costs and benefits of a particular relationship (Lewis, 2008; Rubbers, 2009). Jones (1999) calls these 'risk-assessment views' about trust. According to this perspective, people trust whenever they perceive that the risk of relying on a trustee to act a certain way is low. However, empirical evidence has shown that people cooperate more frequently than rational choice theory would predict (Hotte et al. 2019). Lewis

(2008) claims that “*people are unable to assign sharp numerical probabilities to the various possible consequences of their actions and are therefore unable to behave in the calculating, expected utility-maximising fashion postulated by the expected utility theory*” (p.187).

Alternative explanations to encapsulated interest theories regarding the motives for trust include ‘will-based’ accounts of trust (e.g., Jones, 1999). ‘Will-based’ accounts are influenced by moral philosophy. Jones (1999) suggests that trustworthiness is not motivated by self-interest, but by goodwill – interpreted broadly to encompass benevolence, conscientiousness, personal liking, or friendly feelings. According to this theory, “*a trustee who is trustworthy will act out of goodwill toward the trustor, to what or to whom the trustee is entrusted with, or both*” (McLeod, 2021; para. 23). In contrast to the ‘objectivist’ perspectives of risk-assessment views, ‘subjectivists’ view trust as relational, affective, or emotional, and thought to emerge from the bonds of friendship, partnership, and love for instance (Emborg et al. 2020). Plato referred to trust as an affection arising in the soul (Emborg et al. 2020). These emotional components of trust are particularly intense in close interpersonal trust (Lewis and Weigert, 1985).

Whilst this perspective, unlike Hardin’s encapsulated interest theory, addresses the moral basis for acting in a trustworthy manner, the theory has also received heavy criticism. Critiques, such as O’Neill (2002), argue that goodwill is not necessary or sufficient for trustworthiness because we can still trust people without presuming,

they have goodwill, for example when we trust strangers (McLeod, 2021). Lewis and Weigert (1985) argue that both perspectives must be considered. They explain that “[t]rust in everyday life is a mix of feeling and rational thinking, and so to exclude one or the other from the analysis of trust leads only to misconceptions that conflate trust with faith or prediction” (p. 972). Stern and Baird (2015) argue that rational trust might be first to form in a new relationship, for example with strangers, but once affinitive trust develops, it provides a more stable foundation.

Other motive-based theories include ‘virtue accounts’ - those that describe the motive of trustworthy people in terms of moral commitment, moral obligation, or virtue. From this perspective, trustor’s may trust a stranger by presuming that the stranger is motivated by a commitment to stand by their moral values or a commitment to common decency (McLeod, 2021). Here, the trustor presumes that the trustee will act with moral integrity. Potter (2002) argues that to be ‘fully trustworthy’ one must have a moral disposition to be trustworthy towards everyone. Virtue accounts are also not without controversy. Jones (2012) questions the theories relevance when one might be required or right to be untrustworthy. For instance, trust can be unwanted if the trust is immoral (e.g., being trusted to hide a murder) (McLeod, 2021).

Non-motive-based theories include ‘normative-expectation’ theories (e.g., Jones, 2012). According to normative-expectation theory, the conditions that generate trustworthiness reside in what the trustor believes they ought to be able to expect from the trustee (McLeod, 2021). Normative expectations are based on the customs,

traditions, values, and codes of conduct that guide people's actions within a society (Lewis, 2008). For instance, interactions between people may be governed by the norm of reciprocity, the belief that one good act deserves another and people should treat others as they themselves would like to be treated (Lewis, 2008). These informal rules shape understandings among actors regarding what actions are prohibited or permitted, and thus expected within a particular social context (Hotte et al. 2019). Trustors expect trustees to act not as we assume they will (based on predictive expectations) but as they should (based on these normative expectations) (McLeod, 2021). For instance, in socio-cultural circumstances where people are compelled to follow the norm of reciprocity, the trustor can reasonably expect that the trustee will respond by acting in good faith, refraining from opportunism in favour of behaviour that expresses their commitment to norms of fairness and reciprocity (Lewis, 2008).

“For people who are bound by social rules and moral principles, the very act of ‘giving one’s word’ in-and-of-itself creates a powerful reason for keeping it, irrespective of whether doing so advances one’s self-interest” (Lewis, 2008;190).

3.3.3.2. Elements of trust

According to Emborg et al. (2020), trust involves various elements or components: i) the trustor who is making the trust judgement, ii) the trustee, the target of the trust judgement, iii) the domain, the area or type of behaviour to which the trust judgement is being applied, and iv) the trust judgement itself (Emborg et al. 2020).

Elemental approaches to trust focus on the attributes of the trustor and trustee and the domain of trust (Emborg et al. 2020). Personal attributes (e.g., values, beliefs, attitudes, risk tolerance) and prior experiences are thought to influence the trustor's 'propensity to trust' (Mayer et al. 1995; p.716). This understanding has similarities to 'virtue accounts' previously described. These factors are context and relation independent (i.e., based upon the psychological state of the individual trustor, and personal trait towards generally trusting others) (Toman et al. 2021). The social construction of trust also depends on the assessment of the trustee's characteristics – referred to as 'character-based trust' (Zucker 1986) or 'subjective trust' (Hotte et al. 2019). According to this approach, trustors evaluate the characteristics of the trustee to determine if trust is warranted. This literature has identified several factors that influence an individual's perceived trustworthiness include competence (i.e., the trustor's perception of the trustee's knowledge and skills), benevolence (i.e., the extent to which a trustor believes that the trustee will act in the best interest of the trustor), and integrity (i.e., the extent to which the trustor perceives the trustee is acting in accord with a shared or acceptable set of values and norms) (Toman et al. 2021). In their review of factors affecting trust among natural resources stakeholders, Ford et al. (2020) found that studies frequently used a measure that conceptualised trust as consisting of credibility, reliability, confidence, integrity, honesty, and benevolence. Whilst each of these subcomponents of trust are conceptually and statistically distinct, quantitative tests find strong correlations among them (Hamm et al. 2020). As such, scholars argue that it is not usually necessary to address all these sub-components, and that trustworthiness assessments can typically be approached

using only three specific sub-components – ability, benevolence, and integrity (Hamm et al. 2020).

However, from a sociological perspective, trust is applicable to the relations among people, and therefore not only determined by the psychological states or personal traits of isolated individuals, but also developed through the process of getting to know the trustee, and behavioural experiences (Lewis and Weigert, 1985). This mechanism is known as ‘process-based trust’ (Zucker, 1986) or ‘behavioural trust’ (Hotte et al. 2019). From this perspective, repeated interactions between individuals, generate reputations and can produce trust (Granovetter, 1985). Here, trust is conceptualised as an inter-subjective social reality, negotiated through dialogue, and is the outcome of an interpretive sense-making process whereby people use culturally relevant symbols, infused with meaning, to convince each other of their trustworthiness (Lewis, 2008). Through this lens, trust can also be viewed as performative (Turgo, 2016). Behavioural displays of trustworthiness or distrustworthiness help to build cognitive platforms and reinforce the emotional sentiment for trust or distrust (Lewis and Weigert, 1985). Relevant ‘process-based’ elements that affect the generation and sustainability of trust include satisfaction, fairness, power (as)symmetry, patronage, communication, transparency, negative experiences (including coercion and opportunistic behaviours) adaptability/flexibility, responsiveness, reciprocity, and cohesion (Hotte et al. 2019; Ford et al. 2020).

Elemental approaches consider trust as domain-specific – specific to the area or type of behaviour to which the trust judgement is being applied (de Vries et al. 2022). Trust is therefore not only specific to the individuals involved but also specific to the context in which their relationship is situated (Hamm et al. 2020). In some situations, or times, the trustor may trust a certain person, yet in others they may distrust them, for instance, whilst the trustor may trust the trustee to drive them home safely during the day, they distrust them driving at night (Hamm et al. 2020). Alternatively, an entrepreneur may trust in a supplier's competency to deliver good quality goods but may not have similar trust in the supplier's benevolence or goodwill (Welter, 2012). Trust is therefore seen as conditional (Welter, 2012).

Beyond the individual level, meso and macro level social or political factors influence 'social trust' – how generally (un)trustworthy people tend to be - and therefore have a significant effect on the default stance we take toward people's trustworthiness (Walker 2006). Fukuyama (1995) introduced the idea of high-trust and low-trust environments, emphasising how social, institutional, and spatial contexts impact on trust. Trust environments differ across countries, within regions and sectors (Welter, 2012). A climate of virtue is one in which trustworthiness tends to be pervasive, whereas a climate of oppression is one in which untrustworthiness is prevalent, particularly between people who are privileged and those who are less privileged (Baier 1986; Potter 2002: McLeod, 2021). Moreover, trust is often situated within interrelated contexts. de Vries et al. (2022) states that, in the context of increasingly

globalised agri-food systems, understanding trust as context-dependent requires considering both the local and global contexts in which value chain actors operate.

3.3.3.3. Forms or objects of trust

A ‘forms of trust’ approach differentiates between multiple objects of trust, including personal, collective, and institutional trust (Emborg et al. 2020). Information, data, knowledge, processes, and systems can also be the objects of trust (de Vries et al. 2022). Interpersonal trust is understood to emerge between two or more people (Welter, 2012). Interpersonal trust is generally based on initial knowledge of a person (character-based trust) (Rubbers, 2009). Shared characteristics are often a reason for personal trust (Ford et al. 2020). Personal trust is also developed through long relationships where the partners come to know each other (process-based trust) (Rubbers, 2009). Interpersonal trust is sometimes referred to as ‘reciprocal trust’ since it is generally based on a bilateral relation (Ford et al. 2020). Collective trust, on the other hand, relates to meso level objects of trust including a community (e.g., kinship, ethnic group, profession) or organisation (e.g., network, firm, association) or industry (Welter, 2012). Sources of collective trust include characteristics of the group, reputation, recommendation, and professional standards (Welter, 2012).

Institutional trust is defined as involving an interdependent trustor (e.g., citizen) and trustee (e.g., government branch, agency, institution) (Neal et al. 2016). The objects of trust include both socio-cultural institutions at the meso and macro-level (e.g., norms,

codes of conducts, values) as well as formal regulations, infrastructure, or governments (Welter, 2012). Literature on institutional trust points to several characteristics of formal institutions that motivate trust including justice and fairness, leadership styles, communication, interaction frequency, past exchange experiences, alignment of interests, flexibility/adaptability, policies, and procedures (Hotte et al. 2019). Institutional trust is easily destroyed, as adverse experiences can result in a generalised loss of trust across all institutions (Welter, 2012).

Personal and institutional trust are interlinked. Institutions can motivate interpersonal trust by *“creating favourable assumptions and expectations about a potential trustee's behaviour and reducing the risk of one or more parties behaving in an untrustworthy manner”* (Hotte et al. 2019; 2). Trust judgements can be enhanced by structures or incentives at the macro-level (Emborg et al. 2020). Interpersonal trust is vital where there is low institutional trust (Granovetter, 1985). In contexts where legal sanctions do not work effectively, personal trust becomes increasingly important in decisions about whether to enter a business or market relationship for instance (Welter, 2012). Individual-level characteristics of the trustor may also affect institutional trust. For instance, a trustor's gender, race, and ethnicity may mediate their interactions with, and subsequent trust in, the institution (Campos-Castillo et al. 2016).

3.3.3. 4. Distrust as a distinct trust judgement

Distrust is considered by some as a distinct judgement rather than a lack of trust (Lewicki et al. 1998; Emborg et al. 2020). Low trust or an absence of trust is the inability to make a trust judgement, whereas distrust is defined as negative expectations toward people's intentions or behaviours (Emborg et al. 2020). Kramer (1999) describes distrust as a lack of confidence in the trustee. Distrust is similarly influenced by the trustor's propensity to trust; attitudes such as those linked to cynicism play a significant role in dispositional distrust (Emborg et al. 2020). Similarly, suspicion is regarded as a key cognitive component of distrust. Distrust develops if the trustor suspects the trustee will take advantage of them, fail to follow through on their agreements or manipulate the relationship to their own ends (Emborg et al. 2020). Equally, whilst trust tends to engender trust, distrust is often self-reinforcing, leading to division and decline (Bijlsma-Frankema et al., 2015). Emborg et al. (2020) argue that conflating distrust with low trust "*fails to anticipate the impact of the acrimony that can accompany distrustful relationships*" (p.5).

One can hold multiple, co-existing, overlapping, interrelated trust judgements – some positive and some negative (Emborg et al. 2020). Valid reasons to trust occur in a mix with equally valid reasons to distrust (Lewicki and Wiethoff, 2000). Multiple trust judgements exist across the different domains of a relationship. For instance, I might trust someone to drive me somewhere safely, but I might distrust that the same person will charge me a fair price (Emborg et al. 2020). Sitkin and Bijlsma-Frankema (2018;53) refer this a multiplex relationship. Co-existing trust and distrust judgements can cause considerable ambivalence in relationships (Bies et al. 2018).

3.3.3. 5. The duality of trust: the bright and dark sides

Some authors (e.g., Lewicki et al. (1998)) criticise normative perspectives along the lines of ‘trust is good’ and ‘distrust is bad’. Studies have increasingly acknowledged the duality of trust – the dark as well as the bright sides. Literature that acknowledges the potential dark side of trust, consider the negative effects to arise from the over embeddedness of relationships (Welter, 2012). *“At the individual level, trust shows its dark sides in the form of relational inertia, blind trust and over-trusting behaviour”* (Welter, 2012; 200). Downside effects of trust, identified in entrepreneurship literature, that restrict business development, include lock-ins, over-confidence, the privileging of certain groups and exclusion of others, and the lack of effective controls due to over-reliance on trust (Welter, 2012). In the small-scale fisheries context, Turgo (2016) observed that trust given was misused and as a result brokerage house considered to be ‘too trusting’ and ‘too lenient’, went bankrupt due to unpaid debts (Turgo, 2016). Turgo (2016) argues that this happened because there was too much social intimacy between the fish traders managing the brokerage houses and fishmongers.

3.3.4. Section conclusion

Trust is central to socio-economic exchanges. Turgo’s (2016) study highlights the importance of trust in the context of small-scale fisheries. They argue that trust is essential to trade relationships, and trust influences the very logic of how fish are

traded, as well as livelihood outcomes for people engaged in small-scale fisheries (Turgo, 2016). Nevertheless, this section highlighted a general lack of literature on trust relations in small-scale fisheries value chains. Work in the fields of political science, business, and entrepreneurship have theorised and examined the interactions between power and trust and propose that power affects the development of trust. Power affects trust in distinct ways dependent upon whether power is used in coercive or noncoercive ways (Jain et al. 2014). Moreover, power affects trust to various extents depending upon power asymmetries between actors (Farrell, 2004). However, such dynamics have not been explored within the small-scale fisheries context.

3.4. Conceptual framework

Drawing on the review of the literature, Figure 1. brings together several ideas concerning power and trust that will be taken forward and utilised to address this study's research objectives. Within the conceptual framework, interpersonal trust and power are understood as both a perceptual and behavioural phenomenon. The conceptualisation of power and trust has been synchronised within these two dimensions to enable an analysis of interactions between the two distinct, but comparable concepts. The paragraphs below describe the conceptual framing of interpersonal power that will be drawn upon in Chapter 5 to answer Research Question 1 and interpersonal trust that will be utilised in Chapter 6 to answer Research Question 2, and identify points of interaction between the two concepts, as featured in Figure 1. that will be examined in Chapter 7 to answer Research Question 3.

3.4.1. Establishing the conceptual framing of interpersonal power

Firstly, power-to theories are utilised to help understand an individual's agency or capability to act for their own intended self-interest within a given relationship (Allen, 2005; Lukes, 2021). From this perspective, power can be understood as a resource that can be possessed by individuals in greater or lesser amounts. Therefore 'power-to' is framed within the conceptual framework as 'productive power'. Power-from-within theories of power are used to represent the perceptual aspects of power. This encompasses Dunbar's (2015) description of power as a perceptual phenomenon which acknowledges that in most situations, we act on how powerful we perceive ourselves or others to be. Similarly, as suggested by Gaventa and Cornwall (2001), power-from-within refers to people's ability to recognise their power within interpersonal relations. The arrow linking perceptual power and behavioural power illustrates this component. This framing of power-from-within as perceptual, and 'power-to' as productive, also assists with the analysis of the relationship between power and trust in relation to Research Question 3.

In addition, this study draws upon French and Raven's (1959) bases of power model to further classify the different types of power people possess and can use in their interpersonal relationships and include: reward, coercion, referent, legitimate, expert, and informational. The power-dependency theory (Emerson, 1962) is also utilised to

analyse the structural basis of power and to understand interactions between individuals.

Power-over theories are applied to analyse the exercise of power in interpersonal relationships (Allen, 2005; Lukes, 2021). Power-over, is framed within the conceptual framework as 'behavioural power' since it refers to the observable behaviours that one exercises over another (Dunbar, 2015). In addition, behavioural power is broken down into power processes, referring to the strategies used to exert power in interactions with others, and power outcomes, referring to the resultant influence on others' thoughts, beliefs, and actions, commonly characterised as the manifestation of power (Dunbar 2015).

Power-with theories of power will be used where relevant to understand the influence of collective action and relationships of solidarity on interpersonal power in trade and labour relations. Power-with includes both the psychological and political power gained from joining together with others, building shared understandings and taking collective action (Car, 2003; Kabeer, 2011; Ali, 2014; Cornwall, 2016). Hence, power-with is viewed as having mutually reinforcing impacts on power-from-within, power-to and power-over. It is these interconnections which are included in this conceptual framework and seen as relevant to answering this study's research questions, and illustrated by the arrow linking power-with to interpersonal power.

Lastly, following systemic conceptions of power (e.g., Young 1990; Allen, 2005; Saar, 2010), interpersonal power is understood as mediated by socio-political structures of power including explicit manifestations of power such as rules, systems and hierarchy, and implicit manifestations of power such as expectation, normalisation, and confirmation bias (Allan, 2002). This dynamic is illustrated by the arrow linking the socio-political structures of power to interpersonal power.

This framing of power is used in Chapter 5 to analyse how actors within small-scale fisheries experience a plurality of power relations (Research Question 1) and drawn upon in Chapter 7 to examine how perceived and behavioural power affect trust and cooperation among value chain actors (Research Question 3).

3.4.2. Establishing the conceptual framing of interpersonal trust

Within the conceptual framework, interpersonal trust is viewed as constructed on both the perceptions and behaviours of an individual – classified in Figure 1. as ‘perceptual trust’ and ‘behavioural trust’. Firstly, ‘perceptual trust’ is understood as dependent on the assessment of the trustee’s characteristics including: (i) competence (i.e., the trustor’s perception of the trustee’s knowledge and skills), (ii) benevolence (i.e., the extent to which a trustor believes that the trustee will act in the best interest of the trustor), and (iii) integrity (i.e., the extent to which the trustor perceives the trustee is acting in accord with a shared or acceptable set of values and norms) (Hamm et al.

2020). Perceptual trust incorporates both the cognitive and emotional dimensions of trust (Lewis and Weigert, 1985).

Moreover, the conceptual framework recognises the trans-individual factors that can encourage or undermine interpersonal trust, illustrated in Figure 1. by the link between the meso and macro-level social, institutional, and spatial context and interpersonal trust. The cognitive foundations of interpersonal trust are identified as influenced by the norms and values diffuse in the social context within which the relationship is situated (Hamm et al. 2020). Furthermore, formal regulations, infrastructure or governments are also understood to shape assumptions and expectations about a potential trustee's behaviour (Hotte et al. 2019). This includes assumptions and expectations about specific groups of people (e.g., based on gender, ethnic group, profession etc), or social environments (Fukuyama, 1995) that inform perceptions about how (un)trustworthy an individual may be.

Secondly, trust is viewed as developed through behavioural experiences gained through interactions, also referred to as process-based trust (Lewis and Weigert, 1985; Zucker, 1986; Turgo, 2016). Therefore, this study examines what trustees *do* within a relationship that influence a trustor's perception of their characteristics, and in turn trustworthiness. This dynamic is captured in Figure 1. by the arrow linking behavioural trust to perceptual trust.

Relevant ‘process-based’ elements that affect the generation and sustainability of trust include satisfaction, perceived fairness, communication, responsiveness, reciprocity, and cohesion (Lewis and Weigert, 1985; Hotte et al. 2019; Ford et al. 2020).

This framing of interpersonal trust is used in Chapter 6 to analyse how trust is encouraged and undermined in small-scale fisheries trading relations (Research Question 2) and drawn upon in Chapter 7 to examine how perceived and behavioural power affect trust and cooperation among value chain actors (Research Question 3).

3.4.3. Establishing the conceptual framing of the interactions between power and trust

The conceptual framework illustrates two connections between interpersonal power and trust. Firstly, the framework identifies the link between perceived power and perceptual trust as indicated by the left arrow in Figure 1. At this first point of interaction, the interactions between power and trust are viewed according to the encapsulated interest theory (developed by Hardin 2002 but utilised in this analytical context by Farrell 2004). According to this theory, trustors put themselves in the position of the trustee to predict how the trustee will behave. When considering whether to trust someone, the trustor assesses how valuable the relationship is to the trustee, linked to their dependency on the trustor (Schilke et al. 2015). An actor with considerable power is thought to be unlikely to value the relationship and therefore take the other actor’s interests into account, and thus cannot be trusted (Farrell,

2004). This affects the kinds of cooperation that take place, particularly in relationships that entail significant power asymmetries.

Secondly, the framework identifies the link between behavioural power and behavioural trust as indicated by the right set of arrows in Figure 2. At this second point of interaction, behavioural power, specifically the exercise of coercive and noncoercive power by power holders is seen to differentially influence trust between two individuals (Huo et al. 2019). The exercise of coercive power is understood to have negative implications on interpersonal trust. Manifestations of coercive power in trade and labour relations may include demanding lower prices, limiting freedoms to deal with others, and withholding information (Low and Li, 2019). Non-coercive power, on the other hand, is understood to have positive implications on interpersonal trust. The exercise of non-coercive power in trade and labour relations may manifest as the exchange of information and rewards for instance (Jain et al. 2014). Hence, behavioural power is understood as both enabling and constraining in terms of its impact on interpersonal trust.

These ideas are used in Chapter 7 to examine how power affects trust and cooperation among value chain actors (Research Question 3).

Lastly, power and trust relations are considered in terms of their impacts on individual livelihood outcomes, and relational outcomes in terms of cooperation.

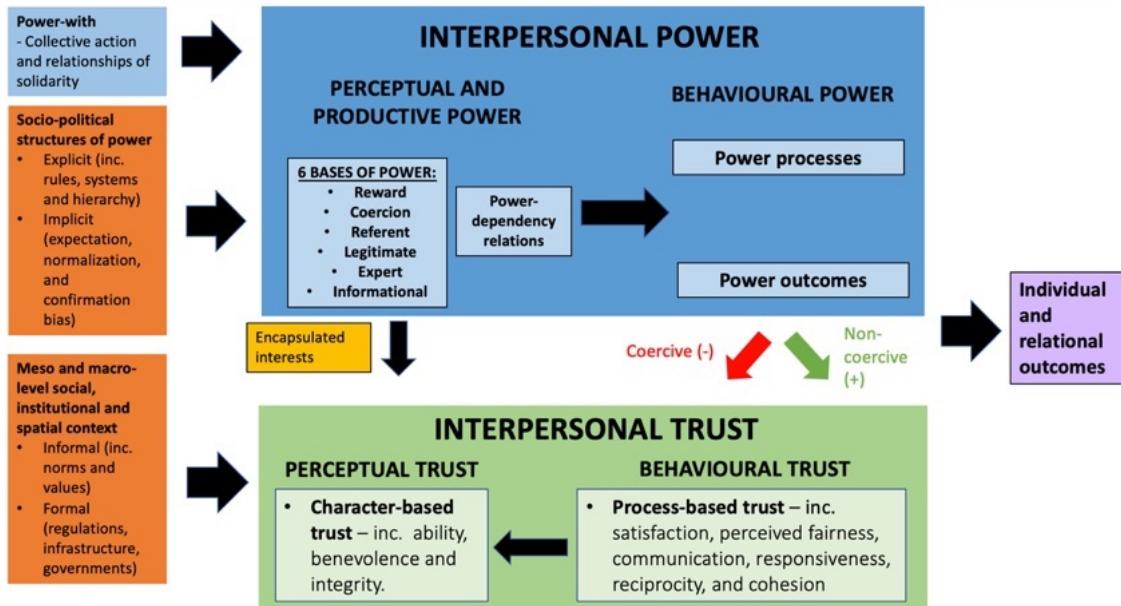


Figure 1. Conceptual framework. Author's own.

3.5. Chapter conclusion

Drawing on the review of the literature as well as the conceptual framing described above, the thesis will examine three distinct, but interlinked, themes.

The first theme to be examined is interpersonal power. Previous studies have highlighted the complexity and fluidity of power relations in small-scale fisheries. This research seeks to deepen these understandings of power with an analysis of how actors within small-scale fisheries experience a plurality of power relations (Research Question 1). Power-to and power-over theories are used in Chapter 5 to examine the perceived and productive power of individual actors, and the exercise of power in interpersonal relationships, specifically between fish suppliers and fish buyers, boat

owners and fishing crew. In addition, a combination of theories are used to examine power-to, these are: (i) French and Raven's (1959) bases of power model which is used to help identify the resources possessed by individuals that form the power-over others; (ii) the power-dependency theory (Emerson, 1962) which is also utilised to analyse the structural basis of power and to understand interactions between individuals; and (iii) systemic conceptions of power are drawn upon to analyse how various societal forces, particularly social norms around gender, shape an individual's dispositional abilities (Young 1990; Allen, 2005; Saar, 2010).

The second theme to be examined is interpersonal trust. Existing literature on trust in small-scale fisheries advocates that trust is important to patterns of trade (Turgo, 2016), patron-client relationships (Amarasinghe 1989; Nunan et al. 2020; Roberts et al. 2022), credit arrangements (Matsue et al. 2014; Turgo, 2016; Crona et al., 2020) and livelihood outcomes (Turgo, 2016). Nevertheless, the literature on trust in small-scale fisheries is limited, and largely comprises instrumental examinations of trust in relation to fisheries governance (e.g., Hamm, 2017; Toman et al. 2021). This study aims to contribute to this limited research with an in-depth analysis of how trust is encouraged and undermined in small-scale fisheries trade and labour relations (Research Question 2). For this research, trust is viewed as constructed on perceptions of an individual's character (Hamm et al. 2020; Toman et al. 2021), and behavioural experiences gained through interactions (Lewis and Weigert, 1985; Zucker, 1986; Turgo, 2016). This framing of interpersonal trust is used in Chapter 6 to analyse trust in relationships between fish suppliers and buyers, boat owners and fishing crew. In addition, this

study draws upon concepts such as Fukuyama's (1995) high- and low-trust environments to examine how trans-individual factors encourage or undermine interpersonal trust.

The third focus of this research is on the interactions between power and trust. In Chapter 7 this study draws again upon the work of scholars in the fields of political science, business, and entrepreneurship who have theorised and examined the interactions between power and trust (e.g., Farrell, 2004; ÖUberg and Svensson, 2010; Jain et al. 2014; Huo et al. 2019). This literature suggests that power can have a significant effect on the development of trust. Power is said to affect trust to various extents depending upon power asymmetries between actors (Farrell, 2004), and affect trust in distinct ways related to whether power is used in coercive or noncoercive ways (Jain et al. 2014). However, as the literature review established, few relevant studies within the small-scale fisheries literature have analysed the relationship between power and trust. This study aims to address this gap by examining how power affects trust and cooperation in trade and labour relations in small-scale fisheries (Research Question 3). To achieve this the study uses the encapsulated interest theory (Hardin 2002) to explore connections between perceived power and perceptual trust. In addition, the study draws upon the work of Jain et al. (2014) and Huo et al. (2019) to analyse the link between behavioural power and behavioural trust, specifically the differential effects of the exercise of coercive and noncoercive power by power holders on trust. In doing so, the research aims to bring new insights to studies on

power and its influence on cooperation within exchange relationships in small-scale fisheries.

After discussing the methodologies and methods used for examining these themes in Chapter 4, the thesis will move on to discuss the findings of this research and how these may help address the gaps that have been identified in this chapter.

Chapter 4: Methodology

This chapter establishes the methodological approach through which the aims and objectives of this thesis are examined. The chapter discusses the study's qualitative approach to studying trust and power and then outlines the philosophical underpinnings of the research. The chapter outlines the rationale for the selection of the case study and approach to the selection of study participants. Following this the chapter discusses the research in practice, including an overview of study participants and reflections on the research process, including some lessons learnt. It also explains how the research tools were designed to fulfil the research aims and objectives. This section is organised under each research method which includes structured individual interviews, focus group discussions, semi-structured individual interviews, and group interviews. The chapter also describes the data analysis process and ends with a discussion on emerging ethical issues and positionality.

4.1. Methodological approach

The aim and objectives of this study are to understand the importance of the two social concepts – trust and power - for trade and labour relations in small-scale fisheries.

To fulfil such an aim the study sought an understanding of people's own perspectives and experiences concerning the nature and dynamics of trade and labour relations in a

particular socio-ecological context. The research therefore took a qualitative case study approach to understand trade and labour relations in small-scale fisheries.

4.1.1. Qualitative approach

The value of social science research for achieving sustainable fisheries management has become increasingly accepted over recent decades (Barclay et al. 2017). Bavinck et al. (2018) contend that *“fisheries are about relationships: between fishers and nature, but also between fishers and others in their human environment: other fishers, traders, government officials, and competing interest groups”* (p. 46). Hence, understanding these relationships is equally as, if not more, important as understanding the species biology and the ecology of fisheries.

However, there is a longstanding debate within the social sciences on whether quantitative or qualitative methodologies are more appropriate in studying the social world (Bryman, 2008). Within fisheries social science, Hall-Arber et al. (2009) claim that it is mostly economists who use quantitative approaches and other social researchers who use descriptive qualitative methods. For example, feminist research frequently relies on qualitative methods to illuminate the multifaceted nature of how women engage in fisheries globally (Porter, 2014; Harper et al. 2017). However, many fisheries' social scientists have turned to the use of quantitative methodologies or a combination of the two methodologies to be more 'policy-relevant' (Gustavsson, 2016; Bavinck et al. 2018). This trend follows criticism that, despite the rich narratives

qualitative research produces, these lengthy and descriptive narratives are often not read or integrated into fisheries management decisions (Hall-Arber et al. 2009).

Nevertheless, qualitative social science methods are still valued for providing new dimensions to understanding fisheries, difficult to achieve with quantitative data (Barclay et al. 2017). The latter can often lack context and produce less insight into the thoughts and drivers of human behaviour. This study uses qualitative methods to achieve a deeper understanding of trade and labour relations in small-scale fisheries and capture the social nuances of these economic exchanges. Additionally, I rely on qualitative methods to explore how the concepts of trust and power appear in and mediate the everyday interactions between value chain actors.

4.1.2. Philosophical approach

This research is underpinned by a broadly 'idealist' ontological assumption of the social world. As such, the research questions were formulated and the research conducted based on the belief that social realities are subjective, influenced by human thought and opinion, and should be viewed in relation to social structures (Bryman, 2012; Searle 1995).

Furthermore, the study takes an interpretive epistemological approach to understanding, and generating knowledge about, trade and labour relations in small-scale fisheries (Merriam, 2009). The objective of the study was to gather information

relative to the participant's worldview. Therefore, it examines and recognises the multiple realities, descriptions, and experiences of value chain actors. This epistemology position has guided the methodological choices explained below.

4.1.2.1. Economic exchanges as socially embedded

The nature of economic exchanges has been thoroughly debated in philosophy, economics and social science. From the classical and neo-classical economic perspective, economic action, behaviour and exchange is understood independent of social relations (Hobbes, 1968; Smith 1979). Human action in economic exchanges (e.g., between fishers and fish buyers), in this perspective, are thought to be directed by rational, self-interested behaviour and minimally affected by social relations (Hobbes, 1968; Smith 1979). In competitive markets, competition is the self-regulating force that determines the terms of trade; social structures and relations do not influence production, distribution, or consumption and thus there is no space for bargaining, negotiation, remonstration, or mutual adjustment (Granovetter, 1985). Social relations are seen to impede competitive markets (Hobbes, 1968; Smith 1979). Classical and neo-classical approaches have been criticised for providing an under socialised account of economic action resulting from a narrow utilitarian perspective of human behaviour centred around self-interest (Granovetter, 1985).

In contrast, in what 'new economic sociologist' Granovetter (1985) terms the 'argument of embeddedness', sociologists (e.g., Parsons, 1937) have conceptualised

economic behaviour as determined by social relations, including norms, customs and obligations. From this perspective, pay, for example, is set according to what is seen as just and fair (Granovetter, 1985). This evaluation has been criticised as over socialised (Granovetter, 1985). Economists such as Wrong (1961), criticise the idea that actors are overwhelmingly sensitive to the opinions of others and hence follow customs, habits or norms mechanically and automatically, irrespective of their bearing on rational choice. In addition, Granovetter (1985) argues that the sociological perspective focuses too narrowly on the influence of internalised rules, norms and values as determinants of behaviour, and overlooks the effects of ongoing social relations on behaviour.

According to Granovetter (1985), when economists (e.g., Becker, 1976) account for social relationships their analysis is often atomised. These economists simply view human behaviour as determined according to the social categories, roles and positions people hold in society (e.g., social class), and their prescribed behavioural expectations and styles of decision-making (Granovetter, 1985). Hence, once we know the individual's social class, behaviour is automatic or predictable because individuals are so well socialised that they obey these expectations. In this view, actors are agency-free (Zhongqi and Shuiying, 2005). Granovetter (1985) and structural sociologists, argue that these evaluations are usually devoid of any discussion about individuals' position with respect to other relations, including historical or structural relations (Granovetter, 1985). Furthermore, within such simple views of human behaviour, interpersonal ties between actors in specific roles (e.g., husband and wife, or worker

and supervisors), are often typical and abstracted from broader social relations and contexts (Granovetter, 1985; Zhongqi and Shuiying, 2005). Instead, Granovetter (1985) argues that economic actions are better considered as embedded in ongoing systems of social relations that are continuously constructed and reconstructed during interaction. Granovetter's (1985) interpretation of social embeddedness is the middle ground between the under and over socialised views (Turgo, 2016).

Granovetter's (1985) concept of social embeddedness has been applied across disciplines. Turgo (2016) extends the concept to the fishing industry which, they argue has shown itself to be socially embedded in many ways, most notably through profit sharing systems between fishermen and boat owners, and through the importance of kinship and marriage in the functioning of and tensions within fish businesses (e.g., Bestor, 2004). Turgo (2016) uses the concept to analyse market practices in brokerage houses in a rural fishing community in the Philippines. The study demonstrates how social relations and community values underpin the management of profit and the very logic of how fish trading is managed and economic outcomes are realised by both fishmongers and fish traders (Turgo, 2016). Turgo (2016) contributes further clarification to Granovetter's (1985) concept of social embeddedness by identifying place-based social practices; including reciprocity, empathy and shame that foster trust between fishmongers and fish traders and influence market practices. Turgo (2016) provides an understanding of social embeddedness that is less obscure and demonstrates how the concept can be invoked to better understand market processes in fishing communities in the developing economy context.

The social embeddedness perspective provides a philosophical base to this study. The research questions are premised on the assumption that social relations underpin economic exchanges in the small-scale fisheries value chain. The study builds upon Turgo's (2016) research into small-scale fisheries by applying the concept of trust in relation to power, to further demonstrate the social embeddedness of value chain interactions in small-scale fisheries.

4.1.2. Qualitative case study

The objective of this study (formulated in Chapter 1) is to explain how power and trust influence trade and labour relations. To fulfil such an objective requires an in-depth understanding of social behaviour and action. A case study approach was deemed appropriate to achieve this, and so the case study of the small-scale fisheries of Lake Victoria, Uganda, was selected.

Case studies are widely used in social science to produce a detailed, context-dependent knowledge of social reality (Yin, 2009; Flyvbjerg, 2006). A case study approach grounds empirical observations of people's everyday circumstances and settings (Feagin, Orum and Sjoberg, 2016), unlike some other ways of collecting empirical evidence, for example, through random-sample surveys and behavioural experiments (e.g., Rojas et al. 2021). These are often decontextualised and surveys

commonly assess an individual's behaviour in isolation from other social relations (Feagin, Orum and Sjoberg, 2016).

However, case study approaches are frequently devalued. One of the common misconceptions of case studies is that the knowledge they produce on an individual case cannot be generalised, and therefore cannot contribute to scientific development (Yin, 2009; Flyvbjerg, 2006). However, Flyvbjerg (2006) argues that findings from a case study can be generalised, depending on the case. If the research is carried out in numbers, judgements of their typicality can justifiably be made (Flyvbjerg, 2006). Yin (2009) suggests that case studies containing multiple cases, covering different contextual conditions, can expand the generalisability of the findings. Furthermore, case study findings can be transferred from one area to another on a conceptual level (Yin, 2009).

In this study, multiple case studies are covered within the overarching case study of small-scale fisheries in Lake Victoria, Uganda. The multiple landing site locations chosen present different contextual conditions in which to examine the research objective. In addition, the research objectives are also examined in multiple interactions with distinct groups of people, for example, in interactions between boat crew and boat owners, as well as fish suppliers and fish buyers. The evidence from the multiple case studies is analysed to draw cross-case conclusions, and to produce a more compelling case study (Yin 2009).

4.1.2.1. Selecting the case study

This study was particularly interested in studying a small-scale fishery, as they have traditionally been under researched, underprioritized by governments and undervalued (Mills et al. 2011). Existing literature, analysed in Chapter 3, suggests that trust and distrust are key components of the social conditions that mediate relations between actors in the small-scale fisheries sector. These influence the logic of how fish are traded, who is involved in the trade, and livelihood outcomes. Whilst the concept of power has received significant research attention in this context, information regarding how trust is important to trade and labour relations, between whom, or why is limited. Furthermore, research that examines the interactions between the two concepts i.e., how power affects trust, is particularly scarce. This study addresses this gap in knowledge using a case study of small-scale fisheries in Lake Victoria, Uganda.

Lake Victoria, Uganda, was chosen for the research as it hosts a large small-scale fishery sector. The fishery is arguably in 'crisis' as it is under pressure from declining stocks of Nile Perch, resulting in reduced supply and higher prices, and suffering from weak governance systems. These dynamics create a particularly interesting socio-ecological environment in which to examine the research questions around power and trust.

After identifying the study area, contact was established with the Uganda National Women's Fish Organisation (UNWFO). UNWFO is non-governmental organisation,

established in 2019, as an advocacy forum for women working in the fisheries and aquaculture sector. Initial contact was made with UNWFO in 2020 via the African Women Fish Processors and Traders Network (AWFISHNET)⁸ during a period of research I conducted in partnership with the network on the impacts of COVID-19 on women fish processors and traders in sub-Saharan Africa (as explained in Chapter 1). Through this research I came to know the Executive Director of UNWFO. Initially this study was discussed via email and on Zoom. During the research design phase and before travelling to Uganda I also discussed my research plans with a Fisheries Officer working at the Ministry of Agriculture, Animal Industry and Fisheries (MAAIF) whom I had worked with in 2021/2022 whilst I was employed as a research assistant on another research project entitled 'Strengthening fisheries co-management on Lake Victoria, East Africa'. This contact was particularly helpful and provided me with a preliminary list of people I could contact to request an interview, as well as their location around the lake. This information provided a useful starting point for further developing my fieldwork plans. After arriving in Uganda in August 2022, I had several meetings with UNWFO where I shared my research tools and they shared their feedback, and ultimately agreed to assist me with the implementation of my research plan. UNWFO provided invaluable research assistance and access to research participants through their organisational activities and relationships with officials at the landing site level.

⁸ AWFISHNET is a continental network, which acts as a coordinating body for national members groups like UNWFO in the fisheries sector.

The study was conducted within eight study areas: one marketplace and seven fish landing sites. Owino Market (featured in Image 1.) is the largest market in Uganda, located in the capital Kampala. Within the market there is a section dedicated to the sale of fish. Fresh fish is de-scaled, cleaned and sometimes cut into smaller pieces on site. Fishmongers dealing in fresh fish were mostly men, whereas women were mostly dealing in smoked fish, predominantly Tilapia and smaller Nile Perch. Kiyindi, Katosi, and Kasenyi landing sites (locations 4, 5 and 6 in Figure 2. and Figure 3.) are all located in the Central Region of Uganda, are gazetted landing sites with enclosed areas for fish landing and handling. These landing sites have established structures for fish handling and offices for Fisheries Inspectors employed by the Department of Fisheries Resources (DFR) (see Image 2. and 3. of Kasenyi Landing Site; Image 3 -12 of facilities and fisheries activities at Kiyindi Landing Site; and Image 15 from Katosi). Fish landed at these sites are approved for international export. These landing sites are close to major urban centres and markets and fish processing factories located in Entebbe, Kampala and Jinja. Katosi and Kasenyi could be considered as peri-urban, as they are adjacent to the sprawling metropolitan areas of Kampala. At Kiyindi landing site, fish is landed from nearby islands including Buvuma and Dolwe. Kiyindi is a particularly busy landing site and collection centre for Silver fish (Mukene) (as demonstrated in Image 6 and Image 12). Katebo landing site (Image 16) is also located in the Central Region, around 80km from Kampala. Though Katebo landing site has some official infrastructure, the landing site is considerably less developed than Kiyindi, Katosi, and Kasenyi landing sites. Kasekulo landing site (Image 17 and 18) is situated on Kalangala, one of the Ssese islands, also in the Central Region. Kasekulo is apparently one of the

largest landing sites for fishing boats on Kalangala. Kasekulo also acts as a collection and storage centre for Mukene on the island. The landing site is very remote in comparison to the other study areas as it is only accessible by ferry. Masese and Buluba landing sites are in the Eastern Region of Uganda. Masese landing site (Image 14) is located on the outskirts of Jinja town and a gazetted landing site. The shoreline at Masese is busy with buildings, including shops and restaurants. Buluba landing site (featured in Image 13) is about 30km east of Jinja town. Whilst Buluba is an officially authorised landing site, it is not gazetted for international export, and as such there is no permanent fisheries office at the site. Masese landing site is considerably busier than Buluba landing site. Tables 3 and 4 provide a more detailed description of the landing sites and the fisheries activities that take place at each location. For each of the 7 landing sites a sketch map was also created (see Figures 4 – 10).

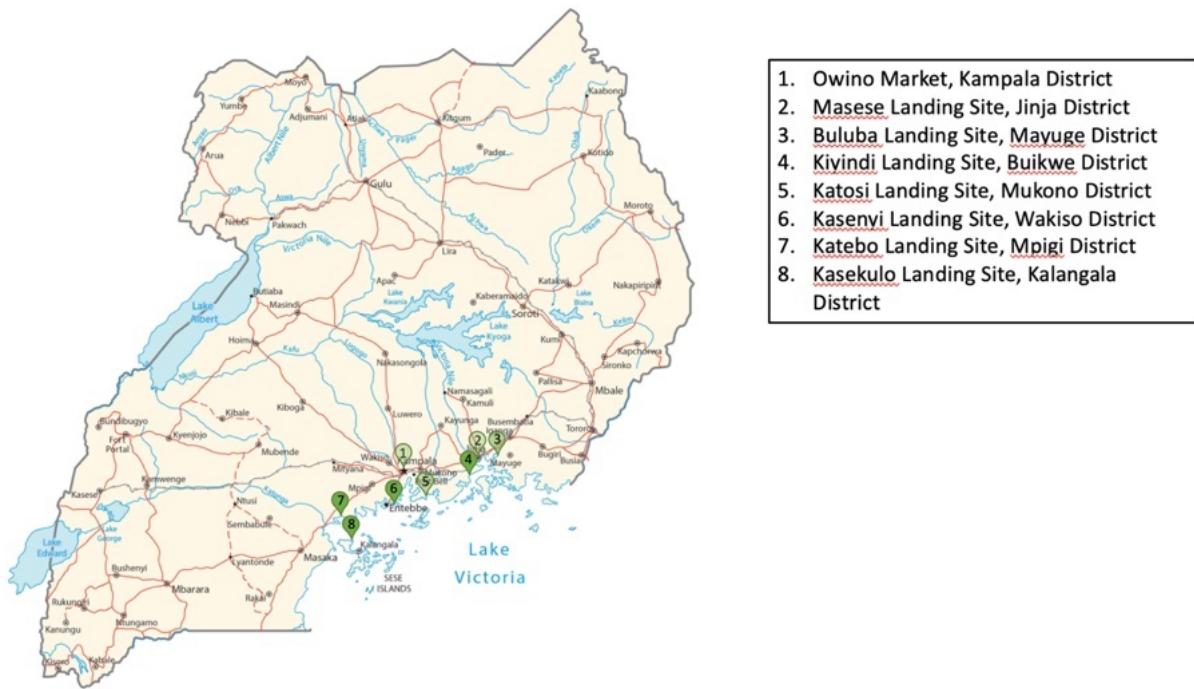


Figure 2. Map of Uganda demonstrating the study areas and the data collected at

each site.



Figure 3. Higher resolution the map in Figure 3. of Lake Victoria, Uganda, displaying

the study areas.

Table 3. Landing site statistics. Source: Uganda National Frame Survey 2020

	Katosi	Kiyindi	Masese	Buluba	Kasenyi	Kasekulo	Katebo
Beach Management Unit (BMU) Active Members	954	249	89	109	548	Data unavailable	Data unavailable
Number of fish traders	35	500	5	Data unavailable	350	Data unavailable	Data unavailable
Number of boat owners	120	400	52	25	57	Data unavailable	48
Number of artisanal fish processors	80	20	20	Data unavailable	35	Data unavailable	10
Number of fish mongers	131	200	21	26	28	Data unavailable	5
Fishing gear shop	Yes	Yes	Yes	No	Yes	Data unavailable	Yes
Engine repair facilities	Yes	Yes	Yes	Yes	Yes	Data unavailable	Yes
Boat repair facilities	Yes	Yes	No	Yes	Yes	Data unavailable	Yes
Net repair facilities	Yes	No	No	No	Yes	Data unavailable	Yes
Banda	Yes	Yes	Yes	No	Yes	Data unavailable	No

Cold room	No	No	No	No	No	Data unavailable	No
Drying racks	No	Yes	Yes	No	No	Data unavailable	No
Smoking kilns	Yes	Yes	No	No	No	Data unavailable	No
Public fish store	Yes	Yes	Yes	No	No	Data unavailable	No
Fenced handling area	Yes	Yes	No	No	Yes	Data unavailable	No
Fish factory agents	No	Yes	Yes	No	Yes	Data unavailable	No
Fisheries staff serve how often	Daily	Daily	Weekly	Weekly	Daily	Data unavailable	Weekly

Table 4. Description of fisheries activities at each of the 7 landing sites. Source: Author's field notes.

	Katosi	Kiyindi	Masese	Buluba	Kasenyi	Kasekulo	Katebo
Nile Perch value chain activities	<p>There are around 100 boats registered to fish for Nile Perch at Katosi. All the Nile Perch boats operate using engines but use both hooks and nets. Some individuals own up to 15 boats for Nile Perch at Katosi. Nile Perch fishing sites include Bugula, Nabulugo, and Nakitokota. The main markets for Nile Perch are fish processing factories including those in Kame, Kireka and Mukono.</p> <p>Nile Perch gets 'graded' according to their size at the landing site. Nile Perch that doesn't make the size threshold required by fish processing factories is sold to local and regional markets. This fish is typically processed at the landing site to remove the fish maw/swim bladder which is sold separately to agents who come to the landing site to collect the fish maws/swim bladders and sell them on to Chinese companies/markets.</p> <p>Traders with less capital typically buy this grade B fish and sell the meat to local markets or consumers directly. Some traders reportedly band together to hire an iced vehicle to load and send to markets in Kampala for example.</p> <p>Some fish agents who come to Kiyindi and supply the fish processing factories, own up to 3 iced-vehicles, others hire the trucks from the fish factories they supply. These fish agents can stay at the landing site for up to 3 days until their trucks are full.</p>	<p>Some boat owners licensed to catch Nile Perch at Kiyindi own more than 10 boats, operate with more than 60 nets on each boat. These larger-scale actors typically supply the fish processing factories. Smaller-scale actors may use hooks and/or a smaller number of nets, operate using paddle propelled canoes or second-hand engines and supply local and regional markets.</p> <p>Nile Perch gets 'graded' according to their size at the landing site. Nile Perch that doesn't make the size threshold required by fish processing factories is sold to local and regional markets. This fish is typically processed at the landing site to remove the fish maw/swim bladder which is sold separately to agents who come to the landing site to collect the fish maws/swim bladders and sell them on to Chinese companies/markets.</p> <p>Traders with less capital typically buy this grade B fish and sell the meat to local markets or consumers directly. Some traders reportedly band together to hire an iced vehicle to load and send to markets in Kampala for example.</p> <p>Some fish agents who come to Kiyindi and supply the fish processing factories, own up to 3 iced-vehicles, others hire the trucks from the fish factories they supply. These fish agents can stay at the landing site for up to 3 days until their trucks are full.</p>	<p>All the boats fishing Nile Perch are propelled by engines. Both nets and hooks are used. The use of hooks requires less capital investment compared to nets.</p> <p>Most Nile Perch boat owners at Masese are said to own two boats. 6 is the largest number of boats owned by one individual. The majority of Nile Perch is sold to fish processing factories such as Gomba and Marini. Middlemen (who own the weighing scales) purchase from the boat owners and sell to traders and the factory fish agents.</p>	<p>The landing site has 12 boats registered to fish for Nile Perch, half of them use nets, the other half use hooks (between 300 and 600 hooks).</p> <p>Most of the boats are propelled by paddles rather than engines.</p> <p>Small-scale actors use only hooks. Larger-scale actors use up to 50 nets on each boat.</p> <p>Some actors own two boats, but no more.</p> <p>The majority of Nile Perch from Buluba goes to fish processing factories in Jinja or the Mayuge Sugar Industries and the market in Iganga town. Fish agents come to the landing site everyday (apart from during low season), early in the morning, with their iced trucks and buy between 50-100kg of Nile Perch daily from the landing site.</p> <p>All Perch from the landing site is sold whole and fresh. No processing (i.e., gutting) is done at the landing site.</p>	<p>There are 50 boats registered to catch Nile Perch at Kasenyi. All the boats use engines. "Double nets" are also utilised to reach the fish in deeper waters. All boat owners sell their catch at one central point called "Katimba". From here traders and fish agents purchase the fish and take them to different markets including those in Busega, Bwaise and Kampala. At the collection centre, traders and fish agents have access to ice to store the fish until their vehicles are full. Most Nile Perch is sold fresh, but undersized Nile Perch is typically deep fried or smoked.</p>	<p>Nile Perch is the largest fishery in Kasekulo, based on the number of boats. There are 15 boats. Most boats use nets. Boats that use hooks are less common since they are said to use more fuel. The largest number of Nile Perch boats owned by an individual at Kasekulo is two. Most of the Nile Perch catch is sold to fish factory agents. Fish factory-sized fish are collected in stores at the neighbouring Tubbi landing site which contains official infrastructure for the handling of Nile Perch. While undersized fish is sold to people within the community or neighbouring communities for consumption and to sell in restaurants. 1kg of undersized fish sells for 4000 UGX. Undersized Nile Perch is also processed through deep frying and smoking. Though the smoking is also considered 'illegal' as it is not done using authorised smoking kilns (which are unavailable at the landing site).</p>	<p>There are 4 boats licensed to catch Nile Perch at Katebo. These boats all use engines. Until recently, they were all using hooks. But now they utilise "double nets" to fish for Nile Perch in deeper waters. Nile Perch is sold to traders within the community and to others who come from Busega, Nakasero and other factories. There are few middlemen, the boat owners generally sell directly to local and regional traders or fish factory agents.</p>
Nile Tilapia value chain activities	<p>There are approximately 40 boats at Katosi licensed to catch Tilapia. Most boats fishing for Tilapia use paddles to propel the boat, though there are a few who use engines. All of the fish caught is sold to traders at the landing site who sell the fish to markets in</p>	<p>The Nile Tilapia fishery at Kiyindi is much smaller -scale compared to Nile Perch or Mukene. Smaller-scale actors use paddle propelled canoes, hooks and a small number of nets. Whereas larger-scale actors typically use vessels propelled by an engine, own multiple fishing vessels (up to 5) and operate with up to 5 nets on each boat. Apparently, the use of</p>	<p>There are approximately 25 boats licensed to catch Tilapia at Masese. Most of the boats are propelled by paddles. Those who use engines, usually hire them. The boats use between 50 to 150 nets on each boat, depending on capital capacities. Each net costs approximately 10,000 UGX.</p>	<p>There is no Tilapia fishery at Buluba.</p>	<p>There are 5 boats licensed to catch Tilapia at Kasenyi. However, Tilapia is also caught as by-catch from the Nile Perch fishery. Those that trade in Tilapia typically buy Tilapia from nearby islands, such as the Ssese islands. There are boats that deal specifically in the</p>	<p>There are 8 boats licensed to catch Tilapia.</p> <p>There are no individuals who own more than one boat for Tilapia at Kasekulo. There is an even mix of boats that are propelled by engines and those that are propelled by paddles.</p> <p>There are some people who fish for Tilapia from the lake shores on foot,</p>	<p>There is only one boat licensed to catch Tilapia at Katebo. This boat uses an engine. The Tilapia caught is sold within the community and to markets in Busega and Mengo. Tilapia is also caught as by-catch in the Nile Perch fishery.</p>

	Kireka, Bwaise, Mukono and Seeta. Tilapia is also caught as by-catch from the Nile Perch fishery.	illegal fishing methods including the <i>kikubo</i> and <i>tycoon</i> method are particularly common in the Tilapia fishery in Kiyindi. Tilapia is sold at Kiyindi via an auction, at official areas for auctioning.	Tilapia is also caught as by-catch from the Nile Perch fishery. There is no permanent/stable price for Tilapia, it is highly negotiable and largely dependent on the size of the fish. No Tilapia is taken to the fish processing factories. The major markets for Tilapia from Masese are in Bugembe, Jinja and Matumbisa. Fish traders come to the landing site to buy fresh Tilapia at 5000 UGX and above. Tilapia is often deep-fried and sold for 10,000 UGX and above.		transportation of Tilapia from these islands to Kasenyi. Larger quantities of Tilapia are caught from these islands because there are more areas/bays of calm water which apparently the Tilapia prefer. Fresh Tilapia purchased from nearby islands are sold at auction from stalls. Tilapia is sold and priced per fish, rather than by kg. Tilapia is mostly sold in fresh form, but also deep-fried.	rather than from a boat, using hooks. However, Tilapia is also caught during Nile Perch fishing. It is apparently the most common by-catch in the Nile Perch fishery at Kasekulo. Tilapia is bought by traders from the neighbouring Tubbi Landing Site, which has a dedicated fish handling and auction site for Nile Tilapia. Tilapia is processed at the landing site by deep frying and smoking. Though the smoking of Tilapia is considered illegal by the authorities here as the smoking is not done using authorised smoking kilns.	
Mukene value chain activities	Mukene is the largest fishery in Katosi, based on the number of boats. There are approximately 150 boats licensed to fish Mukene. Most of these boats are propelled by engines, but some smaller-scale actors who use boats propelled by paddles also exist. Mukene fishing from Katosi is mostly carried out in deeper waters. Many boat owners own more than one boat, 2 on average, but the largest number one individual owns is 4. Mukene is processed at the landing site through sun-drying, salting and deep-frying. Traders come to the landing site to buy Mukene and sell to markets in Soroti, Arua, Mbale and Busia. Processed Mukene is also sold to supermarkets and schools.	There are 150 boats licensed to catch Mukene at Kiyindi. All the Mukene fishing done from Kiyindi uses nets, and all boats operate with engines. Most boats also operate with 5 pressure lamps, fuelled by paraffin. Typically, the nets used for Mukene are attached in panels (each panel is 14 metres in length). Most boats use a 9-panel net or above. There are several storage units for sun-dried Mukene at Kiyindi. Traders come to the landing site to buy from the storage units to sell at regional markets (including Jinja and Lugazi). Processors process between 1 and 10 bags (each weighing 100kg) of sun-dried Mukene per day.	There are no boats registered at Masese who fish for Mukene. Fishers who use the waters near Masese come from other landing sites such as Kisima, Busana, and Kikoondo. However, there are Mukene storage units at the landing site. Mukene processing activities also take place at the landing site including sun-drying, salting and deep-frying. This Mukene is sold to markets in Bunyole, Busia and other markets in Uganda.	Mukene is the largest fishery at Buluba, based on the number of boats. There are a total of 14 boats licensed to fish Mukene. Only 3 of the boats use engines. All of the Mukene fishing boats operate with 4 lamps. The paddle propelled boats typically use a net made up of 6 or 7 panels and fish in near shore areas whereas the engine propelled boats mostly use a net made up of 8 to 9 panels. Some individuals own two boats, but no one owns more than two. Traders come from outside of the community, from Tororo, Busia and other areas in Kenya to buy sun-dried Mukene.	There are no boats at the landing site registered to fish for Mukene. Mukene is also purchased from nearby islands such as Kalangala. This Mukene is bought from stores, and transported to Kasenyi. Once it reaches the landing site, some purchasers repeat the sun-drying process to assure quality.	There are 10 boats licensed to fish Mukene at Kasekulo. There are no individuals who own more than one boat. The majority of Mukene fishers use "lampaara" nets. Mukene caught is sold to processors who sun-dry and deep-fry the Mukene. There are drying racks available for sun-drying Mukene at the landing site. However, there are also processors who lay the fish on a sheet on the ground for sun-drying. Mukene is sold in basins to the Mukene storage units, of which there are four, at the landing site. Traders come to the landing site to buy Mukene from the owners of the storage units. During the high season, each store has the capacity to sell between 80-100 bags (each weighing 100kg) a day.	Mukene is the largest fishery at Katebo, based on the number of boats. There are 25 boats licensed to catch Mukene at the landing site. All the boats use engines, and they use the "hurry-up" fishing method. They fish in both shallow and deep waters depending on the presence of the fish. The largest number of boats an individual owns is 2. All the Mukene caught is sundried or deep-fried at the landing site by processors who buy the Mukene directly from the boat owners. A small amount of Mukene is sold to people within the community who own shops. Most sundried Mukene is sold to traders who transport and sell the Mukene to markets in Gomba, Masaka, Mpigi, Mengo, Kyabadaza, and Kayabwe. There is a group for people in the Mukene fishery at Katebo, called "Mwanamujimu Fishing Group" which consists of 30 members: 18 women and 12 men.
Other fishery activities	Nile Perch by-catch includes Semutundu catfish (<i>Bagrus Docmak</i>). By-catch is particularly high when		Catfish and mudfish are caught as by-catch from the Nile Perch fishery. The mudfish and the catfish fingerlings are used as	Nile Perch fishers often catch mudfish and catfish as by-catch. These fish are used as bait on hooks to		Catfish is caught as by-catch in the Nile Perch fishery.	Catfish and lungfish is caught as by-catch in the Nile Perch fishery.

	fishing is done in far and deeper waters.		bait on the Nile Perch fishing hooks.	catch Nile Perch but are also sold and consumed at local and regional markets. The local women's group 'Twekembe Women's Group' also sells deep fried Mukene snacks to schools and retail shops, and salted Mukene to markets in Kenya. Women's capital to buy fresh Mukene for processing differs and their daily capital ranges from 7000 – 1750,000 UGX (enough to buy 35 bensons).			
Gendered dynamics	Both men and women own boats for Nile Perch at Katosi. However, the majority are men. Approximately 10 women at Katosi own Nile Perch fishing boats. Most own just one boat, but a few own more. 3 is the largest number of boats owned by a woman, whereas 15 is the largest number of boats owned by a man. Similarly, most of the 40 boats licensed to fish Tilapia are owned by men. Approximately 8 are owned by women. Most people in Mukene processing are women, but both men and women trade Mukene.	Women own boats licensed to fish Mukene, but not for Nile Perch or Nile Tilapia in Kiyindi.	Both men and women own boats licensed to catch Nile Perch. Both men and women at Masese own Tilapia fishing boats. The majority are owned by men (n=20), but there are approximately 5 Tilapia fishing boats at Masese owned by women. Most actors in Tilapia trade at Masese are women, there are few men. Women deep-fry and smoke Tilapia at the landing site. Women who buy and process Tilapia at the landing site are said to have a working capital of between 10,000 and 250,000 UGX.	It is only men who own boats for Nile Perch fishing at Buluba. There are a few women who own boats licensed to fish Mukene, but mostly men. All the engine propelled boats are owned by men, and all of the individuals who own more than one boat are men. It is only women who process Mukene. But it is both men and women traders who come to buy the sun-dried Mukene from Buluba.	All of the 50 Nile Perch fishing boats are owned by men. Women sometimes assist their husbands in managing their business in their husband's absence. No women own boats for Tilapia fishing. Both men and women are involved in the Mukene trade from Kalangala to Kasenyi for example. But it is only women who carry out the sun-drying activities.	Just 1 out of the 15 boats for Nile Perch are owned by a woman. Two of the 8 boats licensed to catch Tilapia at the landing site, are owned by women. 3 of the 10 Mukene fishing boats at the landing site are owned by women. It is only women who process and package the Mukene. This includes sundried and deep fried Mukene.	None of the Nile Perch fishing boats are owned by women. The boat licensed to catch Tilapia is owned by a man. 15 of the Mukene fishing boats are owned by women.
Demographic information	There are people who come from outside of the community that work in the Mukene sector.	There are people who have come to live in Kiyindi from northern Uganda, to work in the Mukene fishery. These people buy Mukene at Kiyindi and transport it to their home areas in northern Uganda, like Gulu. There are also a number of Rwandans and Congolese people living in Kiyindi who also work in the Mukene fishery. Several of the Mukene stores are		There are no migrant workers at Buluba who have come to work in the fisheries.	There are several Rwandans living in Kasenyi who own boats for fishing Mukene. These boats fish for Mukene from nearby islands.		

		reportedly owned by Rwandans and Congolese people.					
Other livelihood activities	People also engage in activities such as carpentry, farming, teaching, construction, boat making, and restaurant work to earn an income in Katosi.		People at Masese also earn a living from restaurant work, trading in groceries, farming, carpentry, retail and some work in the factories in Jinja district that produce textiles, hardware and telecom products. There is also a cage fish farm, owned by a community group, at Masese landing site.	Farming is considered the main source of income in the community. People in the community also engage in crop farming (including the cultivation of maize, beans, cassava, and sweet potatoes), and animal husbandry (including the rearing of cows, goats, sheep and poultry). The crop farms are a 2-3km distance from the landing site, to the east. Some residents are also employed in the nearby hospital.	People at the landing site also engage in the trade of other commodities, including the transportation of goods to and from nearby islands.	People are also employed in the Palm Oil plantations, in restaurants. Others engage in animal husbandry (including the rearing of cows, goats and pigs) as a source of livelihood.	Other incomes sources for people at Katebo include boat making and farming.

Image 1. Owino Market. In the foreground of the picture is a large Nile Perch, usually cut into smaller pieces for buyers. In the back, smoked fish ready for sale.



Image 2. Kasenyi Landing Site. The image shows the entrance to the official fish landing site, at which fish handling activities are inspected to comply with international export standards. Through the gate the image shows insulated trucks, which are filled with ice and fish and then transported to fish processing factories.



Image 3. Boats lined up on the shore, full of nets, weights and floats at Kasenyi Landing Site



Figure 4. Sketch map of Kasenyi Landing Site

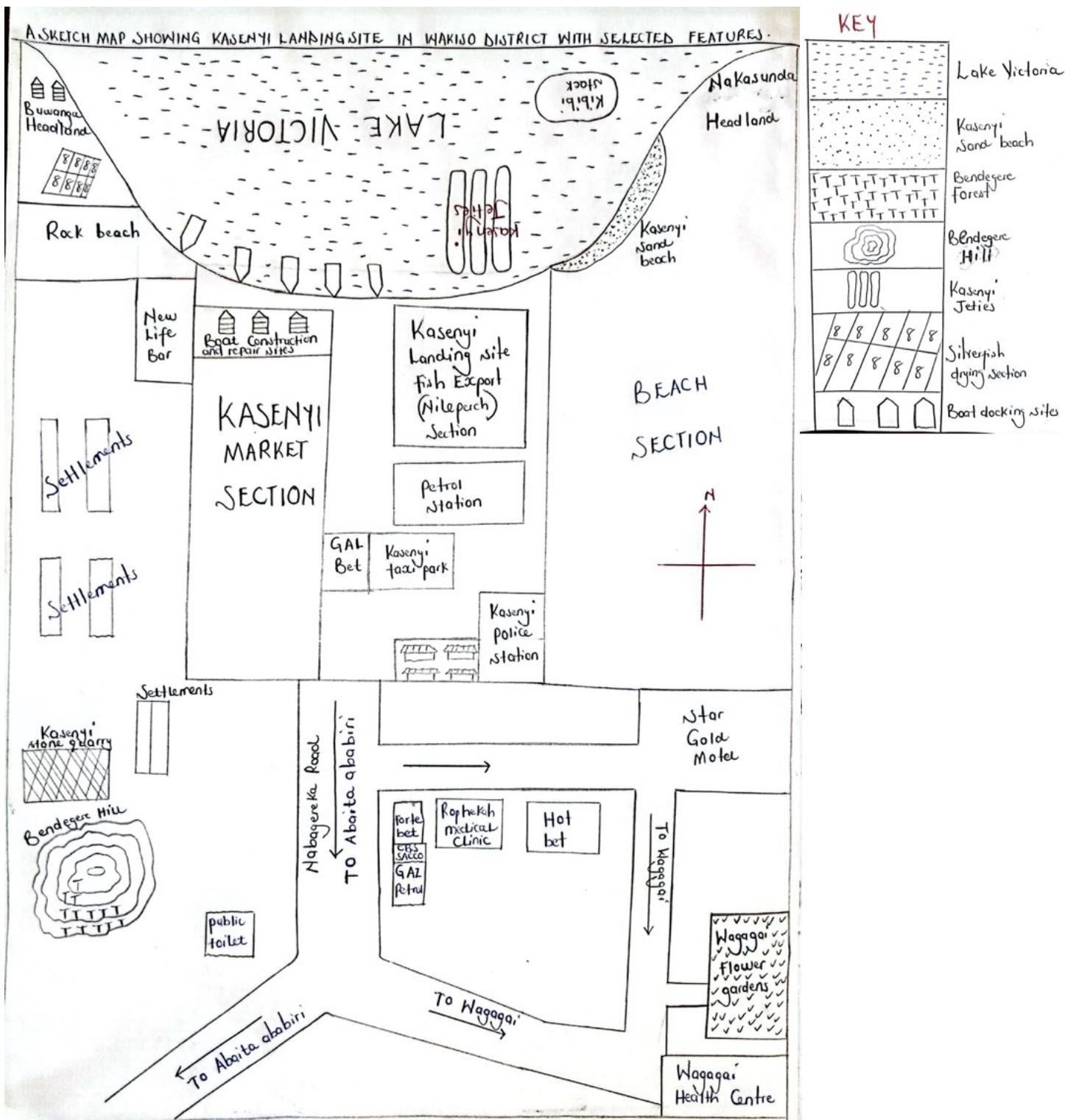


Image 4. Fish handling facilities at Kiyindi Landing Site. Fish is taken here for sorting and weighing, and activities here are closely monitored by Fisheries Inspectors.



Image 4. Mukene sun-drying at Kiyindi Landing Site.



Image 5. Mukene storage at Kiyindi Landing Site.



Image 7. Boat building and repairs at Kiyindi Landing Site.



Image 8. Tilapia auction at Kiyindi Landing Site



Image 9. Sun-dried Nile Perch at Kiyindi Landing Site



Image 10. Nile Perch being weighed at Kiyindi Landing Site



Image 11. Mukene drying on fishing nets at Kiyindi Landing Site



Image 12. Trucks loaded with Mukene at Kiyindi Landing Site. These trucks generally transport the Mukene to markets in Rwanda, South Sudan and the Democratic Republic of Congo.



Figure 5. Sketch map of Kiyindi Landing Site

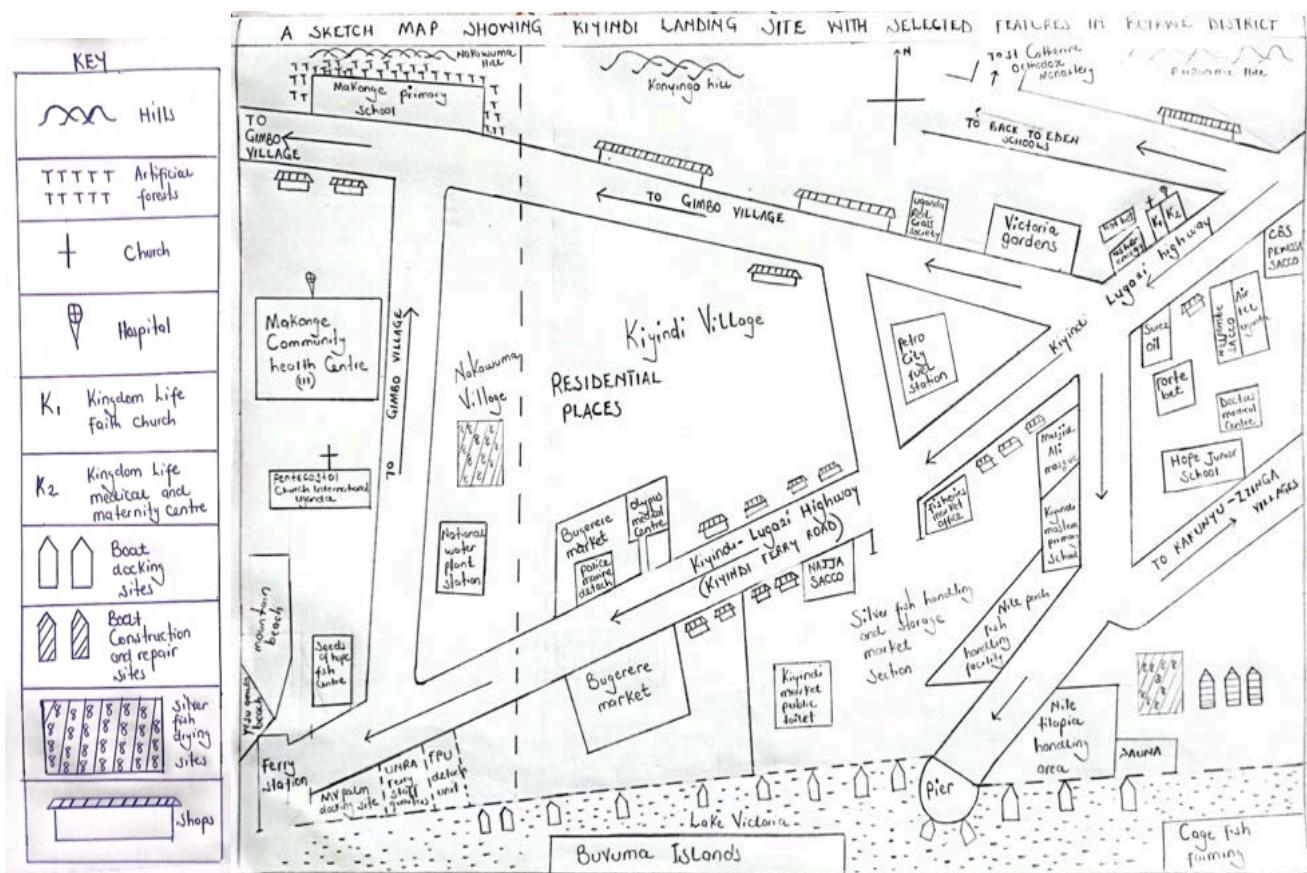


Image 13. Women sun-drying Mukene at Buluba Landing Site.



Figure 6. Sketch map of Buluba Landing Site.

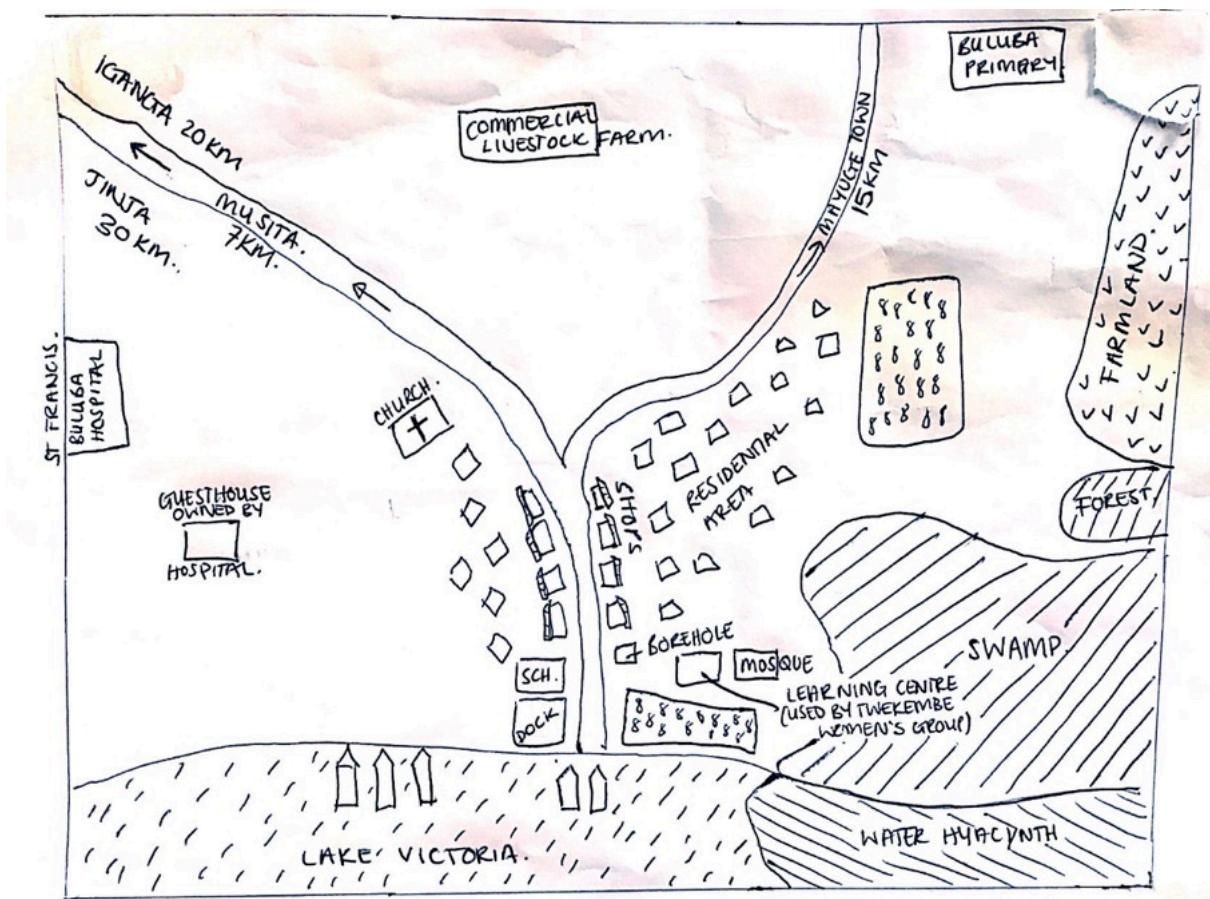


Figure 7. Sketch map of Masese Landing Site

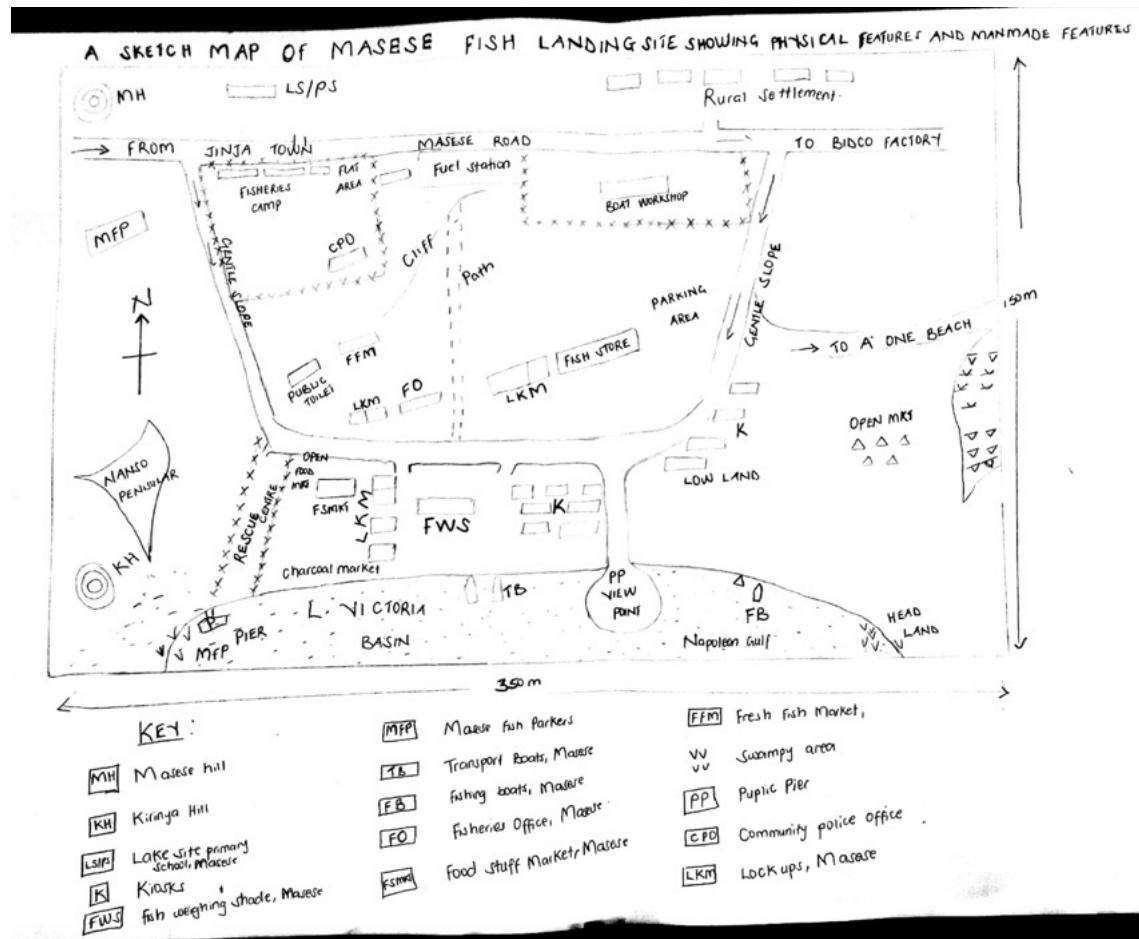


Image 14. Shoreline at Masese Landing Site



Figure 8. Sketch map of Katosi Landing Site.

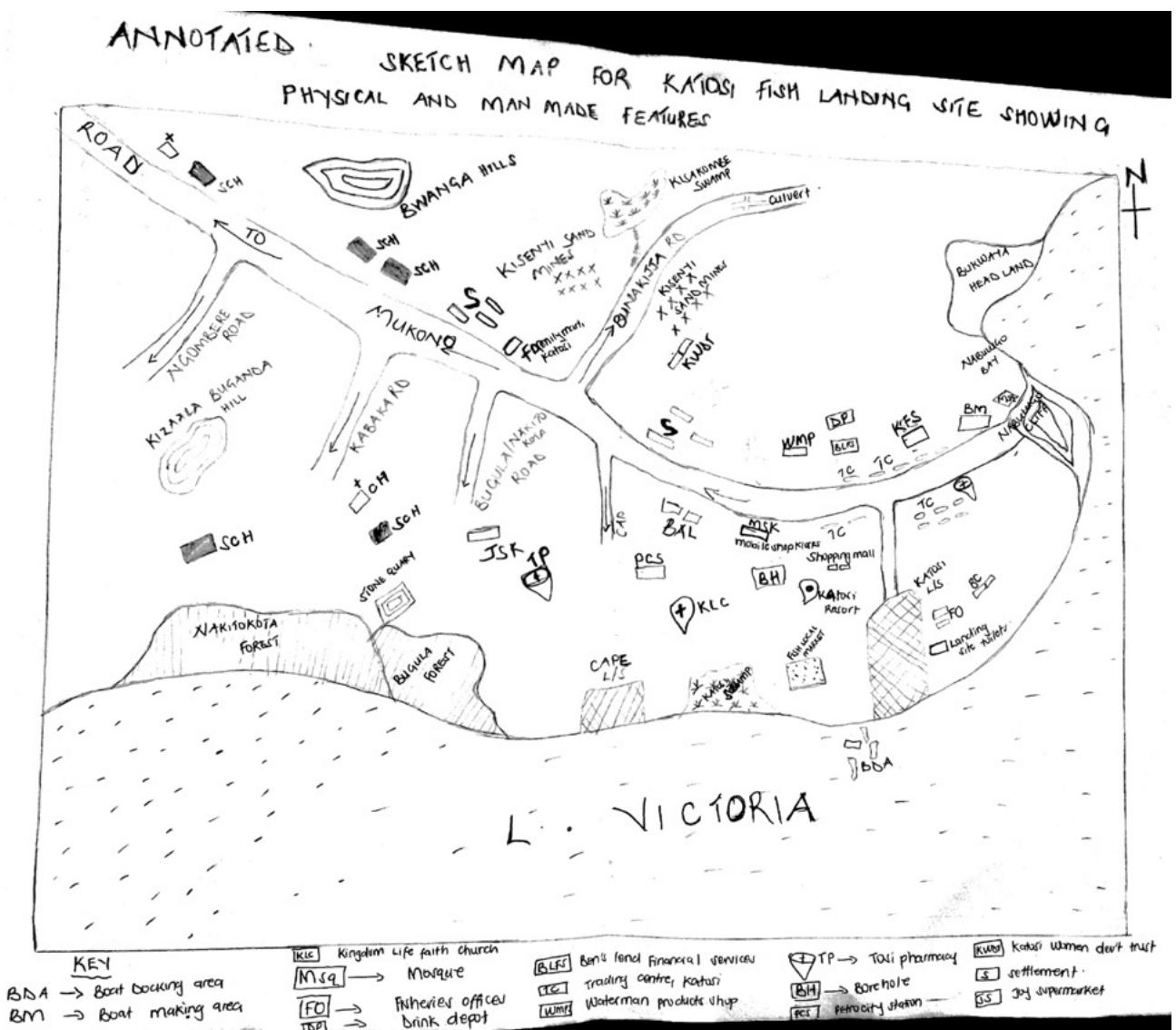


Image 15. Nile Perch destined for fish processing factories inside an iced truck at Katosi Landing Site.



Figure 9. Sketch map of Katebo Landing Site

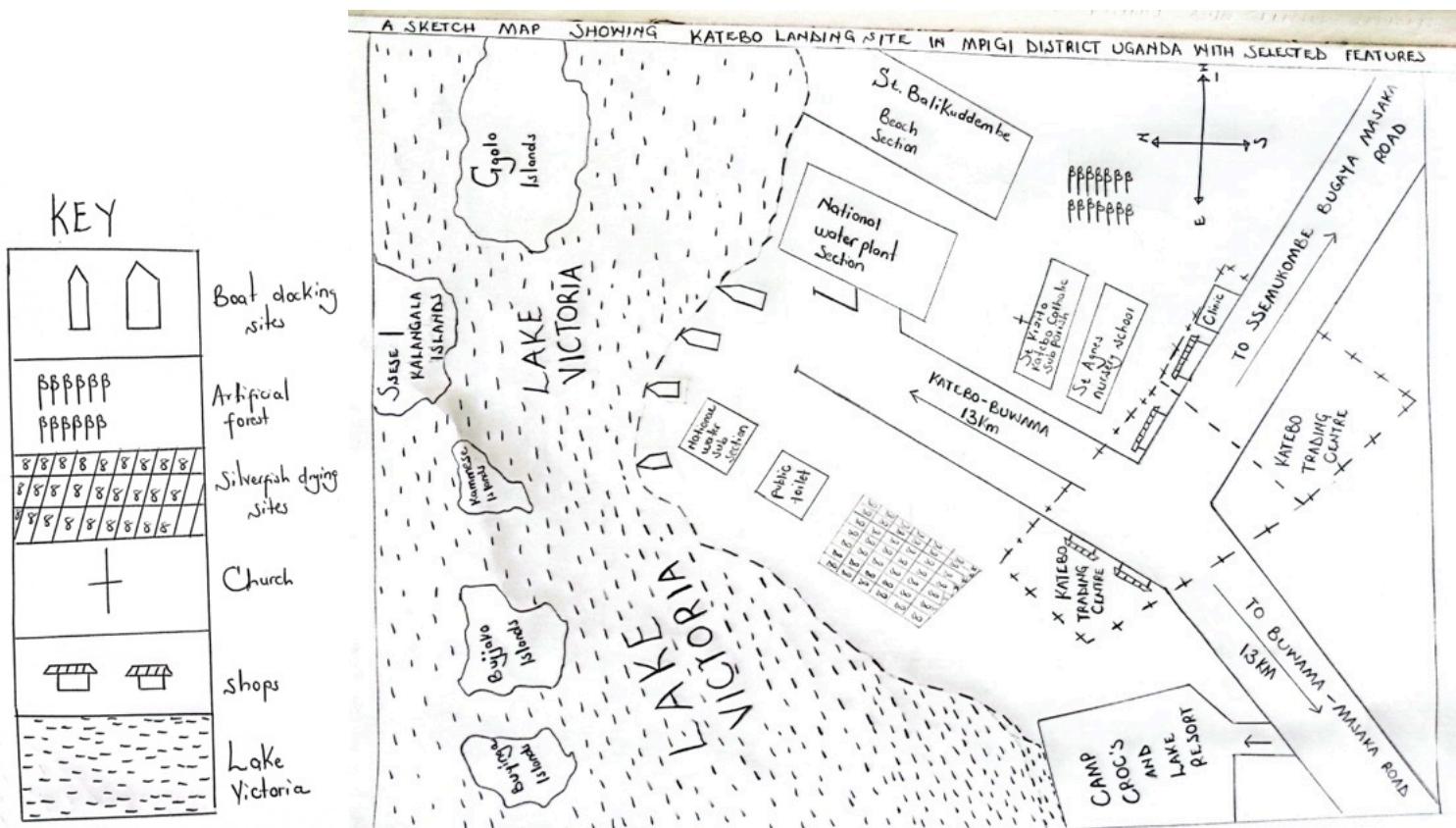


Image 16. Ssesse flat boats on the shore at Katebo Landing Site



Figure 10. Sketch map of Kasekulo Landing Site.

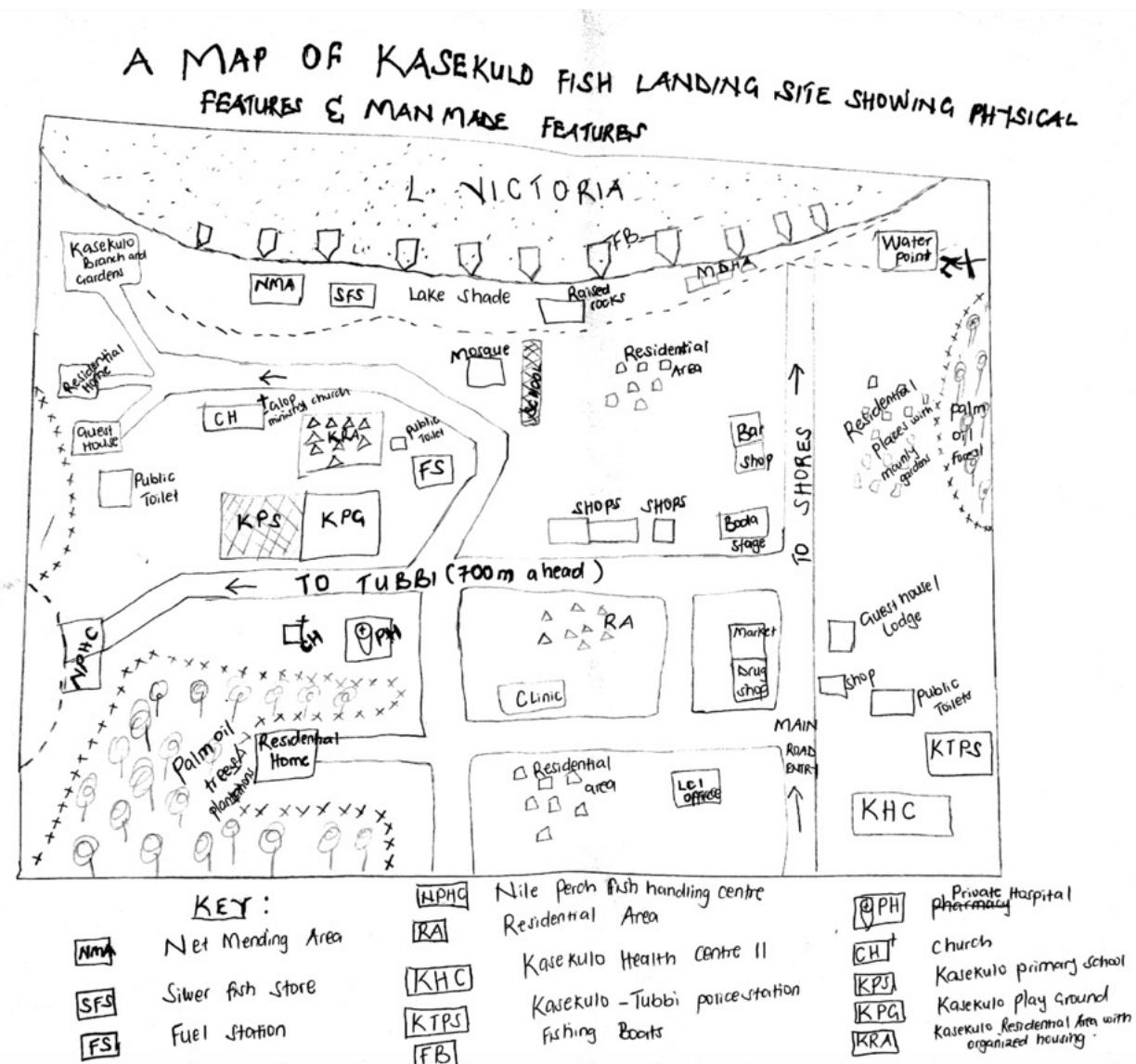


Image 17. Boats at Kasekulo Landing Site.



Image 18. Fish handling facilities at Kasekulo Landing Site.



4.1.3. Selection of respondents

This study takes a broad value-chain approach to examine trade and labour relations in small-scale fisheries at the local-level. The value chain approach is a common and mainly descriptive tool to look at the interactions between different economic agents (Rosales et al. 2017). A value chain analysis is flexible and can be either narrow or broad in approach and allows for different entry points depending upon the objective of the analysis (Rosales et al. 2017). Conducting a value chain analysis tends to involve an examination of how individual actors operate, interactions between actors in the chain, factors that affect coordination between actors and what power relationships exist (Rosales et al. 2017).

In the last decade, there has been an increasing interest in the dynamics of small-scale fisheries value chains in the context of global markets, including increasing scholarly focus on income and power distribution among actors (e.g., Crona and Bodin, 2010; Purcell et al. 2017; O'Neill et al. 2018), and interactions and forms of co-ordination among actors (Coronado et al. 2020). This study primarily focuses on interactions at the local level between selected groups of value chain actors: fishing crew and boat owners, fish suppliers (including fishers and boat owners) and fish buyers (including fish traders and processors) and horizontal interactions between fish traders. Though interactions with other actors are also considered and analysed in terms of their effects on these two primary relations.

Hence, fishing crew, boat owners, and fish traders and processors were targeted for participation in the study. Data was collected from multiple actor groups to achieve a more holistic understanding of trade and labour relations in small-scale fisheries, and capture various perspectives on and experiences of power and trust within these two selected interactions. In general, participants were recruited using a purposeful and convenience sampling technique. Participants were targeted based on their occupational position (e.g., fishing crew) and therefore specific experience of a selected interaction and perspective on the research topic more broadly (Given, 2008). In addition, individuals that fitted the criteria, based on their occupation, were conveniently sampled, meaning that they were recruited primarily because they were available, willing, or easy to access on a practical level (Given, 2008). Convenience sampling has been utilised in several studies in the fisheries sector (e.g., Brewer and Moon, 2015) and considered appropriate at fish landing sites where multiple and various value chain actors congregate. The intention was not to achieve representativeness, but to understand how individual people and groups experience and make sense of their everyday interactions (Valentine, 2005). Though the specific approach for recruiting study participants is described in more detail below for each data collection method.

4.2. Researching power and trust in trade and labour relations

A total of 206 people participated in the study through either structured individual interviews, semi-structured individual interviews, group interviews or focus group discussions. As Table 5. details, 41 individual interviews, 13 group interviews, and 9 focus group discussions were conducted between September 2022 and February 2023.

An almost equal number of men and women participated in the study. As Table 5 shows the study engaged with 23 fishing crew, 24 boat owners, 137 fish traders and 59 fish processors⁹. The differences in the number of men and women interviewed for each occupation/role generally represent normative gender roles within the study area; for example no women fishing crew were interviewed because fishing in this socio-cultural context is perceived as a man's job and thus women rarely participate.

Participants were recruited from 8 study areas listed in Table 5. The number of study participants were not spread evenly across study areas, and a significantly larger number of people engaged in the study from Katosi and Kiyindi Landing Sites. As I will explain in the sections that follow, these numbers are a result of the distinct recruitment process for each research method implemented, at different stages of the research process, and influenced by changes to the research focus that were made during data collection.

⁹ For those who identified with multiple occupations/roles, they were counted in these figures more than once (i.e., for each occupation).

Table 5. Overview of data collection methods, and study respondents

Data collection method	Number of interviews/discussions carried out									Number of participants engaged*										
	Katosi Landing Site, Mukono District	Kiyindi Landing Site, Buikwe District	Masese Landing Site, Jinja District	Buluba Landing Site, Mayuge District	Owino Market, Kampala District	Kasenyi Landing Site, Wakiso District	Katebo Landing Site, Mpigi District	Kasekulo Landing Site, Kalangala District	Total	Fishing crew		Boat owners		Fish traders		Fish processors		Total		
										Men	Women	Men	Women	Men	Women	Men	Women	Men	Women	Total
Structured individual interviews	6	9	17	4	0	0	0	0	36	0	0	0	5	0	31	0	11	0	36	36
Semi-structured individual interviews	4	0	0	0	0	0	1	5	1	0	3	1	1	0	0	0	4	1	5	
Group interviews	7	5	0	0	0	0	0	1	13	21	0	10	2	25	0	0	0	56	2	58
Focus group discussions	3	2	0	1	1	1	0	9	1	0	1	2	32	48	13	32	44	63	107	
Totals									23	0	14	10	58	79	13	46	104	102	206	
									23	24		137		59						

*Participants with more than one livelihood activity (i.e., where participants engage in both fish processing and trading) are counted for each livelihood activity, resulting in inflated totals for the number of participants engaged in the study by livelihood activity. The totals in the last three columns on the right display the true number of participants.

4.2.1. Structured individual interviews

Between September and October 2022, individual interviews with 36 women fish workers in Masese landing site (n=17) Katosi landing site (n=6), Buluba landing site (n=4) and Kiyindi landing site (n=9) were carried out.

These interviews were structured by an interview guide and designed to collect individual level data and perspectives on women's use and access to digital technologies, as well as their relationships with other value chain actors, to answer the research questions I had designed prior to data collection which were later changed as explained in Chapter 1.

The interview guide (see Annex A) was designed to begin by collecting so-called 'classifying data', including age, educational level, livelihood activities and contextual wealth. Some of these questions were provided with multiple choice answers. This information was gathered to position the experiences and perceptions of the participants within their specific situation. The rest of the interview guide included closed questions intended to collect more situational data regarding: the purchase and sale price of fish, where and from whom they sourced their fish, the quantity of fish dealt to ascertain the scale of their business operations, length of time working in the fisheries sector, the market destination of their fish products and mobile and smartphone ownership. However, the interview guide was dominated by open-ended questions to gather insights about participant's relationships with their fish suppliers

including, for example, how long they had been working with them, why they work with them, who determines the fish prices, and why. The questions also explored what effects using digital technologies had on their livelihood and relationship with others.

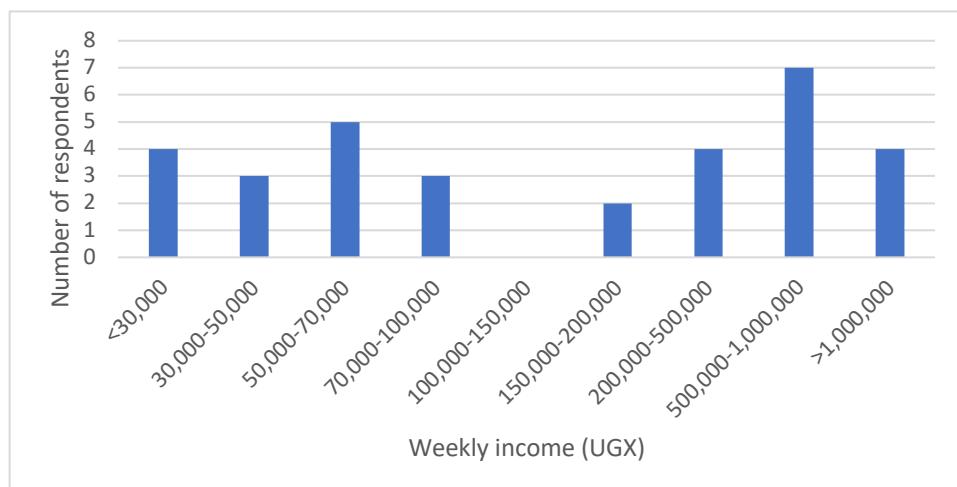
A draft of the interview guide was shared with key representatives from the Uganda National Women's Fish Organisation (UNWFO) for their input and feedback and edited accordingly. For instance, UNWFO helped create relevant options for multiple choice questions e.g., for education level and weekly income. UNWFO were also particularly keen to include a question which gathered information regarding if and how consumers influence their choice to use digital technologies.

4.2.1.1. Research participants

A large majority (69%) of respondents identified as fish traders, 14% as fish processors, and 17% as both fish processor and trader. Of the 25 women fish traders interviewed, 44% dealt in Tilapia, 28% in Nile Perch, 26% in *Mukene* and 2% in a minor species known locally as Nkolongo (*Synodontis Victoria Boulenge*). The majority (64%) of women fish traders interviewed trade fish locally – within the village or parish but a significant number (43%) channel fish to markets in other counties and districts. Just 8% engage in regional cross-border trade and international export. Figure 11. displays the weekly income of the women fish workers engaged in the study through these structured individual interviews. The average weekly income of respondents was

estimated to be 380,000¹⁰ UGX (approximately 100 USD). The average weekly income for fish traders was 380,000 UGX, for fish processors 300,000 UGX (approximately 80 USD) and for those engaged in both fish trade and processing 430,000 UGX (approximately 115 USD). Average weekly income for traders and processors dealing in *Mukene* was estimated at 330,000 UGX (approximately 88 USD), Tilapia 360,000 UGX (approximately 96 USD) and Nile Perch 420,000 UGX (approximately 112 USD), and Nile Perch Fish Maw 830,000 UGX (approximately 220 USD).

Figure 11. Bar chart displaying weekly income, in Ugandan Shillings (UGX), of women fish workers engaged in the study through structured interviews



¹⁰ Worked out using median figure for each income range e.g., for an income range of 30,000 – 50,000 UGX, 40,000 was used to calculate the average weekly income of respondents, and rounded to the nearest 10,000.

Respondents varied in age (see Figure 12.), educational level (see Figure 13.), marital status (see Figure 14), and ethnicity (see Figure 15). A greater number (55%) of respondents were 40 years old or above. Most respondents had some form of education between primary and secondary, less had attended higher education. The majority (53%) of respondents were married. A larger number of respondents belonged to the Buganda and Busoga ethnic groups than any others, which reflects the location of study, but the majority (57%) of respondents belonged to ethnic groups not native to the location of study, illustrating the scale of migration to the lake shore. This point is also illustrated by the fact that 65% of respondents claimed that they were not originally from the community where they now reside. The majority (68%) of these respondents said they had moved to the area in search of work, followed by marriage (24%).

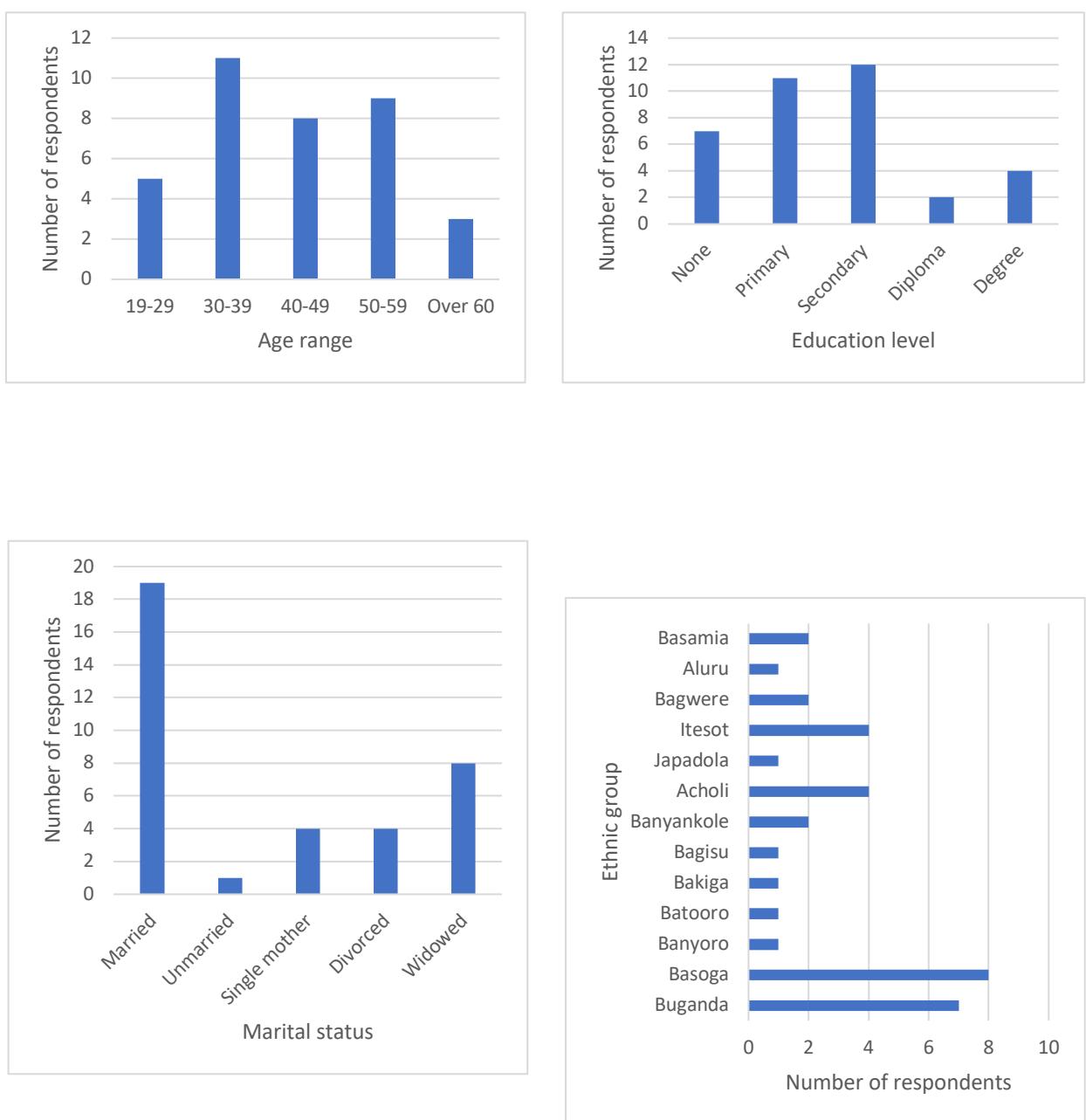


Figure 6. top left, features a bar chart illustrating the age range of women fish workers engaged in the study through structured interviews. **Figure 7.** top right, features a bar chart that shows education level of women fish workers engaged in the study through structured interviews. **Figure 8.** bottom left, features a bar chart that displays the marital status of women fish workers engaged in the study through structured interviews. **Figure 9.** bottom right, bar chart that shows the ethnicity of women fish workers engaged in the study through structured interviews.

4.2.1. 2. The research in practice

The interviews were conducted by a member of UNWFO, who is also a fish producer, processor and trader. One full day was spent preparing the interviewer, explaining how to use the recording devices, the objectives of the interviews, going through each question to make sure they were understood. Both the interviewer and the author travelled to Katosi Landing Site on the 14th and 15th September 2022 where they conducted two pilot interviews. The pilot interviews took just over one hour, the participants and interviewer considered this too long and so some 'situational' questions were removed. These included questions regarding the distance and methods by which participants' travel to buy and sell fish; access, and use of fish storage facilities and fish processing practices e.g., costs associated with, and facilities used. These questions were removed because they did not directly produce data regarding participant's relations with other value chain actors and so were considered less relevant to the research questions. After removing these questions the interviews averaged around 40 minutes.

Whilst the author was present for the pilot interviews, after discussions with the interviewer and other members of the UNWFO Board of Directors, it was decided that the author would not be present for the other interviews. The interviewers felt that the presence of a foreigner would make the recruitment process more difficult as people were likely to associate the author with monetary benefits. They felt that participants would, because of the author's presence, expect a sizeable facilitation

payment, equivalent to those often offered by internationally funded projects in the sector. Furthermore, they felt that the author's presence would attract too much attention, which may become bothersome as other members of the community, particularly local leaders, would ask to be involved because of the perceived benefits. Negotiating these dynamics could affect both the interview process and the perception of the interviewer and their relations with people at the landing site. In turn this could have consequences for UNWFO activities. The author respected these opinions and attempted to manage the process of conducting the interviews remotely.

Participants were recruited through purposive sampling to ensure that the sample included a diversity of women working with different species or products including Mukene traders and processors, and those dealing in Nile Perch fish maw. The interviewers first approached the Fisheries Office, or equivalent authority, at the landing sites to inform them of their activities at the landing site, and essentially get their permission. A representative from the Fisheries Office, at each landing site, then helped to identify relevant participants. Identified participants were recruited opportunistically as they were approached on the day and asked if they would be willing to participate in the research. The participants received between 30,000-50,000 UGX (8-13 USD) to compensate their time. The difference between compensation payments was reportedly due to different expectations at landing sites, largely dependent upon the participant's previous experience regarding compensation for research and project-based activities. Compensation payments were handled entirely by UNWFO, who were given an agreed lump sum of money at the start of the project

to carry out the interviews, pay for the transportation and accommodation costs, compensate participants, translate and transcribe audio recordings. Their experience conducting research and knowledge of the study areas meant they were trusted to handle these payments appropriately.

The interviews were designed to be recorded to capture participants' full responses, especially to open-ended questions. However, the interviewer was also given a physical copy of the interview guide for each participant on which they could write notes. The interviews were conducted in Lusoga or Luganda. Whilst the interviews were meant to be audio recorded, the interviewer had some issues using the recording devices and consequently only 4 out of 36 interviews were fully recorded. These issues with the recordings were noticed only after the 36 interviews had been conducted. Thankfully the interviewer had also made notes of most of the answers given on the physical copy of the interview guide. However, these notes were brief and lacked the contextual detail that recording the interview would have provided. Whilst the author had regular check-ins with the interviewers via WhatsApp to check progress and allow for problem solving, these conversations were not effective in highlighting the issues with the recording devices since interviewers were unaware that they were not recording the interviews correctly. On reflection, the author should have insisted that the interviewers share the data (consent forms, interview notes and audio files) after every 10 interviews, to check the quality of the data. This could have mitigated the impact of the issues with the recording devices.

The interviewer worked in the fishing sector themselves as a fish producer, processor and trader. Furthermore, they were familiar with each of the landing sites, and some of the people working there, mostly through their connections with local level women and youth groups who are members of UNWFO at the national level. Whilst this had its benefits in terms of participant recruitment, access and trust, it also created some difficulties. The interviewer was perhaps too familiar with the context and had an in-depth and personal knowledge of the topics discussed by participants. Therefore, they didn't feel the need to ask further probing questions. Furthermore, they might not have felt the need to write more information in their notes, because for them when someone simply mentioned "many other traders" or "scarcity of fish" or "season of the year" or "quality of the fish" in response to a question about the factors affecting their ability to negotiate for better fish prices, the interviewer would understand the challenges, influenced by their experience interacting with people in the sector as well as their personal experiences. They probably didn't feel the need to write elaborate notes because they were relying on the fact that the interview was being recorded and would be reviewed to extract more information. However, the failed recordings, brief notes and lack of contextual detail affected the quality of the data and my understanding of it. In some cases, this was resolved through follow up conversations with the interviewer where they were asked about specific interviews and responses, and asked to recall more of what the participant had said. Though relying on recall obviously introduces its own issues in terms of reliability.

4.2.2. Focus group discussions

A total of nine focus group discussions were carried out between November 2022 and February 2023. One at Owino Market in Kampala District, Kasenyi Landing Site, Wakiso District, and Katebo Landing Site, Mpigi District, and Buluba Landing Site, in Mayuge District, and two at Kiyindi Landing Site, Buikwe District and three at Katosi Landing Site, Mukono District. A total of 107 people were engaged in the study via the focus group discussions: 63 women and 44 men. The participants varied in occupation including fishers, boat owners, fish processors and traders, though they were mostly fish processors and traders. Table 6. provides a basic description of the participants in each focus group discussion.

4.2.2.1. The research in practice

Six of these focus group discussions (FGD1-6 in Table 6. below) were carried out (in what I will refer to as the first phase of focus group discussions) before the research questions were changed (as described in Chapter 1), and intended to explore access to and use of digital technologies and their influence on trade relations. These focus group discussions were planned in response to the issues faced conducting the individual interviews and were included to compensate for the lack of depth the individual interviews produced.

A focus group is essentially an interview with multiple interviewees, and can be used to explore how people, in conjunction with one another, interpret a general topic

(Bryman, 2012). A qualitative focus group provides a relatively unstructured setting for members of a group (usually based on a shared characteristic e.g. gender, age or livelihood) to discuss certain issues, express individual (and perhaps differing) views, respond to, and build upon each other's views and construct meanings of a particular phenomenon (Bryman, 2012). This group format is expected to allow a researcher to develop a deeper understanding of why people feel the way they do and produce more interesting findings than the more predictable 'question-followed-by-answer' approach of many interviews (Bryman, 2012). Therefore, these focus group discussions were included to gather more contextual, but generalised community-level information about the study area, trade and relational dynamics, and to help make sense of the individual interview data.

Group discussion was guided by a list of broad open-ended questions designed to generate discussion among the group and where necessary more specific, probing questions (see Annex B). The questions covered similar themes explored through the individual interviews to facilitate the triangulation of data. However, the focus group discussions were less structured by the question guide than the individual interviews, to allow some flexibility for participants to direct the discussion and to further investigate meanings and interpretations producing rich and valuable data (Punch 2005). The questions were first asked in English, then translated to Luganda by the facilitator, respondents answered in both English and Luganda, and participant responses were summarised by the moderators, allowing me to also moderate the discussion. On average the focus groups lasted 58 minutes but ranged from 35 minutes

to 84 minutes. These focus group discussions were all audio recorded, and later translated and transcribed into English.

Three of the focus group discussions, at Owino Market in Kampala District (FGD5), Kasenyi Landing Site in Wakiso District (FGD1), and Katebo Landing Site in Mpigi District (FGD4), were conducted with participants attending a GIZ Business Development Services (BDS) Project training event on fish processing, value addition and food safety, which was facilitated by the Federation of Fisheries Organizations Uganda (FFOU) and UNWFO. The focus group discussions were moderated by at least two people. The moderators were on the UNWFO Board of Directors and were also there to conduct the project training activities. The study took advantage of these training events which had already recruited large numbers of people. Engaging a large group of people is often challenging when organising focus group discussions. Furthermore, in comparison to other qualitative methods, such as individual interviews, focus groups are often more expensive when considering incentive payments for participants, travel expenses for moderators and participants (Morgan et al. 1998). Therefore, utilising the training event participants was convenient and cost-effective.

However, a lot of people attended the training events (20 participants in FGD1, 15 in FGD4, and 22 in FGD5) and so a lot of people were also present for the focus group discussions. This made it difficult for everyone to meaningfully participate and more challenging for the moderators to focus discussion. This is not surprising since the

participant numbers far exceeded the ideal numbers for focus group discussions, suggested as between six and eight (Morgan et al. 1998). The focus group discussion was particularly challenging in Owino Market (FGD5), a crowded and noisy marketplace, where it was difficult to hear some people. As a result the participants closer to the moderators contributed more than those further away, perhaps because they couldn't hear the moderators.

These focus groups were also mixed gender, which was unexpected and not in line with the original research plan. The original plan was to target women participants, to understand how women access and use digital technologies and women's perspectives and experiences in terms of how digital technologies impact their relations with other value chain actors. However, this was embraced and including the perspectives of men provided a more holistic understanding of trade relations and gendered power dynamics in the study areas. However, where men were dominant in the focus groups (i.e., in FGD4 and FGD5) they naturally led the discussion. However, the women participants were directed to contribute by reflecting on whether their experiences or opinions were the same or different than those just discussed by the men. This generally didn't happen without some direction from the moderators. In the groups dominated by women the men present contributed their opinions without much direction.

The remaining three focus group discussions that were also carried out during the first phase of research were conducted in Buluba Landing Site, in Mayuge District (FGD6), in

Katosi, Mukono District (FGD2), and in Kiyindi, Buikwe District (FGD3). The same question guide (in Annex B) which focused on trade relations, power dynamics and digital technologies was used to conduct these discussions. However, these discussions were conducted with members of local level groups for women fish processors and traders who were affiliate members of UNWFO. The groups were contacted by UNWFO in advance to ask if they would be willing to participate. These local level groups were purposely sampled to compliment the data previously collected from individuals at these landing sites. The participants in the group in Buluba were all women, and in Katosi and Kiyindi the FGD was dominated by women but with a few men also present. These discussions took place in meeting rooms at the landing site commonly used by the groups to host their group meetings. The discussions were moderated by the same UNWFO member, who conducted the individual interviews, and who is also a member of the women's group in Katosi – the Women of Hope Katosi Fish Processors Association.

In a second phase of focus group discussions, an additional three focus groups (FGD7-9) were conducted to explore the concept of trust in more detail, in response to the changes made to the research questions (introduced in Chapter 1 and discussed later in this chapter). These discussions were guided by an additional set of open-ended questions (see Annex C). The questions were designed to focus discussion on the factors that influence trust judgements and the characteristics that make someone trustworthy or untrustworthy. The question guide also included more specific or directed questions about how environmental uncertainty affects trust between actors

and how power imbalances or fairness or unfairness in the distribution of resources might affect trust between actors.

Two of these discussions were held in Katosi (FGD8 and FGD9) and one was held in Kiyindi (FGD7). Both groups in Katosi were mixed gender and mixed occupation, whereas the group in Kiyindi was a more homogenous group of women who trade and process Mukene. Participants were conveniently recruited in Katosi and the diversity of respondents created a lively discussion. However, participants in Kiyindi were purposively recruited to create a group of only women given the challenges of getting women to contribute in previous mixed gender discussions. This group provided an additional opportunity for women to contribute their perspectives. These discussions lasted between 65-74 minutes and took place in the Fisheries Offices at the landing sites and were moderated by an Assistant Fisheries Inspector¹¹ who works at Kiyindi Landing Site. Each participant was facilitated with 10,000 UGX (2.5 USD) based on recommendations from the moderator.

¹¹ The Assistant Fisheries Inspector was taken on in the second-phase of data collection (after the research questions had changed) to replace the UNWFO member, who was previously employed to assist with data collection, as they became too busy in the new year working on another project to continue to work with me. The Assistant Fisheries Inspector was recommended to me by another UNWFO member with whom I had interacted during the BDS project training events, and who is also employed as a Fisheries Inspector at Kiyindi Landing Site. The Assistant Fisheries Inspector had recently completed a Masters in Fisheries and Aquatic Sciences from Makerere University and had previous experience helping students conduct their research.

Table 6. Description of the focus group discussions and participants in each group.

Data source code	Location	Occupation of participants	Number of participants	Gender of participants	Additional description of participants
FGD1	Kasenyi	Fish processors (n=4) and traders (n=16)	20	Mixed (17 women, 3 men)	Participants at GIZ Business Development Services (BDS) Project training on fish processing, value addition and food safety
FGD2	Katosi	Fish processors and traders	9	Mixed (8 women, 1 man)	Members of Women of Hope Katosi Fish Processors Association Including one woman boat owner
FGD3	Kiyindi	Fish processors and traders	7	Mixed (2 men, and 5 women)	Members from Kiyindi Women Fish Processor's Association and 'Ebigwatebilaze' group for Silver Fish Included one women boat owner

FGD4	Katebo	Fish processors	15	Mixed (10 men, 5 women)	Participants at GIZ Business Development Services (BDS) Project training on fish processing, value addition and food safety
FGD5	Owino Market	Fish traders	22	Mixed (3 women, 19 men)	Participants at GIZ Business Development Services (BDS) Project training on fish processing, value addition and food safety
FGD6	Buluba	Fish traders	8	Female	Members of Buluba Twekembe Fish Suppliers Included gear owners (i.e., nets).
FGD7	Kiyindi	Fish processors and traders	9	Female	All deal in Mukene - 3 trade Mukene, 2 sun-dry Mukene, and the rest do both Included a group of women who collectively own a boat.

FGD8	Katosi	Mixed (1 boat owner, 6 traders)	7	Mixed (3 men, 4 women)	<p>P1 - Male boat owner, owning 2 boats</p> <p>P2- Male Trader - trading between 50kg -300kg per day</p> <p>P3 - Male trader dealing in Nile Perch</p> <p>P4 - Woman fish trader - selling to local markets - trades a maximum of 200kg per day</p> <p>P5 - Woman trader - trades a maximum of 500kg per day</p> <p>P6 - Woman trader - trades between 50-100kg a day - sells to a factory in Entebbe</p> <p>P7 - Woman trader - trades 300kg maximum per day.</p>
FGD9	Katosi	Mixed (9 fish traders and 1 fisher)	10	Mixed (6 men, 4 women)	<p>P1 - Male trader - trades 10-250kg per day</p> <p>P2 - Woman trader - trades 20 kg on a normal day, 30kg on a good day</p> <p>P3 - Male trader - trades</p>

					between 200kg and 2000kg per day
					P4 - Male trader - trades between 2kg and 500kg per day
					P5 - Woman trader - trades between 3kg and 36kg per day
					P6 - Fisher
					P7 - Male trader - trades 20kg on a good day
					P8 - Male trader - trades 20kg on a good day
					P9 - Woman trader - trades between 5kg and 50kg per day
					P10 - Women trader - trades 20kg on a good day

4.2.3. Semi-structured individual interviews

Semi-structured interviews were carried out between November 2022 and February 2023 with five people in total, one woman boat owner in Kasekulo Landing Site, Kalangala, one male fish trader, one male fisher and boat owner, and two male boat owners in Katosi landing site.

4.2.3.1. Research in practice

Unlike the structured interviews, I was present for these interviews to mitigate any technical issues with the audio recorder, as happened during the structured interviews. I also played a more active role in the interviews. I asked the questions first in English and they were then translated by the facilitator. Respondents answered in Luganda and the facilitator summarised their responses in English so that I could follow the conversation, ask follow-up questions where necessary and have more control over the direction of the conversation. The semi-structured nature of these interviews allowed me to further investigate participant's responses producing richer data than the structured interviews. These interviews were all audio recorded and later translated (where necessary) and transcribed into English. The length of the interviews ranged from 12 to 35 minutes.

One interview was conducted with a woman boat owner in Kasekulo Landing Site, Kalangala (IS1). The boat owner was a participant at the previously mentioned GIZ Business Development Services (BDS) project training. The interview was facilitated by one of the BDS project training staff. Originally, the intention was to conduct a focus group discussion with training participants, like those that were carried out at other landing sites during the BDS project training events. However, on this occasion there was limited time in the training schedule to do this. Instead, this individual was asked (along with two other boat owners who participated in a group interview, as explained in the section to come) if they would be willing to step out of the training session to

participate in the interview. They were purposively recruited as a woman boat owner as very few of the structured interviews had captured information directly related to women's experiences as boat owners. Though other structured interviews had gathered information from a few women fish processors and traders who own boats (four in total). The participants did not receive any form of payment as their time was already being compensated through the BDS project. Since I expected to be conducting a focus group discussion, I had to use but adapt the focus group question guide (in Annex B) to carry out the interview with the boat owner. This interview was conducted before the changes to the research questions were made (as described in Chapter 1) and so focused on the boat owner's relations to other value chain actors, including the boat crew and fish buyers, as well as her access to and use of digital technologies.

The remaining interviews were conducted after the changes to the research questions were made and were all conducted at Katosi Landing Site. Three were facilitated by an Assistant Fisheries Inspector, employed at Kiyindi landing site by the DFR, and one was conducted in English without a facilitator (IS3). Unlike each of the focus group participants (at least in the second phase of FGDs), each participant received a facilitation payment of 10,000 UGX (2.5 USD).

For this exercise, male fish workers, in occupations across the fish value chain, were purposively recruited since the changes to the research questions had widened the study population to include men, and the structured interviews collected in the first phase of data collection were conducted with women only. In Katosi Landing Site, the

Fisheries Inspector, employed at the landing site, who is also on the UNWFO Board of Directors, assisted with the recruitment of participants. She was asked to identify specific groups of people based on their gender and occupation, who would therefore have specific perspectives on and experiences of the topic. The interviews were conducted in the office of the Fisheries Inspector at the landing site. Despite being in a government building, the participants still talked openly about the challenges they face with enforcement officers and fisheries regulations. Participants stated during the research activity that they trusted the Fisheries Officers working at the landing sites which could explain why they felt comfortable to talk about these issues, or they adapted their responses in this environment to talk positively about the work of individuals, but criticised broader systems.

4.2.3.2. Research participants

Table 7. below provides more information about all five semi-structured interview participants. Four participants owned boats, three of them men and one woman, two owned just one boat but the others owned more than five boats. All the individuals primarily targeted Nile Perch, however, the woman boat owner at Kasekulo Landing Site, Kalangala, also targeted Tilapia. All four boat owners typically sell their fish to agents who, in turn, supply fish processing factories. The fifth participant (IS3) was a large-scale fish trader (fish agent) who deals with over 50 fish suppliers and delivers around 30 tonnes of fish per week to fish processing factories.

Table 7. Description of participants in individual semi-structured individual interviews

Abbreviation	Location	Occupation of participant	Gender of participant	Additional description of participant
IS1	Kasekulo	Boat owner	Female	<ul style="list-style-type: none"> • Targets Nile Perch and Tilapia • Sells to a fish agent/middleman who sells to fish processing factories
IS2	Katosi	Boat owner and fisher	Male	<ul style="list-style-type: none"> • Targets Nile Perch • Fishes on his boat • Sells to truck owners/fish agents who supply fish processing factories, and from whom he receives credit in return for regular supply
IS3	Katosi	Fish trader (Large-scale)/Fish agent	Male	<ul style="list-style-type: none"> • Deals in Nile Perch • Buys from fishermen or boat owners • Works with 50-70 fish suppliers some of whom they supply with

				<p>credit (between 1 -30 million UGX per week)</p> <ul style="list-style-type: none"> • Supply 30 tonnes per week to fish processing factories.
IS4	Katosi	Boat owner	Male	<ul style="list-style-type: none"> • Targets Nile Perch • Owns 5 boats • Fishes on one of the boats he owns • Employs 2 people to work on each boat • Catches nothing on bad days, on a good day catches between 30kg - 50kg per boat • Sells catch to truck owner/large-scale trader from who he receives credit in return for regular supply
IS5	Katosi	Boat owner	Male	<ul style="list-style-type: none"> • Targets Nile Perch • Owns 6 boats • Fishes using nets – each boat carries 60 nets. • Employs 2 workers on each boat

				<ul style="list-style-type: none"> • Catches an average of 15kg per boat per day • Sells to one specific truck owner who he has worked with for 7 years
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4.2.4. Group interviews

Thirteen group interviews were conducted in total, one with women boat owners in Kasekulo, Kalangala, and in Katosi and Kiyindi a larger number of group interviews were conducted; six with male fish traders, four with boat crew, and two with male boat owners. The group interviews were conducted with varying numbers of people from two in the smallest group to eight in the largest group. Table 8. includes a brief description of the group interviews, including the number of participants in each group, their occupation and gender. More details regarding the participants in the group interviews are included in Appendix A. Through the group interviews, 58 people were engaged in the study: 56 of them men and just two women.

Group interviews in this study are referred to as such because they were designed to gather individual responses and interaction between participants was kept to a minimum. Whereas, in the focus group discussions interaction between participants was encouraged to generate collaborate conversations and the questions were

designed to gather community or group level perspectives (Bryman, 2012). These group interviews were conducted to produce individual level data from a larger and more diverse number of participants to be compared with the community-level data produced by the focus group discussions.

4.2.4.1. The research in practice

The group interview with two women boat owners in Kasekulo Landing Site, Kalangala (G2), was conducted alongside the aforementioned GIZ Business Development Services (BDS) Project training event on fish processing, value addition and food safety. The interview was facilitated by one of the BDS project training staff and audio recorded and later translated and transcribed into English. As previously explained, one semi-structured interview and this group interview was conducted instead of a focus group discussion with BDS project training participants. The women boat owners were purposively recruited to gather information directly related to women's experiences as boat owners. The participants did not receive any form of facilitation as their time was already being compensated through the BDS project. The focus group question guide was also adapted and used to guide the group interview with the boat owners, as I had not, at this stage, prepared a question guide for group interviews or semi-structured individual interviews. Similar to the individual interview in Kasekulo, this group interview focused on the boat owner's relations to other value chain actors, including the boat crew and fish buyers, as well as her access to and use of digital technologies.

The remaining group interviews were conducted after the changes to the research questions were made and were conducted at Katosi and Kiyindi landing sites. They were intended to be one-on-one interviews (like the four semi-structured interviews conducted: IS2-IS5) but in practice they became group interviews as other people joined in. This was embraced rather than resisted. The participants were opportunistically sampled throughout the working day. Their time was limited, especially that of the traders, so rather than ask them to wait for one interview to finish, and risk participants dropping out as they waited, they were invited to participate together in a group setting. This was only accepted if participants shared characteristics such as their occupation as I had designed separate interview guides for each occupation; fisher, boat owner and trader/processor. As a result, the group interviews consisted of a more homogenous group of people than the focus group discussions which involved a more diverse group of people based on their occupation and gender.

The group interviews conducted in both Katosi and Kiyindi were all facilitated by the Assistant Fisheries Inspector, working at Kiyindi Landing Site and were all conducted in buildings belonging to the Fisheries Office at the landing site. Each participant received a facilitation payment of 10,000 UGX (2.5 USD). In Kiyindi, the facilitator identified people for recruitment. In Katosi, the Fisheries Inspector, employed at Katosi landing site, who had previously assisted with participant recruitment, offered her help again to identify participants for group interviews. Both individuals were asked to purposively select groups of people based on their gender and occupation who would

therefore have a specific perspective on the topic. Participants were conveniently sampled from the area around the official fish landing site. These group interviews were all audio recorded, and later translated and transcribed into English.

The group interviews, in the second phase of data collection, were designed to target fishing crew, boat owners, and men fish traders and processors. All the fishing crew interviewed were men, reflecting socio-cultural norms where fishing is perceived as a man's job, and taboos that restrict the roles of women on the lake (Gee et al. 2023). Whilst I tried to engage both men and women boat owners in the group interviews, women boat owners were harder to identify, reflecting broader community ownership patterns (Nunan et al. 2020). As a result all the boat owners engaged in the group interviews were men. However, some women boat owners from Katosi and Kiyindi did engage in the focus group discussions (FGD2, FGD3, and FGD7). Male fish traders were purposively identified since a substantial number of women traders had already participated in the study via the structured individual interviews, conducted during the first phase of data collection.

The interviews were broadly guided by a list of pre-determined questions in the form of an interview guide. I created a separate guide for interviews with fish traders (see Annex D), fishing crew (see Annex E), and boat owners (see Annex F). Though the general theme of the questions were consistent across the guides. Participants were first asked to explain the work that they do, including the species they deal in and to describe the scale of their operation through the quantity traded per week, or fish

caught per day. This information was used to provide more situational context to their later responses. The guide included questions about how fishers or boat owners select their fish buyers, and why; what makes a good relationship, and what makes a bad relationship with fish suppliers or buyers; who has the most power/influence in a particular relationship and financial arrangements between actors. However, the nature of the questions were open ended and probing questions were used when deemed convenient to ask the participants to develop certain narratives (Dunn 2010). In line with a semi-structured interview approach, the group interviews were flexible enough to deal with themes as they emerged in the interview setting and the interview sometimes took a detour as a participant introduced themes outside of the interview guide which provided contextually rich data.

Like the focus group discussions and the semi-structured interviews, I was present for all the group interviews and played an active role in the data collection process. The questions were initially asked in English, then translated by the facilitator. Participants answered in Luganda and, in some cases, English, and their responses were summarised in English by the facilitator. The length of group interviews ranged from 20 to 79 minutes.

The group interviews were carried out in a relatively limited number of locations in comparison to the focus group discussions and structured individual interviews. The second phase of data collection, including most of the group interviews, focused data collection on Katosi and Kiyindi Landing Sites because these are large landing sites and

so it would not be difficult to identify participants. I also had a good working relationship with the Fisheries Officers at both landing sites. Furthermore, people working at the landing site were already knew me and why I was there, as I had visited the landing sites several times between November 2022 and February 2023 (approximately four times in Kiyindi and three times in Katosi). This made recruitment easier. Those who had already participated in the study were able to reassure others about the process. Though as a result, the study became dominated by perspectives from Katosi and Kiyindi, two relatively well-connected, gazetted landing sites, and engaged fewer participants from more isolated landing sites like Kasekulo Landing Site, in the Sese Islands, or less-developed landing sites like Buluba Landing Site, in Mayuge District.

Table 8. Description of the group interviews, including the number of participants in each group, their occupation and gender.

Data source code	Location	Occupation of participants	Number of participants	Gender of participants
G1	Katosi	Fish traders	2	Male
G2	Kasekulo	Boat owners	2	Female
G3	Katosi	Fish traders	3	Male
G4	Kiyindi	Fishing crew	2	Male

G5	Kiyindi	Fishing crew	7	Male
G6	Kiyindi	Fish traders	3	Male
G7	Kiyindi	Boat owners	6	Male
G8	Kiyindi	Fish traders	8	Male
G9	Katosi	Boat owners	4	Male
G10	Katosi	Fish traders	5	Male
G11	Katosi	Fishing crew	6	Male
G12	Katosi	Fishing crew	6	Male
G13	Katosi	Fish traders	4	Male

4.2.5. Field notes

Field notes were also taken to capture additional information from interactions and observations, about the location of the study and recruitment efforts, as well as personal thoughts, ideas and queries. Brief notes were taken in a paper notebook at the study locations and during the interviews or focus group discussions, whereas more detailed notes and critical reflections were created shortly after, when I had returned home from 'the field'. Field notes were scanned into digital form on a weekly basis and stored securely alongside other study data including audio recorded data and transcripts. The field notes were revisited during data analysis to provide important perspective on participants' responses, such as spatial or temporal context. It is widely recognised that knowledge is situated; that knowledge is embedded in, and thus affected by the historical, cultural, linguistic and value context of the knowledge

holder (Punch, 2012; Heidi, 2018). Social locations, as well as social identities and social position, shape one's perspective on the world, through differential experiences (Heidi, 2018). Field notes, widely used in ethnographical research, aid in constructing thick, rich descriptions of the study context that help researchers to situate knowledge (Phillippi and Lauderdale, 2018). Field notes also provide an important space for evaluating the research process, including critical reflections on the researcher's performance and influence over data collection and as such, support rigorous and trustworthy qualitative research (Browne, 2018; Punch 2012; Galdas 2017).

4.3. Data processing and analysis

Audio recorded data from the semi-structured interviews, group interviews and focus group discussions was translated, where necessary, and transcribed into textual form. Each transcript was saved as a Microsoft Word Document. Translations and transcriptions were conducted by the Kutamani Agency, a research and consultancy agency registered in Uganda. Notes taken by the interviewer, in English, during most of the structured individual interviews were transferred into digital form. Responses from each participant, for each question, were inputted into a Microsoft Excel Spreadsheet in their raw format. Participants were organised in rows, and responses were recorded in columns below each question. Audio recorded data from the few structured interviews that were successfully recorded was translated and transcribed into textual form, in MS Word firstly and later inputted into MS Excel with the other interview data.

Firstly, the classifying data from the structured interviews with 36 individuals was analysed in MS Excel to provide some descriptive statistics and visual representations of respondent characteristics. Informally, the analytical process began as soon as I started to read through the notes and transcripts from the 36 structured interviews and input them into MS Excel. This process continued throughout the data collection phase as 'patterns of meaning' started to appear in participants responses (Braun and Clarke, 2006). My reflections on the key themes that appeared through this initial analysis was what led to the changes in research focus and design described in Chapter 1. Furthermore, the semi-structured style of the latter data collection methods provided opportunity for the questions and topics of discussion to be influenced by the data that had already been collected, and themes that had already been identified.

Secondly, the full transcripts for the semi-structured interviews, group interviews and focus group discussions were inputted into NVivo, a computer software programme that assists researchers in managing, analysing, and visualising qualitative data. The data from each participant in the structured interviews was also extracted from MS Excel and saved as 36 MS Word documents which were also inputted into NVivo.

NVivo's basic functions were used to assist with managing and analysing the data. A thematic narrative analysis was used to analyse the data (Braun and Clarke, 2006). I read through each file in NVivo and assigned qualitative codes (in NVivo these are 'nodes') to responses that reflected the theme of discussion. Appendix B. displays a list

of the codes that were used in NVivo to thematically organise the data for analysis.

Many of these codes were theoretically driven and related to the concepts examined in the literature review and featured in the conceptual framework in Chapter 3. They included “capital as power to”, “debt and power over”, “fish buyers power over”, “character-based trust” and “process-based trust”. NVivo created a file for each code in which each extract could be traced to the data file. This helped with data management.

After coding the data, the codes were organised under the three research questions which correspond with the three empirical chapters. Then for each empirical chapter, the data for each code was transferred into an MS Word document. This created a large document with many coded extracts symbolising the same theme. These documents were used to start the writing process. Analysis continued throughout the writing process. Themes and sub-themes were bound together to structure the discussion and create a coherent story. The full transcripts were re-read or checked again if more contextual information was needed. As such, the analytical process was iterative and recursive, rather than linear.

4.4. Presentation of the research

In the following chapters the participants are referred to according to their position such as fishing crew, boat owner, fish trader, fish processor, or based on the form of their participation such as focus group respondent or group interview respondent. The

latter is used where it was not possible to identify specific characteristics of the respondent in group interviews or focus group discussions. Though attempts were made to do this in the transcription process by labelling respondents by numbers within the transcripts.

Within the written text abbreviations are used to represent the data source e.g., IN1, G2, FGD3, IS4. The abbreviations used for each data source are featured in Appendix C. The abbreviations are used as a style of referencing so that the written findings can be traced back to the data source. In addition, referencing the findings with the data source was used to demonstrate how many respondents said something resembling this and therefore the prevalence of an experience or perception within the study population. Where a longer extract or quote is used the occupation of the respondent is used in combination with the landing site location and data source abbreviation. Some extracts feature a dialogue between respondents or the respondent and the interviewer. Field notes are referenced as 'FN' followed by the location they relate to.

4.5. Ethical issues

The study received ethical approval on 03/02/2022 from the University of Birmingham's Humanities and Social Sciences Ethical Review Committee (Internal reference: ERN_20-1233C). Further ethical approval was achieved on 18/05/2022 from the Makerere University School of Social Sciences Research Ethics Committee (Internal reference: MAKSSREC 05.22.560). This required that formal consent was secured for

each participant. An information sheet, available in English, Luganda and Lusoga was offered to participants alongside a verbal reading of the document. The document included details about the project including why the research is being conducted, by whom, what it will involve, confidentiality terms, data protection and participants' right to withdraw. After reading the information sheet participants were asked if they understood what they would be agreeing to, and if they have any questions. Finally, verbal or written consent was established. The confidentiality and anonymity of participants was ensured by removing, substituting or generalising direct and indirect identifiers.

The research project received approval from the Uganda National Council for Science and Technology on 02/08/2022 for a period of one year (Internal reference: SS1220ES).

4.6. Positionality and critical reflexivity

Researchers (e.g., Rose 1997; Jackson 2001; Dowling 2010) have emphasised the importance of recognising, reflecting upon, and taking account of our own position as researchers, unequal power relations and the way it impacts the research process and the data produced. Researchers have commonly addressed these concerns by practising 'critical reflexivity' and considering their 'positionality' in relation to the research participants as an important part of the research process (Dowling, 2010; Jackson 2001).

In this research there were several themes that became important through the lens of positionality. They were my gender, association with the UNWFO and status as a non-Ugandan.

Authors have criticised international development fieldwork as an extractive, neo-colonial exploitation of knowledge from participants (Scheyvens, 2014). Scheyvens (2014) goes as far as to refer to this practice as 'rape research' – research used exclusively in the interests of the researcher's own career. I cannot escape these power relationships as a white, educated, westerner, travelling to Uganda. It is a country I had never been to before, to participate in what Scheyvens (2014) calls 'academic tourism'. During data collection participants rightly challenged me by asking why they should participate in my research and how it will benefit them. Every time I struggled with this question because as much as I tell myself and the participants that I am doing research for their benefit - to provide information, add to understanding, to stimulate and inform action - I cannot 100% guarantee that my research will do this or benefit anyone except myself and my academic career. Although I can do my best to ensure that the research is published, read, shared, and used beyond the walls of academia, I have very little power to ensure that people (e.g., government, donors, etc) act to better the lives of the people or communities I have engaged with. Perhaps participants were more likely to believe this because they knew of my association with the civil society organisation UNWFO. When I was designing my research, I made real attempts to ensure that my research was relevant, with foreseeable practical implications. I discussed my research at many stages with academics, civil society

groups and women fish workers. I presented my research plans at the International Conference on Artisanal Fisheries, in Jinja, Uganda, in September 2022, and took on board the feedback I received before beginning data collection. I had meetings with the Board of Directors for the Uganda National Women's Fish Organisation (UNWFO) to hear their thoughts on my research plans, and later get their feedback on my research tools. By doing this with the UNWFO, it helped to gain their trust in me and my intentions, and build their sense of ownership and thus belief and investment in the research. I was really energized by their responses, happy that they were onboard with the study, that they too thought it was important and were willing to work with me. I hoped that working with them would help to convey the findings in spaces beyond my reach and beyond academia, through the networks and relationships UNWFO have with government, donors, and international development organisations. To assist with this, I have promised to work with UNWFO to produce more practical outputs including briefings, and policy-focused documents. It was easier to foresee how the study's findings could be translated into practical tools when the research focus was on women's access to and use of digital technologies as it had more direct links with UNWFO's work and strategic plan, and responded to the buzz in the international development programme/project arena around digitalisation. This consideration significantly influenced the focus on digital technologies. However, the first phase of data collection, including 36 structured interviews, six focus group discussions, one semi-structured interview and one group interview, still provided useful information that could be communicated in a brief report, as intended. I also believe that the information this study produced on power and trust and their

influence on trade and labour relations still has important implications for UNWFO's work and aims as an organization, particularly the findings around gendered power and trust relations.

Despite my attempts to reduce the extractive nature of international research by involving national institutions in the research process (i.e., the study design, and data collection by recruiting UNWFO members as interviewers), so that the research outcomes stay or are made useful in Uganda, unequal power relations are inescapable in this research context (McDowell, 1992). As the researcher, I have control over the research process and final products – ultimately the research is a product of what I think is important or interesting to ask and include.

At times I think it was likely that my association with UNWFO, an organisation that supports women's rights within the fisheries sector, as well my position as a western woman, censored some of the men's discussions around gendered power relations. Participants likely assumed that I was a feminist and would therefore disagree with some of the things they would say about women and their relations with men. Furthermore, I got the impression that the interviewer, a young man, also felt awkward relaying some of these opinions to me and discussing issues around fish for sex. The topic of fish for sex often encouraged a lot of giggling and laughing, and many of the jokes shared among the men, the interviewer chose not to share with me. Such topics did not create the same behaviour among women.

My position as a foreign researcher, visible through my race, as well explained during the recruitment process, had some advantages for the research process. As a non-Ugandan, I think that participants were happy to or felt it necessary to over-explain certain practices and scenarios, so that I would fully understand the context they believed I was unfamiliar with. This had advantages in terms of the depth of information I was able to gather. In addition, I think that my position as a non-Ugandan made participants feel more comfortable to share their opinions on fisheries governance, specifically the activities of the Uganda People's Defence Force-Fisheries Protection Unit (UPDF-FPU) because I was not perceived as representing the interests of the Ugandan government. However, the presence of the interviewers, particularly the Assistant Fisheries Officer, a civil servant, made participants question whether the information they divulge would be taken to the government. Participants were assured of their anonymity but expressed that *“the problem we as fishermen face with being asked such questions, is that they end in the government and by the time word gets back here they'll start to speculate on which persons participated in such sit-downs in this office”*. These fears reflect the current political context in Uganda – one of political repression; including intimidation, harassment, and attacks on journalists and NGOs that impact public perceptions of the government (Human Rights Watch, 2012; Amnesty International, 2020). During my time in Uganda, many people discussed there being spies in communities, who report back to the state. Tapscott (2015) also reported this fear that “everyone in Uganda is a spy” (p13) and received similar questions from their respondents about how the data would be used. Speaking critically about fisheries governance has real risks. However, several news articles have

been published every year since the UPDF-FPU was introduced to the lake, in which fishers report military officers – government employees – of wrongdoing. Perhaps these articles created a space for the respondents to talk about the same issues because they have already been exposed in the public sphere.

4.6.1. Time spent in ‘the field’ and its influence on the research process

Scientific knowledge is also situated in research relations and positionalities and therefore, knowledge produced through research is always contingent and partial (Haraway, 1988). ‘The field’ is constituted through practice and interaction rather than a ‘pre-existent and stable place awaiting discovery by the field researcher’ (Sharp and Dowler, 2011; 146). What and how we know is fundamentally developed through the configuration of method, positionality and research relations (Hauserman and Adomako, 2011). In the paragraphs that follow I openly acknowledge and reflect on the formal and informal relationships built and that shaped my experiences and perspectives of ‘the field’.

In August 2022 I travelled to Uganda for the first time. Soon after I arrived, I travelled from the capital city of Kampala to Jinja, in the Eastern region of Uganda. Jinja is the second largest city in Uganda, after Kampala, and located on the banks of the River Nile, and north shore of Lake Victoria. Before travelling I had decided to base myself in Jinja during this period of fieldwork due to its proximity to the lake, and several of the pre-identified fish landing sites, and the presence of key institutions located in the city – the Lake Victoria Fisheries Organisation (LVFO) and the National Fisheries Resources

Research Institute (NaFIRRI). I conducted my data collection activities between November 2022 and February 2023, but remained in the country during my writing-up period, and returned to the UK in December 2023.

I spent most of my time in Uganda in Jinja, a large but relatively tranquil metropolitan area (compared to Kampala), with a relatively large expatriate community and a popular destination for tourists interested in visiting the Source of the River Nile. In essence, Jinja is a drastically different social, cultural and physical environment to the villages and communities at the fish landing sites this research relates to. Hence, whilst I have spent a relatively long amount of time in Uganda (16 months), during which I learnt a lot about the general cultural, social, and political context which undeniably aided my understanding of and interpretation of the collected data, my experience of Uganda, is mostly of Jinja, which is far removed from the realities and context at fish landing sites. In fact, between arriving in Uganda in August 2022 and completing data collection in February 2023, I have only spent a total of 17 days at fish landing sites observing and interacting with people from these communities and conducting formal data collection activities. The time I spent at landing sites was limited for multiple reasons; firstly, for reasons explained in Chapter 1, I did not accompany the research assistant from UNWFO when they were conducting the structured individual interviews during the first phase of data collection between September and October 2022; secondly, due to an Ebola Outbreak in Uganda first declared in September 2022 and which lasted until January 2023. The outbreak affected some of the districts where my research sites were located (Jinja, Kampala and Wakiso) and caused (both myself

and the university) considerable apprehension about travelling and conducting research.

I am declaring these details to de-essentialise and de-mystify my time in ‘the field’.

Based on the amount of time I spent in Uganda alone, people might assume my experience was akin to ethnographic fieldwork, or hold some romanticised idea of me living in, and among rural fishing communities. However, this was not my experience. Nevertheless, being in Uganda for this length of time allowed me to participate in several other activities outside of my planned research activities, including Jinja Fish Festival, and various internal and external events organised by the Uganda National Women’s Fish Organisation (UNWFO), which provided additional insight regarding the Ugandan fisheries context, broadly. This time also offered me the opportunity to build strong professional relationships. Aside from my interactions with the UNWFO for the purposes of my research, I offered my support to the organisation and assisted them with grant writing and project development activities on a voluntary basis. Eventually I became recognised as an Associate Member of the organisation and was added to the UNWFO WhatsApp chat which includes community leaders, representatives from government agencies and academics. Through the relationship I built with UNWFO I also became privy to ‘insider’ information that also furthered my knowledge of the context of my study, and experienced preferential access to ‘gate keepers’ and research participants. Brasher (2020) explains how they similarly built trust and formed a working relationship with a non-academic collaborator by assisting the organisation with written tasks and their English language skills. According to Brasher (2020) this

formed part of what Derickson and Routledge (2015) refer to as a form of 'scholar-activism', whereby scholar-activists channel the resources and privileges afforded to academics to advancing the work of non-academic collaborators.

Over time my professional relationships with people working in the fisheries sector in Uganda developed into social relationships. I regularly met friends who worked on the German Development Agency (GIZ) on the Responsible Fisheries Business Chains Project (RFBCP), as well as members of the UNWFO who I had spent significant time with during our overnight travels to more remote landing sites, in Kalangala for example. The informal conversations that I have had with these 'key informants' have inadvertently influenced my understanding of the context and interpretation of the data. I am also in a relationship with a Ugandan, who grew up on the shores of Lake Kyoga and Lake Victoria, where he himself participated in fisheries work, in addition to his mother, a fish processor and trader. During our relationship my partner has shared stories with me about his or his mother's experience that have also shaped my understanding of fishing livelihoods and communities in Uganda. Having access to someone with this experience during data analysis, to be able to query and discuss certain information with to make better sense of socio-cultural nuances and meanings, was also a privilege.

4.6.2. The gradual inclusion of men as data collection progressed

The research set out to investigate how women fish processors and traders' access and use digital technologies, and their impacts on women's livelihood relations and livelihood outcomes (as explained in Chapter 1). Hence, the research participants were intended to be women. However, along the way men were introduced as study participants, first unintentionally, and later intentionally. In the first instance men were included because of their presence at the GIZ Business Development Services (BDS) training events, which were piggybacked on to conduct the focus group discussions (as previously explained). These training events were on fish processing, value addition and food safety, and thus primarily designed to benefit fish processors, the majority of whom are women in Uganda (Gee et al. 2023). I was also under the impression that the participants in the training events would be members of local-level groups for women fish processors and traders, who are part of the UNWFO network, given UNWFO's role in the delivery of the training. So, I assumed that the participants in the training would all be women and therefore, had no advance plans to address men's participation. This was naïve since whilst they are the minority, there are men who also engage in fish processing activities (13 captured in this study, representing 28% of all the fish processors engaged in the study), and men also participate in a significant number of women-led or focused groups for fish processors and traders at the local level (for example the Women of Hope Katosi Fish Processors Association includes 10 men, out of a total 55 members (Martha Nangobi, personal communication, 2024). In fact, participation in the training events, and thus the focus groups, were mixed - FGD1, FGD4, and FGD5 comprised 15%, 33%, and 86% of men respectively.

Arguably, the presence of men in women's groups and women-oriented projects in this context is illustrative of broader trends related to the growing talk of 'men in crisis' and 'troubled masculinities' (Chant and Gutmann, 2000). Due to the growing number of young, unemployed and low-income men in Uganda (UNDP, 2021), social inclusion projects commonly target the male youth population, in addition to women, as they are also considered especially vulnerable to insecurity and marginalisation (UN, 2020). However, there is significant discussion in the literature regarding the impact this has on women-oriented projects (Chant and Gutmann, 2000) and for women's and feminist struggles. For instance, Harrison (1997) critically analyses men's participation in women's groups as interlopers or allies.

Nevertheless, when presented with this situation, I decided to take the path of least resistance; I felt it would be inappropriate to ask the men to leave, and that it would be easy to adapt the questions to gather community-level perspectives on gendered power relations between value chain actors from both men and women, rather than gather group-level data on women's experiences of power, which would still provide useful information that could help answer the study's research questions.

Though, later in the study, the research questions were changed, and more men were purposively introduced through interviews with fishing crew, boat owners and male fish traders. These changes were made in response to the findings of the first phase of data collection – related to the realisation that women's use of digital technologies at the landing-site level was far more limited than expected, as well as the apparent

dominance of discussion around trust and power in livelihood relations (as explained in Chapter 1). However, the findings from this first phase of data collection were undeniably influenced by my decision to accept men participants even though they weren't part of the original inclusion criteria. For example, the inclusion of men may have influenced the dominance of discussion around trust and power in livelihood relations, and therefore the research direction thereafter. So, this off-the-cuff decision I made, which at the time seemed appropriate to the circumstances and fairly inconsequential, likely had a larger impact on the direction of the study than I foresaw. Gradually the research's feminist agenda was diluted and whilst the gendered dynamics of power and trust remain important to the completed research, gender-based discussions are less central than originally planned.

4.7. Critical reflections on data quality

The opportunistic sampling technique, used in Kiyindi and Katosi landing sites, during the third phase of data collection, which predominantly involved approaching people available around the interview location (fisheries offices within the fenced fish handling areas) potentially introduced some issues in terms of representativeness. From my observations, the areas within fish handling areas were dominated by men. These men were also more likely to work in the Nile Perch sector, as the primary purpose of the fenced fish handling areas is to monitor and control the handling of export-oriented Nile Perch. The sampling technique therefore might have introduced some selection bias, in terms of whose voices are heard. A large percentage (37%) of

participants in Katosi and Kiyindi engaged at this phase were men working in the Nile Perch value chain. Participants working in the Nile Tilapia and Mukene value chain were less well represented, 7% and 12% respectively. Efforts were made by the researcher to purposively target those working in the different value chains for recruitment, to avoid selection bias. However, this phase of data collection also intended to collect from fishing crew and boat owners (the majority of whom are men) and men traders. Therefore, the distribution of participants may just reflect the general dominance of the Nile Perch fishery at these gazetted landing sites, as reported by participants, and visible in the national frame survey.

Further selection bias, in relation to who decides whose voices are heard, could have also been introduced through the study's use of Fisheries Officers and leaders from the UNWFO to identify research participants. Whilst my association with UNWFO was instrumental for many reasons previously explained, these actors are not neutral, and intentionally or not, it is possible that these individuals could have prejudice participant representation. For instance, it's feasible that individuals identified by UNWFO for participation in the structured individual interviews were already known, to some extent, to UNWFO, for instance through their membership in local groups for women fish processors and traders, and association with UNWFO. Consequently, the data may represent the experiences of specific group of women, who are perhaps more 'empowered' - indicated by their financial capacity to pay group membership fees but also because of their participation in women's group activities - than non-members. Similarly, Fisheries Officers might have been biased in their selection of

respectable, reputable or law-abiding actors with whom they have good relations.

Such partiality could have limited the range of experiences captured in the study.

The data collection strategy also had weaknesses in terms of the depth of data it produced. In total, 55% of all participants' occupation in relation to the species they target was unrecorded/unspecified. Most of the unrecorded data comes from the focus group discussions, which gathered generalised community-level information. The question guides for the focus group discussions were not designed to collect disaggregated data according to species targeted but collected generalised data relative to trade and labour relationships. This information was also missing for some participants in group interviews with larger numbers of participants. In most cases, participants' information was not captured, in detail, as they joined the interview late. This missing information raises some concerns with the study's reliance on group interviews and focus group discussions - a consequence of the failed audio recordings of the structured individual interviews. The lack of species-specific data, for more than half of the study's participants, is problematic since the value-chains for each fishery are significantly different and thus, trade and labour relations also vary. However, these nuances are lacking in this data where participants' occupation was not effectively recorded. As a result, the study's findings are limited to some extent in their depth and thus, credibility, as the experiences of occupational groups are, in places, homogenised.

Chapter 5: How do actors within small-scale fisheries experience a plurality of power relations?

This chapter explores how actors within small-scale fisheries experience a plurality of power relations. In accordance with the conceptual framework developed in Chapter 3, power-to and power-over theories are utilised to understand an individual's capability to act for their own self-interest and the exercise of power in interpersonal relationships respectively. In addition, the analysis draws upon French and Raven's (1959) bases of power model to identify the different types of power people possess and can use in their interpersonal relationships. The power-dependency theory (Emerson, 1962) is also utilised to analyse the structural basis of power and to understand interactions between individuals. The research findings are discussed within their specific interactions; power relations between fish suppliers and fish buyers are discussed first, followed by a discussion of power relations between boat owners and fishing crew. Gendered power relations are also discussed.

5.1. Power relations between fish suppliers and fish buyers

This section analyses power relations between fish suppliers (i.e., fishers and boat owners) and fish buyers (i.e., fish traders, fish agents, and fish processors). Several factors are identified and analysed as shaping power relations between fish suppliers and fish buyers. This includes capital resources and debt relations, market conditions, geographical context, and gender.

5.1.1. Capital as a source of power for fish buyers

Relations between fish suppliers and fish buyers are shaped heavily by credit arrangements. Traders commonly provide fishers with capital on credit as a means of securing priority access to catches and a steady supply of fish. Respondents from this study explained that the capital invested in the production process varies, depending upon the fishery, the quantity of fish supplied by the investee and the investor's expectations. Some investors provide their suppliers with cash, others provide materials and equipment for fishing (e.g., nets, hooks, fuel, engines, boats) (G10; G13). These arrangements are generally informal (no contracts are written) and advanced payments are paid infrequently, while material and equipment are provided when needed i.e., once a net is damaged (G4). Investors stated that they generally don't provide suppliers with more money until their previous payment has been balanced or paid-off with interest (FGD7). Repayments are made through deducting an agreed amount from fish sales (as the passage below explains). One Nile Perch trader from Katosi stated that it can sometimes take investees a year to pay back a loan of three million UGX (630 USD), depending on their catches throughout the year (G10).

Interviewer: How long do they [fish suppliers] take to pay back 1 million?

Male Nile Perch fish trader, Kiyindi (G8): It depends on what we have agreed with him in that we can negotiate that for every 100kg he brings, we can decide

to deduct 500,000 or 300,000 depending on how we agree. So roughly if we use this mode of payment, after 2.5 months the money is paid back, or if the season is really good, if he brings a lot of fish, then we deduct all of the money he owes at once, you can also agree that I have given you 5 million, I reduce [they pack back] 1 million every time you supply me.

These findings are not dissimilar to other studies in small-scale fisheries in East Africa. In the Rufiji delta, Tanzania, Gibbon (1997) found that almost all the nets used were supplied on credit by fish buyers. Crona et al. (2010) and Ferrol-Schulte et al. (2014) in Zanzibar, and Matsue et al. (2014) in coastal Kenya, also found that the primary method of credit repayment is through fish sales – whereby the equivalent value of fish is deducted from the next purchase. However, Crona et al. (2010) also found that fishers in Zanzibar and Kenya also sell their fish at auction and repay their loans with cash. However, whilst some studies claim that no interest is charged on these arrangements, this study's findings were mixed; one woman Nile Perch boat owner, from Kasekulo, Sese Islands, claimed that the fish buyer from whom she receives capital investment accrues more interest than the bank (G2).

Like Crona et al. (2010), who found that fishers in Zanzibar who target high-value species such as tuna, kingfish or lobster receive larger loans, this study also observed differences in the credit extended depending on the species targeted and size of operation.

Respondents in the Nile Perch fishery reported giving or receiving anything between 300,000 UGX (84 USD) to 40 million UGX (11,148 USD) per week. One boat owner, in Katosi, explained that if he delivers 50kg a week he can ask buyers for 300,000 UGX (84 USD) as an advanced payment (IS4). Based on the lowest market value of this (10,000 UGX per kg (2.70 USD), this advance can amount to as much of 60% of the value of the catch. Whereas, on the upper-end of this scale, one fisher and boat owner in Katosi claimed to receive between 30 – 40 million UGX (8,360 – 11,148 USD) per week from a regular buyer who buys large quantities of Nile Perch and supplies processing factories (IS2). Based on the same minimum price calculation (10,000 UGX per kg (2.70 USD), this supplier would need to supply at least 3 to 4 tonnes of Nile Perch per week to this supplier to receive this amount as an advance. The same large-scale buyer, in Katosi, when interviewed, explained that he delivers around 30 tonnes of Nile Perch per week to the processing factories and deals with over 70 suppliers. To some he advanced payments of 30 – 40 million UGX (8,360 – 11,148 USD) per week, but one million UGX (279 USD) to others, or nothing at all in some cases, depending on the capacity of the supplier (IS3). More commonly, respondents in Katosi and Kiyindi reported giving or receiving between one to three million UGX (279 - 836 USD), these respondents generally operated at a scale of between 100-200kg traded per day (on a good day) (G8; G10; G13).

Advanced payment and loan requirements, and thus capital relations with fish buyers, are also likely to depend on the gears used to catch Nile Perch because of the various requirements in terms of initial capital investment and operational costs per fishing

trip. The Nile Perch fishery includes both gillnet fishers and longline fishers. Start-up costs can be high for entrants in the Nile Perch gillnet fishery. Legal size gillnets are expensive, priced at around 130,00 UGX (35 USD) for a single net of 90 metres in length (FN, Kiyindi). Most commercial boats are reported to operate with a minimum of 50 nets, amounting to a total cost of 6.5 million UGX (1,760 USD) (FN, Kiyindi). However, prohibited nets, including monofilament gillnets, are said to be much cheaper - between 45,000-90,000 UGX (12-24 USD) per net, equating to 33-67% the price of permitted gillnets (FN, Kiyindi). Additionally, gillnets are also prone to damage or theft (Beuving, 2013). Therefore, it is likely that these actors require larger loans on entrance into the fishery, and sporadically when new nets are required.

On the other hand, whilst the initial start-up costs may be lower in the longline fishery, the costs per fishing trip can be higher. One commercial longline fisherman at Kiyindi reported to spend a total of 135,000 UGX (36 USD) including 60,000 UGX (16 USD) on ropes, and 75,000 UGX (20 USD) on 500 hooks (FN, Kiyindi). This amounts to just 2% of the expenses gillnet fishermen spend on their nets. As such, some believe that using hooks is for poor fishermen, often attracting migrant fishermen who have settled recently, and those with money fish with nets (Beuving, 2013). However, longline fishermen are reported to spend more per fishing trip, than gillnet fishers. Beuving (2013) reports that fishermen spend between 35 – 50 EUROS (46 – 66 USD¹²) per trip on baitfish. Though they also suggest that the price of baitfish is rising due to the growing popularity of longline fishing (Beuving, 2013). In Kiyindi, one longline

¹² Based on historic exchange rate of 1.33 or Euros to USD in 2013.

fisherman reported to spend 1.2 million UGX (325 USD) per trip on eels as bait on his longline consisting of 500 hooks (FN, Kiyindi). Furthermore, longline fishers are said to travel longer distances than gillnet fishers, in search of relatively calm, deep waters where they are more likely to catch larger Nile Perch (>50kg) (FN, Kiyindi). Longline fishermen typically spend between 3 days to a week away from their 'home' landing site per fishing trip (FN, Kiyindi). This can consume more fuel and cost more in food for fishing crew and thus also require more day-to-day capital (FN, Kiyindi, Kasekulo). The same longline fishermen at Kiyindi reported to use approximately 80 litres of fuel for a 3-day fishing trip, equating to 400,000 UGX (108 USD) And spend 100,000 UGX (27 USD) on food for fishing crew (FN, Kiyindi). Together with bait costs, this amounts to a total of 1.7 million UGX (460 USD) in expenses per fishing trip.

In comparison to the Nile Perch sector, in the Mukene fishery, respondents from Katosi and Kiyindi reported giving or receiving much lower amounts of between 100,000 - 300,000 UGX (28 – 84 USD) per week (IN2; FGD7; G9). Respondents from Katosi and Kiyindi explained that investees in the Mukene fishery frequently provide small amounts to fish suppliers to buy fuel, for example 30,000- 60,000 UGX (8 – 17 USD) (G4; G9) or 110,000 UGX (30 USD) to replace a damaged net when required (G4).

These differences in credit extended can be partly explained by the relatively low initial capital requirements for Mukene fishing. Boats used in the Mukene sector, are typically more expensive than boats used in the Nile Perch sector. Ssese flat boats dominate the crafts used to catch Nile Perch and Mukene (Nakiyende et al. 2021).

However, Mukene fishing vessels are typically around 32ft and usually bigger compared to Nile Perch vessels which are around 28ft. Subsequently, Mukene boats cost 6 million UGX (1,625 USD) and are more expensive than Nile Perch boats which cost between 3.5 million UGX (948 USD) (FN, Kiyindi). Similarly, small seine nets used to catch Mukene are also more expensive per unit than gillnets used to catch Nile Perch. A legal-sized small seine net of 100 metres in length costs 390,000 UGX (106 USD), which is three times the unit price of a legal-size gillnet (FN, Kiyindi). However, Mukene fishing vessels are reported to use only 5 nets, which is much fewer than the 50 nets Nile Perch fishing vessels are said to use (FN, Kiyindi). Therefore, the total cost of fishing gear per vessel is generally much lower in the Mukene fishery, than for Nile Perch - 1.95 million UGX (528 USD), compared to 6.5 million UGX (1, 760 USD). Hence, even after incorporating the differences in the cost of the fishing vessels, the initial capital requirements for the Mukene sector are generally lower than the Nile Perch sector, by approximately 20%.

Moreover, Tilapia fishing is reported to require less initial capital than the other two fisheries. Primarily, because most of the Tilapia fishing fleet are non-motorised as they typically fish in near-shore areas (less than 200m from the shoreline) (FN, Katosi, Kiyindi, Masese). Engines can cost as much as 8 million UGX (2,165 USD) new and so are a considerable expense for boat owners (FN, Kiyindi). Besides this difference, Tilapia fishing vessels are a similar size to Nile Perch fishing vessels (around 28ft) and therefore also cost around 3.5 million UGX (948 USD) and are cheaper than Mukene boats (FN, Kiyindi). However, initial capital requirements and daily operating costs

differ based on the gear used to catch Tilapia. Like the Nile Perch fishery, boats using nets require more start-up capital, than those using longlines to catch Tilapia. Tilapia fishers using gillnets are permitted to use nets with a mesh size of 5 inches. These gillnets, like the gillnets used in the Nile Perch fishery, cost 130,000 UGX (35 USD) per unit (FN, Kiyindi). However, the number of nets used per fishing vessel is generally lower in the Tilapia gillnet fishery, compared to the Nile Perch gillnet fishery. Tilapia fishers typically use between 20 to 50 gillnets per fishing vessel, costing a total of between 2.6 million UGX (704 USD) and 6.5 million UGX (1,760 USD) (FN, Kiyindi, Masese). Though, given these prices, Tilapia fishing using gillnets is only cheaper, in terms of initial capital investment, than the typical set-up for Mukene fishing, when boats are non-motorised, or using less than 34 gillnets. On the other hand, longline Tilapia fishers require much less capital to equip their boat with the required gear. Longline Tilapia fishers from Kiyindi reported to use between 100-200 hooks, costing between 15,000 UGX (4 USD) to 30,000 UGX (8 USD) for legal-size hooks (FN, Kiyindi). Nevertheless, like the longline Nile Perch fishery, longline Tilapia fishers are likely to have higher per fishing trip expenses, than Tilapia boats using nets, due to their use of bait. In comparison to the longline Nile Perch fishery, Tilapia fishers use algae and earth worms collected from swampy environments as bait on their hooks (FN, Kiyindi), but unfortunately no further information was collected regarding the supply and cost of this bait. However, the cost per fishing trip for the longline Tilapia fishery is likely much lower than the longline Nile Perch fishery. Most of the Tilapia fishing fleet is non-motorised (FN, Kiyindi, Katosi, Masese), and even for motorised vessels, fuel requirements are considerably lower as Tilapia fishing is done in near-shore

environments. Furthermore, unlike the Mukene fishery and Nile Perch fishery, Tilapia fishing trips rarely last longer than a day (FN, Kiyindi) and so expenses for fishing crew, such as food costs, are likely to be much lower.

Considering these differences in initial capital requirements and costs per fishing trip, credit relations are also likely to differ between the Tilapia fishery and the other two fisheries, as well as within the Tilapia fishery based on vessel motorisation, gears used, and size of operation (e.g., the number of gillnets used per fishing vessel). Though, unfortunately data on credit relations in the Tilapia fishery could not be disaggregated from this study's findings.

This study's findings suggest that access to capital heavily determines fish buyers' access to fish. Focus group respondents from Katosi explained that having the financial resources to offer these investments is central to good relationships between fish buyers and suppliers (FGD2). Nile Perch boat owners from Katosi stated that they chose to establish relationships with fish buyers based on their capacities to provide them with capital investment (IS4; IS5). One Nile Perch fisherman in Katosi explained that they choose to work with large-scale buyers because they have greater capital to invest in his business than buyers who operate on a smaller scale (IS2). However, working with capital-rich fish buyers is likely more important for boat owners in the commercial Nile Perch sector since the capital requirements are generally greater than the other two fisheries, including initial start-up expenses, the cost of replacing fishing gear, as well as the scale of weekly advanced payments.

Male Nile Perch fisher, Katsoi (IS2): *I can go to the lake, and I may use all my money, so I call him [large-scale buyer] to send me money, I inform him that there is still more work [fish to catch], but I need more money, and this one can give unlike the others.*

Focus group respondents from Katosi claimed that fish buyers who can access loans from financial institutions are better able to secure fish supply by paying greater advances to suppliers than those with less economic resources (FGD2).

Focus group respondent, Katosi (FGD2): *... people who...get money from the bank, they are the ones who have given money to the fishermen, they give them like 30million in advance....so it becomes a challenge for this woman to go and stand there and say that I need fish, with your 500,000 who is going to look at you. Yet this man...had facilitated the other person [fish supplier].*

Focus group respondents in Kiyindi agreed that advanced payments were essential in terms of access to fish (explained in the extract below).

Women fish processor and trader, focus group respondent, Kiyindi (FGD7): *If you don't give the money it will affect. The fishermen you have to give them to be supplied with fish, if you don't give them, they will supply fish to someone*

who has provided some money to them, so if you don't provide the cash they won't provide.

This study's findings also suggest that access to capital heavily determines a buyer's ability to secure a better fish price. Focus group respondents, at Katosi landing site, explained the impacts on the price of fish for fish buyers who have not paid fish suppliers these advance payments.

Interviewer: Is it possible to get fish supplied without having invested in fishing trips, bought nets etc?

Focus group respondent, Katosi (FGD2): *It is. If you are going to get fish [Nile Perch] without putting in, that means you are going to buy it expensively, because the owner wants it at 10,000, so you, for the competition, you must pay either 11,000 or 12,000.*

Considering the differences in terms of the scale of advanced payments and loans in each fishery, it is likely that fish buyer's capacity to access capital from financial institutions also, in part determines the fishery they can competitively participate in.

5.1.2. Fish supplier debt shaping power-relations

In this study, multiple respondents expressed how dependent fish suppliers are upon fish buyers advanced payments for financing their fishing activities. A Nile Perch fisher

from Katosi claimed this form of financing was necessary (IS2). Women boat owners in Kasekulo, Sese Islands, explained that without capital input from their buyers they would find it hard to buy new nets with their profits, and consequently their boats would be operating under capacity (G2). Respondents claimed that alternative credit arrangements, for example from formal financial institutions like banks, were undesirable. This was because of the documentation and collateral pledges required (G2; G7), high interest rates (FGD1), strict repayment periods and penalties for late payments (G2). This finding is mirrored in other studies where investee-fish suppliers claimed to benefit from the relatively unintimidating, informal procedures to access credit. Flexible conditions, investment in technological change (e.g., gear investments), and the willingness of creditors to accept interest payments as a share of the harvest were preferred (Ruddle 2011; Ferrol-Schulte et al. 2014; O'Neill et al. 2019; Parappurathu et al. 2019). Nevertheless, fish suppliers' dependency on capital advances is likely to entrench the power of capital-rich fish buyers.

Fish supplier's debt relations with fish buyers present a source of power for investor-fish buyers. Indebted fishers are obliged to sell their fish to the investor-fish buyer at a price determined by the fish buyer. As the passage below suggests, Nile Perch buyers with access to capital resources use this power to control fish prices.

Interviewer: What are the benefits of providing loans/advanced payments?

Group interview respondent 1, Male Nile Perch trader, Kiyindi (G8): No one

invests where they won't benefit, if for example I lend to you 5 million, if you bring me fish I must make a profit from it

Group interview respondent 2, Male Nile Perch trader, Kiyindi (G8): *The benefits of the loan is that I get fish and I decide the price of the fish, so the fishermen has no say about the price of the fish, I am in control of the price.*

Similarly, passages from investee Nile Perch suppliers confirmed their lack of power because of their debt.

Interviewer: *Does that [your power to negotiate/determine fish prices] still not change even when there is scarcity of fish? You still don't have the authority say these are my prices?*

Male Nile Perch fisher and boat owner, Katosi (IS4): *not at all, they are the ones to decide and give us capital. I have no power because I am using his market.*

Investor-fish buyers' power over fish prices has been observed elsewhere. Similarly, in Zanzibar and Kenya, researchers found that indebted fishers were compelled to sell their fish at a price determined by the investor-middlemen and were therefore likely to accept lower prices per kilogram of fish (Crona et al. 2010; Ferrol-Schulte et al. 2014; Wamukota et al. 2015). Roberts et al. (2022), in their study of an Indonesian island-

based fisheries system, found that investor-fish buyers had a monopolistic control over prices. In their study 83% of investor-fish buyers reported having sole control over the price of the fish they buy, compared to 33% of non-investors. Only 8% of investee-fish sellers reported having sole control over the price of fish, compared to 78% non-investees. Moreover, In the Rufiji Delta, Tanzania middlemen purchase the fish at lower than market prices to reflect loan repayments (Gibbon, 1997). Gibbon (1997) observed that in the Rufiji Delta fishers would receive almost 20% less for prawns delivered to 'their' trader. This is considered an alternative and often hidden form of interest on capital advances.

Differences between and within each of the three major fisheries regarding initial investment requirements, operational costs and advanced payments are also likely to affect power relations between boat owners and investee-fish buyers. For instance, capital requirements are also likely to affect boat owner's dependency on borrowed capital from fish buyers, or at least the scale of accrued debt. Accordingly, and assuming that investee-fish buyers' power to determine fish prices increases the greater the boat owner's dependency and debt, investee-fish buyers in fisheries with lower capital requirements (e.g., the Mukene fishery or non-motorised Tilapia fishery) may have less coercive control over fish prices, compared to those in fisheries with higher capital requirements (e.g., the motorised gillnet fishery for Nile Perch). Though, further research is required to substantiate this theory.

In addition, this study also found evidence that the indebted-fish suppliers' freedom to work with other buyers is also constrained by this indebtedness. As one Nile Perch fisher and boat owner from Katosi landing site (IS4) explained, he would first have to pay-off the fish buyer for the money they have advanced him before he can start working with another buyer. Focus group respondents from Katosi claimed that clearing this debt can take as long as 2 years (FGD9).

Similarly, Crona et al. (2010) found that investor-fish buyers in Zanzibar and coastal Kenya use credit arrangements to control fish supply; they observed that only in cases when the investor-fish buyer is not available or cannot purchase the entire catch may fishermen sell to other middlemen. Furthermore, O'Neill et al. (2018) found, in their study in Zanzibar and the Philippines, that fishers felt they could not stop arrangements with trading agents mainly because of the debt they owe, as well as feeling a sense of gratitude toward the trading agent.

Comparably, in Sri Lanka, Amarasinghe (1989) found that many boat owners felt trapped in boat-tying arrangements because of their dependence upon fish traders to buy their catch. They feared that if they were to free themselves from their arrangement other fish merchants would side with the aggrieved merchant and retaliate by refusing to buy their catch. O'Neill et al. (2018) similarly reported that fishers were also concerned that terminating a relationship would create misunderstandings with the trading agents. Fishers also feared loss of profit and the

fact that they might not get any more help from the investing agent (O'Neill et al. 2018).

Some authors (e.g., Fabinyi, 2013; Kininmonth et al. 2017) have argued that labour-tying credit arrangements can entrap client fish suppliers in a self-perpetuating system of exploitation and dependence, presenting barriers to socio-economic equality in fishing communities. Evidence of perverse dependency relations between fish buyers and fishers have been found in the Mexican octopus fishery sector (Coronado et al. 2020) and in the Philippines (Quimilat, 2018). Quimilat (2018) explains that in the Philippines the labour-tying credit arrangements had enriched a small number of traders at the expense of exploiting and reproducing a cycle of poverty for the fishers (Quimilat, 2018). These kinds of exploitative relations are more likely where profit maximisation is the goal.

Fish suppliers who are less dependent on capital investment from fish buyers and therefore have the freedom to sell to multiple people, have the power to choose to deal with the buyer offering the best price. These actors are sometimes referred to as 'independent fishers'. According to respondents from Katosi and Kiyindi, competition between traders provides independent fish suppliers with some leverage in terms of negotiating prices (G6; G7; G9). One Nile Perch boat owner in Katosi explained that this competition offers him some power over the prices his routine fish buyer pays him. These explanations as to why fish suppliers sell to multiple buyers contribute

important insights to work surrounding fishermen's agency and power in trade relations.

Nile Perch boat owner, Katosi (G9): selling to one person can lead to the customer [fish buyer] starting to undermine you and try to low ball you but if you go to other buyers, tomorrow he'll say okay I've added this amount, come and we work.

Most times you have that one person [fish buyer] you mostly deal with; these other ones are just for balance such that your usual purchaser doesn't over press you with low prices.

The many people [fish buyers] just help you know when your usual customer is underpaying you, you then decide to sell elsewhere until your usual boss tells you to come back, and you negotiate.

Evidently, fish suppliers do hold a degree of power over fish buyers and power to achieve better prices under certain conditions (i.e., when not supplied in connection to credit, and when competition between traders is high). Relatedly, Nunan et al. (2020) describe how decreasing stocks of certain fish, strong demand for fish and for skilled and reliable boat crews increase the power of fishers.

Furthermore, these findings suggest that fish buyers value certain fish suppliers enough to pay competitive prices if they feel like they might lose out. Similarly, Wamukota et al. (2015) observed that in Kenya traders were willing to pay a premium to fishers who loyally supplied them due to increased competition between traders for access to fish (Wamukota et al. 2015).

Focus group respondents from Kasenyi also expressed that fish suppliers have the power to demand advanced payments because a fish buyers' business depends upon their work and ability to catch fish (FGD1). Fisherman's experience and ability is an important source of power in all fisheries as they each require specific knowledge and skill. However, given the unequalled decline in Nile Perch catches, Nile Perch fishermen's power in relation to their ability to catch fish is probably more influential than in the two other fisheries, under these largely unique conditions.

5.1.3. Market conditions shaping power-dynamics

In the export-oriented Nile Perch fishery, fish processing factories deal with fish agents who work directly with boat owners, and typically own ice trucks to deliver the fish directly from the landing site to the processing factories in urban centres. Fish agents explained that if the processing factories are offering 17,000 UGX (4.60 USD) then they typically try to purchase fish from the landing site at between 10,000 to 12,000 UGX (2.70 -3.25 USD) (FN, Kiyindi). These fish agents were described by focus group participants in Kiyindi (FGD3) as fish traders who buy on a large scale and have a lot of

capital. Some fish agents who travel to Kiyindi to buy Nile Perch, own up to 3 iced trucks, each with a capacity to hold 5 tonnes of fish, whereas others hire the trucks from the factories they supply (FN, Kiyindi). Fish agents, with iced trucks, are said to take between 7-10 tonnes of factory-sized Nile Perch a day from Kiyindi, depending upon the season (FN, Kiyindi). However, when catches are low fish agents are reported to stay at Kiyindi for up to 3 days until they trucks are full (FN, Kiyindi). Factory agents also travel to non-gazetted landing sites to buy factory-sized Nile Perch. For instance, in Buluba, where the Nile Perch fishery is relatively small - consisting of only 12 boats, using both gillnets and longlines on predominantly non-motorised vessels - fish agents are said to come to the landing site every day, early in the morning, with their iced trucks and buy between 50-100kg of factory-sized Nile Perch (FN, Buluba). However, two male fish traders from Katosi explained that fish agents generally deal with boat owners who own multiple boats and thus have the capacity to supply the fish agents with large quantities of Nile Perch (G1). At Kiyindi and Katosi, two large, gazetted landing sites, some individuals in the Nile Perch fishery are said to own up to 10 boats and 15 boats, respectively (FN, Kiyindi, Katosi).

Several respondents, including Nile Perch traders in Kiyindi ((G6) and Katosi (G10) (IS3), a woman boat owner and Nile Perch supplier in Kasekulo (IS1) and focus group participants in Kasenyi (FGD1), claimed that fish processing factories had monopolistic control over the market prices for Nile Perch that meet the fillet size requirements for international export (50-85cm). Focus group participants in Kasenyi claimed that the factories have set maximum prices for fish within the required size, with little room for

negotiation (FGD1). At the time of data collection, this price was between 10,000 - 17,000 UGX (2.70 - 4.60 USD) depending on the size of the fish (FN). Focus group participants in Kasenyi explained that several factories have collectively agreed to price-fixing – to buy factory-sized Nile Perch from a supplier at a specified maximum price. The focus group respondents generally felt the control factories had over the price of factory-sized Nile Perch was unfair since it limits the opportunity for other actors within the value chain to profit and overlooks supply-side factors, including the uncertainty of fish production which affects the price of fish. Furthermore, price-fixing was said to interfere with competitors' ability to set their own prices with complete freedom. The focus group respondents from Kasenyi (FGD1), explained that the factories fix the price irrespective of the increased costs of fuel and thus fish production.

Market conditions in the export-oriented Nile Perch value chain also affect market conditions, particularly price, in the domestic Nile Perch value chain. Nile Perch traders from Katosi explained that they set their buying and selling prices according to the factory prices (G10). Similarly, other groups of Nile Perch traders said they sometimes call the factories to find out what price they are offering and then set their prices in response (G13). At Owino market, in Kampala, fishmongers explained that fish traders whom they buy from determine their sale price according to the factories fixed price *“because they know if you fail to buy the fish [at this price or higher], they can just sell it to the factories”* (FGD5). According to one woman boat owner from Kasekulo *“they [the fish factory agents] always take fish”* (G2). Hence, the processing factories also

affect power-dependency relations in trader-trader relations by providing alternative and readily available markets for traders dealing in Nile Perch.

Fish trader, Katosi (G1): *What happens, the other people who we buy from, they will ask for the prices in the factories, so they will also determine their prices depending on that, so they will tell you "no, this is the price", so if the other place [the factory] is buying at 10,000, ok we will buy at 10,000 and sell at 10,500, a difference of 500 shillings...it is a really small margin for us....it is bad, not even bad, very bad...the factory provide [buy] at a certain price and yet they could be selling at a much higher price, so they get bigger profits than these ones [other fish buyers].*

Evidently, price information is an important source of power in trade relations in the Nile Perch value chain. Further research is needed to understand who has access to this information and who doesn't, and how this affects the relative power of value chain actors.

The Silverfish (*Mukene*) value chain operates differently to the Nile Perch value chain in terms of price determination. Mukene is typically bought from boat owners in quantities measured in basins (shallow buckets). The price of a basin is typically between 40,000 to 50,000 UGX (11-13.5 USD) (FN). However, the price per basin was reported to fall as low as 15,000 UGX (4 USD) and rise to 70,000 UGX (19 USD) under certain conditions (FN). Each basin contains approximately 30kg of fresh fish (Ankunda

and Nanyonjo, 2023), so the price per kg of fresh Mukene is equivalent to between 500 – 2330 UGX (0.14 – 0.63 USD). Unlike, the Nile Perch value chain which is heavily influenced by the activities of industrial fish processing factories, the Mukene trade is described as an “*open market*” where prices are driven by competition (FGD3). As such, the prices are heavily determined by catch volumes and market demand (FGD3). As a woman Mukene trader from Masese explained, *Mukene* catches fluctuate according to the lunar cycle, when the moon is at its brightest phase catches are low and the price of *Mukene* reflects this (IN29). The extract below details the frequent changes in Mukene prices according to cyclical fluctuations in catches, as well as the impact that the quality of fish can have on bargaining power.

Focus group respondent, Kiyindi (FGD3): *The prices are determined due to the quality and quantity...like today the catches were low, and the price of Mukene was 1200 a kilo, but the previous day it was a 1000-1100 because the catches were a bit high. So, when Mukene lands and the quality is good, the prices tend to rise, there is that competition, so the owner of the Mukene will determine the prices, because the buyers will be many who want that good quality Silver fish... If the Mukene they get from the boat is bad, it is rotten, definitely the one who determines the price is the buyer, because they can say “ahh I am buying at this price because the quality is not good”.*

The Tilapia fishery is also characterised by competitive market conditions. At Kiyindi landing site, like many other landing sites, Tilapia of the permitted size is mostly sold

through auction (FN, Kiyindi). At the time of data collection, the price for Nile Tilapia varied between 5000 – 10,000 (1.36 – 2.7 USD) (FN). At Tilapia auctions, buyers bid on individual fish, or bundles of fish, and the highest bidder takes the fish. At Kiyindi, boat owners commonly run the auction themselves, under the supervision of the Chairman of the landing site, Fisheries Inspectors and Fisheries Officers. Though in some cases boat owners hire someone to run the auction, especially those with less experience. Some traders who gather fish from landing sites on nearby islands, including the Buvuma islands, also bring Tilapia to be auctioned at Kiyindi. In addition to Tilapia, other species including lungfish and catfish are also sold at auction (FN, Kiyindi). Competitive bidding among multiple buyers ensures a ‘fair price’ for Tilapia based on market demand and supply. When demand is high, competitive bidding can drive up the price and result in higher profits for the fish supplier. However, the price of Tilapia at fish auction can be unpredictable, leading to uncertainty for sellers. However, not all fish suppliers choose to sell their Tilapia catches via auction, and this is not a mandatory requirement. Tilapia is also sold through tied arrangements between boat owners and fish buyers.

Moreover, fish buyers at Owino Market, Kampala explained that since the factories do not deal with Tilapia there are greater opportunities to negotiate prices for both the fish supplier and buyer (FGD5) in trader-trader relations. When Tilapia catches are surplus to market demand, fish buyers at Owino Market explained that they can easily negotiate lower prices, whereas it is more difficult to negotiate prices of Nile Perch (FGD5).

In general, the study found that power to determine prices shifts, to some extent, according to fish catches and subsequent competition levels. Typically, when catches are low, fish suppliers are better able to negotiate for higher prices due to competition between buyers for the low quantity of fish landed (IN11). However, this is more difficult in the export-oriented Nile Perch fishery as prices are reported to be capped by fish processing factories. Vice versa, when catches are high, fish buyers have more power to negotiate fish prices (IN15). As one women Nile Perch and Tilapia trader from Kiyindi explained, when catches are high, the fish supplier “*will even look for you at home to buy his fish, else he fears it will get spoilt*” (IN11). They are dependent on fish buyers to purchase their catches. Similarly, male Nile Perch fish traders, in Katosi (G13), said that when the market is “*flooded*”, fish suppliers offer their fish on credit, allowing fish buyers to pay them for the fish at a later date, out of fear that they will suffer from fish losses if not sold. These power dynamics are also determined by the lack of adequate cold storage facilities at many landing sites.

Compared to the other two fisheries, prices for Mukene are more likely to be driven down by high volumes of catches, because the fishery more frequently experiences periods of glut, where supply exceeds demand, and processing and storage capacities at landing sites. These effects are visible in the wider range of prices reported for Mukene, than for Tilapia and Nile Perch. On the other hand, due to declines in the availability of Nile Perch (Medard et al. 2019), it is rare that supply exceeds demand, especially for factory-sized Nile Perch since most fish processing factories have been

operating below 20% of their installed capacity (UFPEA, 2022).

Evidently, power is more fluid in fish supplier-buyer relations than sometimes portrayed (Nunan et al. 2020). Similarly, other researchers have found that under certain market conditions, fish suppliers have greater agency to negotiate terms of trade, and power in trade relations with fish buyers, and in some cases have been found to provide rewards, incentives and gifts to the trader. These include fish for home use, discounts, credit and the option to pay later (O'Neill and Crona, 2017; Nunan et al. 2020). Female fish traders in coastal Kenya, for instance, are reported to be both providers and recipients of credit. When catches are large, they receive fish on credit from the fishermen (Matsue et al. 2014).

5.1.4. Geographical context influencing dependency relations

Geographical context also influences fish suppliers' power to negotiate and determine fish prices. Nile Perch suppliers from the Ssese islands within Lake Victoria claimed they must accept the fish buyers' prices and payment terms because there are fewer options to market their products on the islands. For instance, as the Nile Perch suppliers explained, when the fish buyer doesn't have cash to pay them they felt they had to accept an on-credit arrangement where the buyer takes the fish and pays later. They felt they had limited power to determine prices and payment terms for their Nile Perch catches because they lacked alternative markets on the island. Furthermore, the perishable nature of fish, restricted preservation and value-addition opportunities

increase the risk of losses and limit their choices. Furthermore, fish buyers seem to exploit their power in these circumstances and do this through price-fixing, as the passage below explains.

Woman Nile Perch boat owner, Kasekulo, Sese Islands (G2): *There are three businesspeople [fish buyers] here, who buy the fish, from all the fishers on the island. The challenge we have is that the three can agree on the price, so they come and say this is the price we buy...we have no other option, and cannot reach the other side, we have to [accept], even if it is a poor price.*

Before...if the price was low, we could smoke the fish and...get a better price. But now smoking fish is banned, we have no option, we have to go with what they offer us.

Price-fixing among competitor fish buyers is done in this case to lower fish prices for factory-sized Nile Perch. Arguably, this is how middlemen on islands make a profit when they too are subject to fixed maximum prices set by the fish processing factories they supply and must account for the transportation costs associated with transporting fish from the islands to fish processing factories on the mainland, including the costs of ice. However, quantitative data collection is required to determine the significance of price differences by location.

5.1.5. Gendered power

In addition to, and often in connection to, credit and debt relations, market conditions and geographical context, fish supplier-buyer relations are also influenced by gendered power relations.

In general, men traders, compared to women traders, were considered to have greater power in terms of access to fish due to differences related to their economic capacities. Women fish processors and traders, at Katosi landing site, explained that access to capital heavily determined traders' access to fish (FGD2). Women fish buyers, who were said to have less capital available for investment in trading activities due to their at-home caring responsibilities and challenges accessing loans from financial institutions, were reportedly out-competed by men with greater capital resources (FGD2). These accounts from women fish processors and traders, regarding women's access to capital, can be backed up by several studies that report that women in Uganda lack access to credit and own fewer productive assets than men, such as land, animals and transport vehicles (Kes et al. 2011; Okonya and Kroschel, 2014).

Respondent, focus group discussion with women fish processors and traders,

Katosi (FGD2): The women don't have money.

Interviewer: Why do they think that is?

Focus group respondent, Katosi (FGD2): *They just don't have that money, the capital. Because if a man is having 10million, you have 1 million, if this one [fish supplier] is bringing, the supplier would prefer to give to the other one who has more capital and is going to take the bulk.*

Interviewer: *Why do women have less capital?*

Focus group respondent, Katosi (FGD2): *They have a lot of responsibilities. They are the ones taking care of the children so whatever money they get, they divide it, and get very little money for capital. They don't have greater access to capital, maybe to go and get loans from the bank or getting anything, because they don't have security, usually in Ugandan culture, the titles are under the men, so I think tradition plays a role too. They also divert their money, what they get, for the children. The interest rate is so high for the women to risk getting loans from the bank, they would rather leave it at that.*

As previously discussed, the importance of capital as a source of power differs between fisheries. The Silver fish (*Mukene*) fishery is less capital intensive than the Nile Perch fishery. Boat owners in Katosi explained that Nile Perch is more costly to catch than *Mukene*, and so requires higher capital input (G9). Respondents in Buluba and Kiyindi explained that this is why actors with less capital resources, including women, are generally more involved in the *Mukene* business rather than Nile Perch, which is reportedly dominated by men (FGD6; G6).

Interviewer: why do ladies dominate Mukene?

Male boat owner, Katosi (G9): *Mukene is considered a side income here, those who trade in it are those with capital of about 200-300,000 UGX, even as little as 50,000 UGX that's why a lot of ladies indulge in it a lot.*

Researchers have previously acknowledged that men fish buyers tend to have greater access to capital than women fish buyers in small-scale fisheries in various contexts (Fröcklin et al. 2013). Whilst women fish buyers provide credit, boats, and nets to fish suppliers the scale of assets they own and the capital they invest is limited compared to men (Bennett et al., 2001; Walker, 2001; Markussen, 2002; Nakato 2004; Overå, 2005; Jenyo-Oni, 2007; Matsue et al. 2014; Moreau and Garaway, 2021). Men traders generally have greater access to capital and credit, and researchers have observed substantial disparities in the capital used by men and women traders to access fish (Fröcklin et al., 2013). Accordingly, men dominate the export-oriented Nile Perch fishery, in Uganda, which requires greater capital investment. Most fish (74%) sold by women in Uganda is processed (Kadongola and Ahern, 2023). This business is less lucrative than the men-dominated one for fresh fish (Gee et al. 2023). This gender divide was particularly visible at Owino market, Kampala, where women and men were found in separate spaces selling different products. Women were trading sundried or smoked Mukene, Tilapia and Nile Perch (including undersized fish) and men were selling fresh Tilapia and Nile Perch, which was commonly cut up at the market stall into

small portions for consumers.

The passage below, and similar accounts from other men (e.g., a male Nile Perch trader from Kiyindi (IS3)), also suggests that those with limited capital resources, specifically women, are fearful of using their limited capital to finance an activity with such high financial risk.

Interviewer: Those of you who deal in Nile perch, why do you think men dominate that trade more than women?

Male Nile Perch boat owner, Katosi (G9): it requires a lot of capital and in most cases, women fear to invest a lot of money in this business because they fear to make losses...even when it comes to giving out loans to someone so they can run their activities on the lake, women are scared of that, which is not the case with men.... this fishing business is not easy, you might lend someone your money and they disappear with it (laughter)...when these fishermen want loans, most ladies can't do that.

Within the Nile Perch fishery, fishing with longlines has particularly high financial risk. Fishermen using nets are more likely to return with some fish – either Nile Perch or saleable by-catch, compared to longline fishermen, who often return empty handed (Beuving. 2013). Consequently, the financial risks involved in longline fishing are much higher than those involved in using nets (Beuving. 2013). The following passage from a

boat owner, quoted in Beuving's (2013) study in Masaka District, Central Uganda, illustrates the perceived risks associated with longline fishing: "*Fishing with nets is like having a wife: if you stay with her, you can keep your money in the pocket, and people will think well of you. If you fish with hooks, it's the same as going to prostitutes all the time: at the end you have no money left and people make fun of you!*" (p.11).

Generally, men in fishing communities are reported to be more financially risk seeking than women. O'Neill et al. (2019) found in the Philippines that this transpires in men taking bigger fuel loans than women for instance. Literature suggests that where masculinity is directly associated with the ability to catch fish, especially more or bigger fish is an expression of male success, men often engage in high risk, high reward fishing activities (Fabinyi, 2007).

5.1.5.1. Gendered bargaining power in price setting

Control over fish prices is also affected by gender relations between fish suppliers and buyers, particularly gendered bargaining power. Gender dynamics intersect with credit relations and market conditions to determine who has power over trade negotiations.

Interestingly, several women fish processors and traders from Kiyindi (IN9; IN10; IN11; IN13), Katosi (IN19; IN36) and Masese (IN20; IN21; IN22; IN28) working across all three major fisheries (Mukene (n=5), Tilapia (n=4) and Nile Perch (n=3)) claimed it was fish suppliers who had the power to determine prices. In comparison, men fish processors

and traders more often said that they determined fish prices, not the fishermen. These women fish processors and traders explained that the fish supplier's power to determine fish prices was the result of competition between buyers, the costs of production (e.g., fuel prices) and the quantity of fish available on the market.

Women Mukene fish processor and trader, Katosi Landing Site (IN36): Of course, the fishermen. They determine the fish price because they are the ones who go and fish. You can't judge the price of the fish because you don't know what he goes through to get it.

Besides the fishery specific credit relations and market conditions already discussed, these findings indicate that gender relations also influence power over fish prices.

In addition, several men respondents claimed that women fish suppliers and buyers were easier to negotiate with in terms of prices than men. Some claimed that this was because women were ignorant of price information, as the extract below explains.

Male fish trader, Katosi (G13): women are usually ignorant about this business and will buy more expensively from you... men on the other hand know how it all goes and are strict on prices...women don't even try to ask around to see the price on the market, what you tell them is what they pay you

Some men and women respondents in Kiyindi, Katosi and Buluba, claimed that women

suppliers and buyers were more likely to reduce their prices than men. They explained that this was because women were usually satisfied with smaller profits, whereas men are more driven by profit (G7; G8; G13; FGD6; FGD7). When asked to explain why they think women accept lower profits, they responded:

Respondent, focus group with women fish processors and traders, Buluba (FGD6): *because they don't spend a lot, they usually have men who provide for home necessities.*

Male boat owner, Kiyindi (G7): *she gets easily contented and doesn't have a lot of responsibility, here in Africa women have fewer responsibilities.*

Male fish trader, Owino Market, Kampala (FGD5): *women, even if the profit margin is small, she is able to accept, because of the roles and responsibilities in the family. Men need more money because of responsibilities of paying fees, taking care of women, just because of the traditional way, men have more responsibilities. So you need a higher profit margin than a woman.*

Male Nile Perch trader, Kiyindi (G8): *The reason why women are not always as hard on sticking to the price is that for them, they aren't as involved in the business, they just accept everything, even if it is a little...women don't care how much they get, as long as they are getting something out of it, but men tend to want more profit...men they always stick on the same price, because they want*

to get more profit out of it, for example, if a fish costs 7000 they will stick to this price and it is hard to negotiate...women even if she bought fish at 6000, even if you come with 6200, she will sell at 6200 because she is still getting something out of it.

Women participating in the focus group discussions (e.g., FGD5 in Owino Market, Kampala) where men made these claims disagreed with their statements about men having more financial responsibilities than women within households but made no comment on the differences in terms of price negotiation. However, in another conversation, one woman Mukene trader, from Masese, claimed that she “*sells at a loss because of personal needs like food for home*”, (IN24) which presents a different account to the one expressed by the men about women simply not caring about their profit margins.

The narratives raised here by men and women respectively, reflect both the cultural expectations of men as breadwinners in households and the expectations this brings regarding their earnings, and the societal expectations that women should spend their earnings on the needs of the household, particularly food. Intra-household spending expectations have been used to explain significant differences in the marketing margins between female and male usipa (sardine) retailers in Malawi. Rice et al. (2023) found that women sell at significantly lower prices than their male counterparts and attribute this, in part, to the additional pressures women may face to accept lower prices so they can have some money to take home each day, because their

household's evening meal depends on it.

5.1.5.2. Sexual power, sexual networking and fish for sex

In addition to economic arrangements, based on credit, fish is also accessed through social arrangements between fish buyers and suppliers including sex for fish exchanges, sexual networking and romantic courtship.

Interview participants from Kiyindi suggested that women engage in transactional sex to access fish (IN10) and boost their capital (IN12). One woman trader in Nile Tilapia from Buluba claimed that women “*sometimes women entice the men to do it [transactional sex]...they use what they have, to get what they don't have*” (IN14)

Fisherman, Kiyindi (G5): *when a lady gets a fisherman who gets for her silver fish, she makes sure she creates something to keep their relationship and that's through sleeping with them.*

Male fish traders also implied that women were able to ‘flirt’ to access free fish which gave them a competitive advantage over male fish buyers.

Male fish trader, Katosi (G3): *for women they have an advantage, these men can even give women free fish (laughing and joking).*

One fisherman implied that women buyers without a pre-established connection to a boat owner or fisherman, through familial or other social ties, advanced payments, or equipment provision, were more likely to engage in transactional sex to access fish. In such cases, sexual networking can provide an important source of social capital.

Fisherman, Kiyindi (G5): *That [transactional sex] mostly happens in silver fish business...for a lady to get silver fish, she has had to have a connection with the boat owner or the fisherman himself, otherwise they resort to such means.*

In addition, men and women respondents from Katosi, Kiyindi, Buluba and Masese suggested that women of low socio-economic status were most likely to propose this sort of arrangement to access fish (G9; G13; FGD7; IN16; IN25; IN28). They implied that women with uncompetitive capital resources rely on social bargaining, drawing on their sexual power (Kray and Locke, 2008), rather than economic reward power to secure fish supply. This is said to be a particularly successful strategy for young, good-looking women, who could influence others, to for instance gift fish, based on their sexual appeal, friendly behaviour and flirtation. Social bargaining does not necessarily entail transactional sex and flirtation is not only used to provoke casual sexual encounters but also helpful in building long-term strategic social relationships (Béné and Merten, 2008).

Male fish trader, Kiyindi (G6): *the women who usually only buy a basin of Mukene don't have capital, so she uses her body to get what she doesn't have*

(laughs).

Fishermen and men fish traders from Kiyindi suggested transactional sex was more common in the silver fish (*Mukene*) trade (G5; G6). Fiorella et al. (2015) also reported that men who engaged in transactional sex were more likely to fish for *dagaa* (Silverfish). Sexual relations in the Mukene fishery are influenced by i) the lack of fixed price, and greater opportunities for bargaining in the Mukene fishery, and ii) the structure of the fishery which gives power over the resource to men, and shapes women's dependency on fishermen and male boat owners to earn a living (Fiorella et al. 2015). In addition, credit-related power-dependency relations may also help explain sexual relations in the Mukene trade. As previously theorised, fish suppliers in lower-capital-intensity fisheries, such as the Mukene fishery, may have greater agency in purchase arrangements due to their possibly lower dependency on and debt owed to investee fish buyers. Accordingly, some women buyers may, in part, draw upon their sexual power to influence trade relations, in this fishery-specific context where buyers have limited opportunities to control purchase arrangements through credit and debt relations.

However, it was not generally agreed by study respondents that fish for sex was more common in the Mukene fishery, other men and women from Kiyindi suggested it happens across the sector regardless of the fish species being negotiated (G4; FGD7). In the Nile Perch and Tilapia fishery, where women fish buyers are more likely to compete with men fish buyers with greater purchasing power to access to fish

(Pearson et al. 2013), women may use their sexual power to make up for their poor purchasing power, especially in extremely competitive market conditions.

Women fish processors and traders from Buluba claimed that women are more likely to engage in transactional sex when fish catches are low (FGD6). However, low catches also create highly competitive market conditions that embolden men fish suppliers to pressurise women fish buyers into sexual encounters to access fish. Women in a mixed focus group discussion in Kiyindi explained that due to competition when catches are low *“if a fisherman tells you they like you and they have a boat, you just agree so as to get fish”* (FGD3). This finding is similar to other studies which have also found that transactional sex practices have been affected in recent decades by declines in fish availability and increased competition for scarce resources. Matsue et al. (2014) observed that when catches are low, competitive negotiations disempower women and create opportunities for fishermen to pressure women fish traders to have a sexual engagement with them (Matsue et al. 2014).

Women were not always depicted as the propositioning agent in this relationship. Fishermen were cited as the instigators of this practice by Nile Perch fishermen (G12) and focus group participants (FG2) in Katosi. As one woman Nile Perch and Tilapia trader from Kiyindi described: *“[Fisher]men say they risk their lives on the lake so they have to be compensated with sex”* (IN11).

In some cases, women were described as a “victim” of transactional sex, as defined by

a women Nile Tilapia trader from Buluba (IN17). Furthermore, a women Nile Perch and Tilapia trader from Kiyindi suggested that if a fisherman asks for sex, “*when you refuse, he threatens, they may even refuse to supply you fish*” (IN7). Similarly, women in a focus group discussion in Kasenyi explained that refusing fishermen’s advances can affect their access to fish:

Focus group respondent, Kasenyi (FGD1): *Of course as you know men, they usually disturb us, if you are dealing with somebody like a fisherman, sometimes they want to go beyond the norm of supplying fish, and yet you have been paying, so some of them want sex... someone will take it for granted, that because they have been supplying you with fish I have to find food prepared, tea prepared, but they have said that they make sure they make the demarcation clear – this is business, I pay you money, I don’t want to be involved in such stuff. But they normally get such disturbances.*

Interviewer: *How hard is it to maintain that distinction? Does it affect your fish supply if you say no?*

Focus group respondent, Kasenyi (FGD1): *At times we get such problems because if we really refuse these sexual advances, the suppliers say they will not sell to us fish next time. They will go to another person. So, at times you may fail to get fish because of these dynamics, so we really get disturbed, and it affects our supply, because if a man makes advances and you say no and you refuse,*

they will not be able to give me fish.

Men and women respondents from Kiyindi suggested that transactional sex generally occurs between fishermen, particularly labouring fishermen who do not own their own boat (G4) and women fish buyers “*who go to their boats to buy fish*” (G6), rather than male boat owners or male fish traders (FGD3; G6). Fishermen from Kiyindi described boat owners as “*mature people, they are respected people, there is no way they can be involved in the exchange of fish for sex, they are people with families*” (G5). In comparison, fishermen were portrayed as promiscuous by women fish processors and traders through various statements such as “*that’s a fisherman for you*” (FGD6) and “*it is their nature*” (FGD7).

Men fish traders from Katosi suggested that fishermen are more likely to propose this kind of arrangement with women of low socio-economic status rather than women who are more “well-off” than they are (G13). This is likely because fishermen have greater coercive control over these women, who are dependent upon them for fish and their livelihood, and possibly more reliant on social bargaining to access fish in lieu of capital, than other women.

Fishing crew from Katosi and Kiyindi said that boat owners gift fish, particularly undersized fish (G11) to fishing crew, particularly when their catch is high (G4). Men boat owners from Kiyindi explained that fishing crew can either take the fish they have gifted to them home or sell it if they wish (G7). Respondents implied that it was with

this fish that fishing crew negotiated fish in exchange for sex.

Fiorella et al. (2015) claim that the structure of payments between boat owners and hired labourers influence transactional sex's entrenchment in Lake Victoria fisheries. Whilst hired fishers reap smaller monetary rewards from fish sales than boat owners, they are positioned to negotiate extra-monetary benefits (sexual benefits) by allocating the fish given to them by boat owners as part of their share agreement (Fiorella et al. 2015).

In summary, respondents gave varied perspectives regarding the motivations for and patterns of fish for sex exchanges, largely in line with the two predominant narratives identified by Béné and Merten (2008) and discussed in Chapter 3. Women were presented by respondents as both flirtatious entrepreneurs choosing to use their sexual appeal to influence trade relations, and victims forced to offer sex to access fish, following the institutional economic interpretation and so-called miserabilism narrative respectively (Béné and Merten, 2008).

5.3. Power relations between fishing crew and boat owners

This section examines power relations between fishing crew and boat owners. Power is first analysed in relation to the provision of credit. The section then goes on to analyse power-dependency relations between the value chain actors. Lastly it examines the gendered power relations of boat ownership.

5.3.1. Share agreements between fishing crew and boat owners

Silver fish fishers from Kiyindi explained that when the fish are landed the boat owner first calculates the total price for the fish landed, according to the volume of the catch and current market prices (G5). From this figure, the boat owner then deducts the amount for inputs like fuel, kerosene for lamps and fees for the engine and shares the remaining profit between the three fishing crew and boat owner (G5). The share amounts differ between boat. Some boat owners share the remaining profit 50/50, others 40/60, between themselves and their crew. According to women fish processors and traders at Buluba, Silver Fish fishers' shares were 15,000 – 20,000 UGX per basin of fish landed, at the time of the focus group discussion (FGD6). This amounted to between 30-40% of the market price for one basin at Buluba (FN, Buluba). However, the amount that fishing crew receive varies greatly, reflecting the fluctuating market prices of Mukene.

Nile Perch fishers are said to be paid shares in one of two ways, either based on a set amount per kg or as an agreed percentage of the total catch. In the first scenario, Nile Perch fishers are paid between 2,000 - 5,000 UGX per kg of fish landed, according to fishermen from Kiyindi (G4; G5). One male boat owner from Kiyindi explained that he agrees the price per kg of fish with his fishing crew before they leave (G7). In the second scenario, fishing crew are given an agreed percentage of the total catch, commonly the boat owner takes 70% and the fishing crew share 30% of the profits, as

explained by focus group respondents in Kiyindi (FGD3). However, one woman boat owner from Kasekulo claimed to take a lower share of 60% (IS1). In some cases, as boat owners from Kiyindi explained, boat managers take a larger share than the rest of the fishing crew (G7), as observed in other contexts (e.g., Indonesia (Roberts et al. 2022), and in the Philippines (Carnaje, 2007).

The findings of this research suggest that the proportion the boat owner receives is higher for Nile Perch than Silver Fish. This is likely to be due to the higher amount of fixed capital required for fishing Nile Perch and has been observed in other fisheries that require high amounts of fixed capital (e.g., Carnaje, 2007). However, Nile Perch fishermen, particularly those using gillnets, are also likely to earn more than Mukene fishermen because of the higher market value for Nile Perch. However, due to the declining availability of Nile Perch, particularly of the required factory size, boat owners' and fishing crews' income has become more unpredictable. Consequently, fishing effort is apparently shifting to the Mukene fishery, which currently dominates landed catch volumes, promising better wages (Mpomwenda, 2018).

The findings suggest also differences in share agreements and thus income, between boats within the Nile Perch and Mukene fishery. Some boats may pay higher share prices to retain experienced and skilful crew with a good catch record. In addition, boat owners with older or poorer quality fishing equipment may also agree to pay their crew higher shares to retain their crew amongst competition with boat owners with higher quality gear. In this case, higher shares may compensate for the losses in

income related to the reduced efficiency or productivity of the old or damaged fishing gear. Increasing crew's shares is also likely to be cheaper than purchasing new fishing gear.

5.3.2. Credit and power

In addition to their share agreements, crew members expect that boat owners will provide them with basic subsistence provision when fishing conditions are bad and provide periodic loans to cover irregular costs (Johnson, 2010). In this study, boat owners were reported to issue additional capital to cover fisher suppliers' basic needs during periods of low income. A mixed group of Nile Perch and Mukene fishermen, from Kiyindi landing site, reported receiving between 5,000 – 10,000 UGX from their boat-owner boss when they needed it, particularly when fish prices were low (G5).

Economic labour and employment functions as part of patron-client systems that are reinforced through symbolic systems of social obligation (Nunan et al. 2010; O'Neill and Crona, 2017). As such, relations between boat owners and fishing crew tend to be highly personalised and socially embedded (Carnaje, 2007). Social obligations embedded in these relationships include boat owners' responsibility for the safety, security and general wellbeing of their fishers and their families. Johnson (2010) argues that at this level of the value chain, some of the symbolic reinforcements of patronage are most pronounced. In the Philippines, boat owners 'patronise' their crew members through gift giving, for instance at the birth of a child or death of a family

member (Carnaje, 2007). It is seen as their moral responsibility. They also use their connections and influence to solve his workers' other problems (Carnaje, 2007). In Indonesia, this includes the additional provision of housing (Nurdin and Grydehø, 2014).

Boat owners possess 'reward power' in the sense that they have the tangible resources to pay fishing crew in exchange for their labour, and to extend credit to fishing crew in times of need. In addition, the social obligations that boat owners perform are likely to positively influence the fishing crew's feelings towards the boat owner in terms of respect, admiration, and trust, and thus, affect the boat owner's 'referent power'. A person who is admired or liked by the other has referent power. In theory, if you like someone, you are more likely to comply with their requests than you if you do not like or respect them (French and Raven, 1959). Therefore, the extension of small loans to fishing crew also brings about positive benefits for boat owners. The passage below supports this idea in that the provision of credit in times of need is said to contribute to positive, even friendly, relations between fishing crew and boat owners.

Interviewer: what brings about a good relationship between you and the boat owner?

Fisherman, Kiyindi (G5): there's friendship whereby someone lends a helping hand where need be by lending you money

This study's findings suggest that boat owners extend periodic financial assistance to fishing crew across all three of the major fisheries. However, it is possible that there are differences in the scale, frequency and importance of patronage. Based on contextual information the following differences are theorised. However, more research is required to substantiate these claims.

Mukene boat owners are typically less wealthy than Nile Perch boat owners. Though there is limited quantitative evidence to prove significant differences, several factors indicate that Mukene boat owners may have fewer capital resources to invest in fishing activities, including more affordable capital requirements, lower profits, and fewer examples of capital accumulation (i.e., through the ownership of several boats), compared to the Nile Perch fishery. Therefore, Mukene boat owners may have fewer capital resources with which to patronise their crew and so the scale of handouts may differ to other fisheries. Further research would be useful to understand how the scale of patronage payments differs according to the wealth of boat owners and across the three major fisheries.

However, due to the highly seasonal nature of Mukene fishing, including off-seasons, fishing crew might require more frequent financial assistance than fishers in the Nile Perch or Tilapia sector. Nevertheless, Nile Perch catches are increasingly unreliable, and boats often return with no catch, so fishing crew's income is unstable, and therefore fishing crew may equally rely on patronage when catches are poor. Though of course, fishing crew's dependence on patronage also depends on other personal

factors, including their alternative income sources. Further research should explore which fishers in this context depend on financial aid from boat owners, how frequently and under what conditions.

5.3.3. Power-dependency relations

Both fishing crew and boat owners appeared to yield some power related to their exchange partners' dependency on them.

The study revealed that in some cases fishing crew have the power to exit a relationship and work on another boat. Nile Perch and Mukene fishers from Katosi and Kiyindi expressed their power to go and work for another boat owner and claimed they do so in cases where there are disagreements between the two parties; if the fisher feels they have been mistreated, or if another boat owner offers them better terms of renumeration (G4; G5; G11).

Fisherman, Kiyindi (G5): *"I can leave him if the owner diverts from the original agreement we decided, then I am willing to leave and go and work somewhere else".*

One women boat owner, at Katosi landing site, explained that fishing crew leave or threaten to leave the employ of a boat owner if the equipment the boat owner provides is in poor condition, including the nets and engine (FGD2). This is likely

because fishing gear in poor condition reduces fishing crew's catch potential, and so fishing crew might be persuaded to move to better-equipped boats so they can earn more money.

Skilled and experienced fishing crew also appeared to yield 'expert power' in their relationship with boat owners, as some fishing crew from Kiyindi explained that some boat owners try to poach experienced and skilled crew from other boats, offering fishing crew opportunities to bargain for better pay (G4). Experienced and skilled fishing crew's power stemmed from the dependence boat owners have on their knowledge and ability for income generation. This was particularly true for Nile Perch fishermen who use double and triple nets to fish in deeper and more dangerous waters to catch factory-sized and larger-sized Nile Perch. The lucrative export market for the swim bladder of Nile Perch has also created demand for large-size Nile Perch and offers power to fishermen with these skills.

Male Nile Perch trader, Katosi (G10): There's fish that we all fight to buy, that is fish caught from the deeper waters because us traders believe such fish have heavy maws and that's what we want.

However, in other cases, fishermen from Kiyindi said that they continued to work with 'bad bosses' because of their dependence on them for work and an income (G4). Their dependency was said to relate to a lack of alternative employment opportunities. Across the lake, fishing crew have been found to have less diverse income sources, compared

to boat owners (Nunan, 2010). This is attributed to their relatively low capital resources to invest in alternative livelihoods (Allison and Ellis, 2001). These dependency relations are also created by the shortage of decent and productive work relative to the number of young people entering the labour force in Uganda (Alfonsi et al. 2020). At the same time, the abundance of fishermen and labourers at the landing site desperate for work was a source of power for boat owners. according to fishing crew in Kiyindi (G4; G5).

These findings are the same as those observed by Nunan et al. (2020). In the small-scale fisheries of Lake Victoria, Nunan et al. (2020) also found that power in labour relations between boat owners and fishing crew is influenced by the potential for crew members to move to another boat owner (Nunan et al. 2020). However, further research is required to better differentiate between the fishers who have the agency to move to another boat owner, and those who do not.

5.3.4. Gendered power dynamics between fishing crew and boat owner

One woman boat owner from Kasekulo claimed to have greater control over fish supply than women without boats (IS1). However, interviews with fishing crew and boat owners reveal that women boat owners typically have less power over fishing crew than men boat owners. Fishing crew from Kiyindi explained that women do not have the power to go out on the water and monitor their fishing crew, as men boat owners do (G5). Hence, as a woman boat owner from Kasekulo explained, women

have to rely on loyal family members or boat managers on the boat as their “eyes” (IS1). Focus group respondents from Kiyindi explained that women boat owners even resort to employing ‘spies’ to monitor fishing crew’s activities and report wrongdoing (FGD3; FGD7).

Interviewer: Do the women boat owners face different challenges to the men boat owners?

Focus group respondent, Katebo (FGD4): Yes it happens, you [women boat owner] can ask a fisherman not to take your boat to another island and they undermine you because you are a woman, the next you will hear is him calling and asking that you send money because the engine is faulty and he knows a good mechanic where he is.

Interviewer: Do the fishermen do that to men boat owners?

Focus group respondent, Katebo (FGD4): It can happen to men but it's mostly done to women...[for men boat owners] if they [the fishing crew] call asking for money repeatedly to repair the engine you [the men boat owners] tell them “stay where you are let me bring you a new engine” then they would get scared and change such ways...

Interviewer: Why do you think the fishermen treat women boat owners

differently to the men boat owners?

Focus group respondent, Katebo (FGD4): *Because they know a woman cannot do anything when you give her such excuses while you are on the waters, unlike men who will come and find you right then and there to ascertain if it is true.*

Furthermore, women boat owners' control over share agreements with their fishing crew appear varied. One women boat owner, in a focus group discussion in Kiyindi, explained that it is "*the fishermen, who went fishing, [who] determine prices, though the boat is mine. When they come, it depends on the catches, and the weather, they will tell you that I have suffered today...this fisherman will insist that I'm selling my silver fish at such and such a price, so it is the fishermen who went fishing who comes and says "boss, today I insist the price is that"* (FGD3). However, this was not the case for all women boat owners, other women boat owners in Kasekulo, dealing in Nile Perch and Tilapia (IS1) and Katosi, dealing in Mukene (IN3) claimed that they determined the fish prices and share agreement between themselves and the fishing crew.

Fishing crew also claimed that in most cases boat owners, regardless of their gender, determine the prices of the fish and accordingly calculate the share prices per kg of fish caught for fishing crew. Employed fishing crew apparently have very little power to negotiate with their boss-boat owners. Fishing crew, at Kiyindi landing site, claimed

that some may add a little, around 300 - 500 UGX per kg, in response to fishing crew's requests for more money motivated by difficult fishing conditions (G5). However, they said that in most cases, boat owners are unlikely to stray from the original share agreement, despite the working conditions of fishing crew (G5). Nevertheless, some fishing crew, from Katosi landing site, stated that they are more able to bargain with women boat owners compared to men (G11; G12). The passage below, from a group interview with Nile Perch fishers at Katosi landing site, explains why fishers feel bargaining with women boat owners for better pay is more successful than with men boat owners.

Interviewer: do you have any reasons for why women pay better?

Respondent 1, Nile Perch Fisher, Katosi (G12): *a lady is someone you'd do a simple job for and you exaggerate it and she feels for you and ends up paying more but a man would just say that was easy work, even I could do it, for example if you bring to him only 10kg of fish, he'd say "just this! Even I could have caught this myself!*

Respondent 2, Nile Perch Fisher, Katosi (G12): *and the fact that these ladies have never done heavy manual work, they view this job as a very hectic job worth a lot of payment.*

Alternatively, women boat owners may pay better, or be more amenable to pay

negotiations from their crew to secure labour, improve trust and increase 'referent power'. However, further research is required to further understand the differences, if any, in payment arrangements between men and women boat owners and their fishing crew.

Furthermore, in some cases women's boats are managed by their husbands (as was the case for one woman boat owner in Katosi, who fishes for Mukene (IN36)) or sons (as was the case for one woman boat owner in Kasekulo, who fishes for Nile Perch and Nile Tilapia (IS1)). In such cases where a woman owns a boat and her husband, son or extended family member works on the boat as one of the fishing crew, her power over this asset, production and the fishing crew is likely mediated by intra-household or intra-familial power relations. Though more research is required to better understand how intra-household power relations impact how women operate as boat owners.

These findings are similar to observations made by other researchers. As Alonso (2022) explains, whilst women boat owners do occupy powerful positions as managers of fishing crew, their authority in these situations tends to be partial and precarious. Where women do own assets they are unable to productively use the assets because of social norms and constraints on women's access to a wider set of resources (e.g., capital) (Kher, 2008). In Uganda, women boat owners find it difficult to hire crew or negotiate their wages (Kher, 2008). Alonso (2022) explains that in Vietnam, alcohol-based socialisation is key to the formation of working relationships between boat owners and fishing crew. Since women are generally excluded from these

‘masculinised’ spaces and experiences they face a significant barrier to achieving the same level of ‘referent power’ (based on admiration, respect and likeability) in their relationship with fishing crew as male boat owners. Consequently, they may not be able to hold onto crew so easily. This could explain why some women boat owners pay more – to retain a competitive edge amongst men boat owners with greater referent power.

Similarly, Alonso (2022) found that women boat owners do not command the same respect as men boat owners. Men boat owners are likely to have greater ‘expert power’ gained through years of experience fishing and so earn respect for the knowledge and skill that has led them to becoming boat owners. In comparison, women lack such experience by virtue of their gender (Alonso, 2022). Fishing crew assume that women boat owners have generally lower levels of competence and expertise than men boat owners, or they themselves do. Consequently, women boat owners possess lower levels of ‘expert power’ and are less influential than men boat owners in controlling the behaviours of their fishing crew.

Whilst women boat owners possess legitimate power in terms of their status as asset owners and bosses, they appear less likely, or able to assert their ‘legitimate power’, for example, to control fish prices than male boat owners. Women generally command less legitimate power in broader societal relations and this perhaps influences perceptions of their legitimate power, and thus the respect and deference fishing crew feel they are entitled to. Women in general are also not seen as exercising their

legitimate power as much as men. Some authors suggest this is out of fear of social exclusion, as women who appear to be too assertive risk violating expectations about appropriate behaviour for women and are censured as a result (Meeker & Weitzel-O'Neil, 1985).

5.4. Chapter Conclusion

This research has found that value chain actors within small-scale fisheries experience a plurality of power relations. Several cross-cutting factors have been identified to determine power relations in this context. This includes livelihood capital assets, debt relations, market or labour conditions, and gender. The research revealed how power in these economic interactions is complicated by the social influences of living and working in the same environment. The research also exposed how the lack of appropriate formal credit services for business operators in small-scale fisheries significantly influences power-dependency relations. In addition, the research showed that actors' experience different forms of power within each of the various coinciding positions they occupy in the small-scale fisheries value chain (for example as both a boat owner, producer, employer, and fish trader). Power relations also differ between and within the three major fisheries. These dynamics help explain why actors experience a plurality of power relations. The paragraphs below summarise how these pluralities manifest for each value chain actor.

Fishing crew

Fishing crew's power appears to derive from their labour. The lucrative export market for the swim bladder of Nile Perch has arguably created demand for and offers power to experienced and skilled fishermen who are willing and able to fish in deeper, and more dangerous waters. Fishing crew's labour power is manifested in their agency to go and work for another boat owner (Nunan et al. 2020). Nevertheless, fishing crew's power to negotiate the terms of their renumeration was generally low. Share arrangements were set by boat owners, as the asset owners, and input providers. However, there is some evidence that fishing crew's power to negotiate the terms of their renumeration varies based on the gender of the boat owner. Some fishing crew working for women boat owners, stated that they are more able to bargain with women boat owners, compared to men. These findings are similar to observations made by Kher (2008), who report that women boat owners in Uganda find it difficult to negotiate wages with their crew. Though further research is required to substantiate these observations.

Boat owners

Boat owners play two roles in the value chain; they are both a boat owner and thus, employer of fishing crew, and fish supplier dealing with one or many fish traders through a variety of supplier-buyer arrangements. Boat owners experience a plurality of power relations in each of these positions. The source of a boat owner's power, and the manifestations of that power differ within each of these relationships.

Boat owners maintain power through ownership of capital and property (i.e., boat, gear, and licenses) and have power over fishing crew to the extent that they provide them with employment, and fishing inputs (Damayanti et al. 2018). However, interviews with fishing crew and boat owners reveal that women boat owners typically have less power over fishing crew than men boat owners. Whilst women boat owners have greater control over fish supply and fish prices than women without boats, their power in these situations tends to be partial and precarious (Alonso, 2022).

Despite boat owner's power over the means of production through their status as asset owners and employers, they are highly dependent upon credit from fish buyers to finance their fishing activities. Differences in capital requirements between and within the three major fisheries may also create distinct power-dependency relations. Fish suppliers' debt with their creditors can constrain their bargaining power over fish prices, as well as their freedom to work with other buyers. However, competition between traders, particularly when catches are low, does provide fish suppliers with some leverage in terms of negotiating prices. Furthermore, men fish suppliers seemed to have more power to negotiate prices with women fish buyers. In addition, some men fish suppliers were said to use their power over women fish buyers, stemming from boat owners' power as a resource holder on which women fish buyer's livelihood depends, to sexually harass women and coerce them into engaging in transactional sex to access fish (Fiorella et al. 2015).

Fish traders

Fish buyers' power appears to come largely from their access to capital, which is manifested in the credit and equipment they extend to fish suppliers to secure priority access to catches. Fish buyer's capital ownership is a source of power over fish suppliers and this power is used to control fish prices and limit fish suppliers' freedom to deal with other fish buyers. However, fish buyer's capital ownership is not only a source of power over fish suppliers, but also for particularly capital-rich fish buyers a source of power over other fish buyers in competition for fish supply. Fish buyers with higher capital resources are favoured by fish suppliers and thus appear to have better access to fish. Furthermore, fish buyers who lack the financial capacity to extend credit, pay higher prices for fish. Consequently, women traders, who were said to generally have less capital available for trading activities, are outcompeted by men with greater capital resources, especially in the more capital-intensive Nile Perch sector. Gender was also said to mediate fish buyers' power in other ways. Women fish buyers were said to take home smaller profits than men. This finding provides additional insight to recent studies that examine gender differences in pricing (e.g., Rice et al. 2023). However, men claimed women were able to use their sexualised bodies and 'flirt' to access free fish or gain better prices from men, which gave them a competitive advantage over men fish buyers.

Chapter 6: How is trust encouraged and undermined in small-scale fisheries trade and labour relations?

This chapter addresses research question 2 and uses the conceptual framework featured in Chapter 4 to examine how interpersonal trust is encouraged and undermined in small-scale fisheries trade and labour relations. The first section of this chapter evaluates the social construction in the study context. The second section explores interpersonal trust between fish buyers and fish suppliers, and after interpersonal trust between fishing crew and boat owners. The third section examines how the meso- and macro-level social, institutional, and environmental context influences trust in dyadic trade relations.

6.1. The social construction of trust in the small-scale fisheries of Lake Victoria, Uganda

Respondents explained that trust or distrust is developed through the process of working with the trustee (G6). For instance, trust judgements are built through the experiences of giving, receiving and repaying credit (FGD7; G8). Respondents even referred to the process of giving credit or providing materials and equipment as a 'test' for new trade partners (G13; FGD8). For example, fish buyers would lend to new trade partners, despite the risk of having no prior knowledge of their trustworthiness. They would then observe their behaviour, particularly whether they pay their debts and

follow the conditions of the loan, to make (dis)trust judgements and determine if they want to continue working with them (G13; FGD8).

Focus group respondent, Katosi (FGD8): *...you have to test and this comes with risk, you give him the boat and say let me test him for this month and I see, because you can't trust him by the flash of light, you just risk and give them everything they need for fishing and see how they do.*

Other participants claimed that they would sometimes 'do some research' about the individual before working with them (G7). This generally meant asking others about their experiences of working with this individual and their evaluations of their work ethic and trustworthiness (G10).

Respondents claimed that family or tribal relationships were unimportant to trust judgements and working relationships (G10). This is unlike other studies which found that family (Roberts et al. 2022) and clan-based ties (Sudarmono and Bakar, 2012) were important to trust in trade relationships. Contrary to these studies, several respondents in this study said that relatives are untrustworthy (G7; FGD9). Employed relatives were said to lack respect for their bosses (G7) and exploit the social intimacy between them and their bosses (FGD9).

Interviewer: does working with a relative create more trust since you already know each other?

Focus group respondent, Katosi (FGD9): no! They'd in fact eat your money without a care, thinking since you are already family, you wouldn't do much harm to them. You'd rather work with a complete stranger.

These accounts from respondents suggest that process-based theories of trust are most relevant to understanding the social construction of trust in the study context (Emborg et al. 2020; Granovetter, 1985). Accordingly, what a trustee does within a relationship appears particularly important to the trustor's perception of their characteristics, and in turn trustworthiness. Hence, this chapter mostly focuses on the behavioural construction of trust.

6.2. Trust in the everyday interactions between value chain actors

The following few paragraphs describe and analyse how (dis)trust is developed through everyday interactions. The first section examines trust between fish buyers and fish suppliers, and the second section examines trust between boat owners and fishing crew. Trust relations are analysed through displays of (un)reliability, (dis)loyalty, (dis)honesty, benevolence, and reciprocity identified from the research findings.

6.2.1. Trust between fish buyers and fish suppliers

Trust and distrust are evident throughout the working relationship between fish buyers and suppliers; through acts of reliability/unreliability, (dis)loyalty, (dis)honesty and reciprocity. These behaviours can undermine or encourage trust.

6.2.1.1. Reliability/unreliability

Investee-fish suppliers display their trustworthiness by delivering their catches to the investor-fish buyer as agreed and working with them to repay their loan (G8).

The quality of fish delivered also seems to contribute to fish buyers' perceptions of fish suppliers' competence and therefore trustworthiness as a trade partner (IN6; IN7; IN9; IN18; IN21).

On the other hand, failing to pay back a loan or failing to follow through with the conditions of the loan (i.e., delivering fish) can have negative effects on trust and may lead to distrust (FGD7; FGD9; IN15).

Interviewer: What makes a bad relationship with your fish suppliers?

Male fish trader, Kiyindi (G8): Not bringing the right amount of fish, i.e. when we send and pay for 20kg from the islands, and we receive it and it is only 15kg. That brings a bad relationship and leads to distrust.

Similarly, fish buyers also show trust or distrust in their interactions concerning pay and credit with fish suppliers. Fish buyers display reliability by paying fish suppliers for fish when it is delivered (FGD9).

Focus group respondent, Katosi (FGD8): ...if I deliver and you delay to pay me without a good excuse, then I might lose my trust and cut off the connection to you because of late payments

In instances where fish buyers have taken fish-on-credit from fish suppliers they are judged to be trustworthy if they pay for the fish within a reasonable time, usually after they have sold it (FGD7).

Focus group discussion, Kiyindi (FGD7): Sometimes someone can come and get 10kg of Mukene but only pays for 8kg and is expected to pay the rest back, so if he pays it back, he is considered to be trustworthy because he has taken responsibility of paying the rest.

Several respondents explained that truck owning-fish buyers, who sell to the processing factories, are trustworthy in this respect, because they are said to pay back any fish provided on credit within a short period of time (G7; G9; FGD8; FGD9) (see passages below).

Male boat owner, Kiyindi (G7): *we trust truck purchasers because they'll be around even the next day and the next, the longest they'll take is 2 days to pay back.*

Male boat owner, Katosi (G9): *the only people who cannot run away with your fish without paying you are those without trucks*

However, the source of this trustworthiness also appeared character-based. Respondents explained that truck owning-fish buyers “*have an address*” or an identifiable vehicle (G9) and because of this they can be held accountable for any wrongdoing.

Male fish trader, Katosi (G1): *The middlemen are reliable, they are people who are settled, they have their assets, by the time that one runs, will he really take away the building? So you will have somewhere, a point of reference, compared to these others who have no reference, one cannot look for them even if they go with your 40 million, but with these middlemen, they are reliable and they cannot run away with my money, if he does this I will come here on his land/at his place.*

In addition, the fish buyers who own trucks and deal directly with the processing factories tend to have high capital resources (FGD3) and this may also contribute to perceptions of their reliability and correspondingly, trustworthiness. For instance, boat

owners claimed to trust the richer fish buyers, like the truck owners, enough to provide them with fish on credit, but did not afford the same level of trust to other fish buyers with low capital; those fish buyers must pay with cash (see passage below).

Male boat owner, Kiyindi (G7): *but these people who have low capital, we trust them on condition that they pay cash once we give them fish.*

6.2.1.2. (Dis)loyalty

Fish suppliers and buyers were also said to perform (dis)trust through acts of (dis)loyalty.

Fish buyers cited examples of disloyalty as fish suppliers selling to other fish buyers, despite prior agreements, incentivised by/secured through advanced payments (IN4; IN5; IN6; IN7; IN12; IN33). Some referred to this as “theft” (G8).

Male fish trader, Kiyindi (G8): *Some fish suppliers that we provide money to, to go and fish, end up supplying fish to other different people who are competing in the same business as them, so you end up getting less fish in a day.*

Fish suppliers also agreed that selling fish outside of an agreement with a fish buyer leads to distrust (see below).

Interviewer: *what ruins your relationship with the purchasers?*

Male boat owner, Katosi (G9): dishonesty and of lack of trust, he can give me money for fish then I go behind his back and sell to someone else, yet I owe him

On the other hand, fish buyers reported that fish suppliers can also feel hostile towards fish buyers if they don't display loyalty by buying from them, and instead deal with other suppliers. One women fish trader at Masese landing site reported experiencing "threats of witchcraft" when she changed her supplier (IN25). Rubbers (2009) in their study in the Democratic Republic of Congo, also found that individuals were accused of witchcraft because of jealousy and resentment, particularly when these individuals failed to fulfil obligations of reciprocity despite their means to do so.

Loyalty was expressed as important to perceptions of trustworthiness (IN6; IN10) often shown through the length of time worked together (IN18; IN21; IN26). Displays of loyalty appear to have trade related benefits, including price and credit advantages. Fish buyers claimed that they were not readily able to get fish-on-credit from the average fish supplier. However, it was more likely that the fish supplier(s) they have worked with over a relatively long period of time would trust them enough to provide them with fish-on-credit, under an informal agreement that they pay them after a couple of days (FGD7). The repeated interactions between the loyal fish supplier and the fish buyer enhances reputations, in this case those of trust. Some also reported receiving better or fairer prices from loyal fish buyers (G9).

Male boat owner, Katosi (G9): *I don't sell to one person but there are some loyal customers who whether the price has gone up or down you just balance it out with them since you always work together...*

This finding is similar to Turgo's (2016) observations in the Philippines; that being trusted had tangible benefits, since the more 'trusted' and 'known' fishmongers were given better payment schedules than others, depending on how long they had been in the business, their financial transaction history and their relationship with fish traders. These 'favours' deepened the trust fishmongers had with the fish traders (Turgo, 2016).

Furthermore, when one trade partner displays loyalty toward the other it positively influences the chances of reciprocation. As the passage below suggests, displays of loyalty are important in obtaining financial assistance from a trade partner.

Male boat owner, Katosi (IS5): *for the loyalty I show to him and not go looking for other buyers when he doesn't have money, it helps me in times when I don't have money and need his help when he has money.*

Inversely, the provision of credit encourages loyalty and consequently trust which can be reciprocated, as the passage below suggests.

Male fish trader, Katosi (G13): *there's competition of buyers here, so lending to*

a supplier ensures some sort of loyalty to you that they'll be prioritising selling to you their fish over other buyers.

Other studies have also found that the provision of credit is strongly based on trust (e.g., Crona et al. 2010; Matsue et al. 2014; Turgo 2016). Rubbers (2009) found that Congolese traders restrict credit facilities to old, serious and faithful customers.

6.2.1. 3. (Dis)honesty

Fish buyers and suppliers could show (dis)trust through being (dis)honest or through acts of (dis)honesty. For instance, fish buyers reported that fish suppliers display dishonesty by failing to use the money fish buyers invest for its intended use - fish production – and instead may spend it ‘irresponsibly’ on alcohol (G6; G8).

Interviewer: *What makes a bad relationship with your suppliers?*

Male fish trader, Kiyindi (G6): *dishonesty*

Interviewer: *can you give an example of someone who is being dishonest?*

Male fish trader, Kiyindi (G6): *there are so many examples, you give someone money he suppliers to another, or goes to the village, he goes to the bar and spends all the money while you are here waiting for fish.*

“Cheating”, by tampering with weighing scales, was cited as one of the ways fish buyers show dishonesty (G7; G8; FGD7). Fish buyers were said to use their own weighing scales at the landing site rather than a standard scale (FGD7). These scales are seemingly manipulated by fish buyers to read lower quantities. Such “cheating” results in increased profits for the fish buyer, as the passages below explain.

Group interview respondent 1, Male fish trader, Kiyindi (G8): *We get profits by fiddling the weighing scales, so they read false weights....[In addition, we don't count the grams, we only count the full kg (e.g., if the fish weighs 5.7kg, they will only note down 5kg) which ends up cheating the customer [the fish supplier]. If I adds up all of my 'cheats' in one day, I end up with 4kg of 'cheats' per day, and so that is profit, as I make sure that those kgs are included when selling the fish [to another buyer].*

Group interview respondent 2, Male fish trader, Kiyindi (G8): *We don't cheat them, it is just how we do it here, everyone knows it, in this business, we don't count the small weights that make up a kilo...they don't count the weights behind the decimal points, if it's 6.5kg, they count on 6kg.*

The process of rounding down a decimal was also referred to as ‘grading’, and was particularly common for Nile Perch (G8). Arguably this is an example of what Rubbers

(2009) explains as a toning down of the immorality of cheating that legitimises the practice as 'resourcefulness' or 'astuteness'.

This was also a problem reported by fish buyers who were buying from other fish buyers (IN25; FGD5). One women fish processor and trader at Masese landing site reported paying for 10kg of fish when they received just 9kg because of weighing scales which had been adjusted or tampered with (IN25). For example, fish mongers at Owino Market claimed to reweigh the fish when they were delivered, using their own scales, to check that the quantity they paid for had been delivered (FGD5). Whether or not they delivered the correct amount was reported to influence trust judgements (FGD5). In the Silver Fish (*Mukene*) trade 'cheating' is achieved by adding water to bags of sun-dried *Mukene* so that the bag weighs more and achieves a higher price (G6; FGD7). This was said to occur more on the islands, rather than at the landing sites on the mainland (FGD7).

In addition, fish suppliers cited issues of 'cheating' in relation to payments made via mobile money. When buyers do not have the cash available they have the option to pay digitally (IN4). However, fish suppliers reported experiencing dishonest behaviour in relation to agreements to pay via mobile money. They could incur financial losses because buyers did not include withdraw charges - which meant the operator's fee for cash withdrawal was taken out of their income/profit. This is because the sender sends less than the agreed amount or they claim to have sent the money to the wrong number (IN5; IN16).

Similarly, fish buyers can use mobile phones to deal dishonestly with fish suppliers regarding payments, as the trader below confesses:

Woman fish trader, Masese (IN4): *The bad thing about phone is I am able to lie to the fishermen when they want money, to say I am not around, even when I am. Sometimes I use the phone to call the fishermen to say "I'm sending you the money right now" and I don't.*

Some fish buyers reported dealing with trade partner's entirely over the phone and having never met in person (FGD5; FGD8). Whilst buyers who deal with suppliers from a distance may conveniently use mobile money to send suppliers an advanced payment to secure fish supply, not dealing directly with suppliers and relying on communication via mobile phones comes with risks, as the passage below suggests:

Women fish processor and trade, Kiyindi (FGD7): *Someone can send someone money to purchase silver fish and you call them to confirm whether they have got the silver fish, instead they cheat you and switch off the phone so you cannot reach them. These people who end up cheating, they end up becoming their enemies, because they have failed to pay, or have taken long to pay.*

Such 'cheating' is an example of opportunism – whereby individuals seek to benefit at the expense of others by breaching agreements, evading obligations, withdrawing

promises or taking advantage of partners (Ford et al. 2020). Opportunism is acknowledged as creating a challenging environment for maintaining trust among actors (Hotte et al. 2019). This will be discussed further in Chapter 7.

6.2.1.4. Benevolence (and a lack of).

Displays of kindness, care and empathy also contribute towards perceptions of trustworthiness. Examples mentioned include discounting fish prices (FGD9; IN9) and sharing financial losses because the quality of fish is poor (FGD5).

Several women fish processors and traders claimed that the offer of fish on credit from fish suppliers was key to good relations between them and fish suppliers (IN6; IN7; IN10; IN21; IN25; IN26). Seemingly, the provision of credit contributes to perceptions of fish suppliers' benevolence and therefore trustworthiness.

Furthermore, leniency in terms of loan re-payments, and empathy are also valuable displays of benevolence that contribute to positive perceptions of the investor-fish buyer. The passage from the trader below illuminates how investor-fish buyers display benevolence toward investee-fish suppliers.

Large-scale fish trader, Katosi (IS3): ...the investment we do, you will find we are the best people, in the whole of this landing site, in terms of investing in those fishing, and some of them don't even pay back, you find someone who has taken

100 million and has gotten risks and uncertainties and as people who have also been in the same sector we understand that fish business is full of uncertainties and risks. So if we have bought fish nets of 30million, and the fish nets have been stolen, you have nothing to do, we just say "mobilise what you have".

Interviewer: *So you don't demand this money back, when their nets have been stolen?*

Large-scale fish trader, Katosi (IS3): *No we don't.*

However, such benevolence can have potentially negative effects for the trustor. As Turgo (2016) in their study found, trust can also lead to financial losses. In the Philippines, fish brokerage houses went bankrupt due to their leniency regarding unpaid debts. The owners of these brokerage houses were said to be too trusting (Turgo, 2016). Turgo (2016) describes such over-trusting behaviour as resulting from too much social intimacy in economic relationships – what they refer to as 'over-embeddedness'. A high degree of social intimacy is characteristic of economic interactions in small-scale fisheries as exchange partners are often also neighbours, relatives, or friends (Turgo, 2016). Arguably, comparisons may be drawn with the leniency that the large-scale fish trader claim to show to their fish suppliers in terms of debt repayment. The passage below from the same large-scale fish trader suggests a high degree of social intimacy between the two trade partners.

Interviewer: ...how else do you maintain relationships with suppliers?

Large-scale fish trader, Katosi (IS3): this man [their fish supplier] we have grown up together, some of them [their other fish suppliers] are family members, some of them we have worked with them on the islands, so more or less it's a friendship kind of thing.

Such over-trusting behaviour may also be financially unsustainable for the fish traders as it was for the owners of the brokerage houses in Turgo's (2016) study.

Loyalty appears to contribute to benevolence among trade partners. The passage below suggests that loyalty influences goodwill in relation to prices.

Male boat owner, Katosi (G9): I don't sell to one person but there are some loyal customers who whether the price has gone up or down you just balance it out with them since you always work together

On the other hand, behaviours that display a lack of care, negatively impact trust judgements. The passage below provides an example of how fish buyers can display a lack of empathy toward the difficulties fish suppliers face.

Male boat owner, Katosi (G9): There reaches a time of scarcity of fish in the lake, some people have loans and whether the wind blows away your nets or

they are stolen, they [the lender-fish buyers] don't care, you still have to pay their loan back.

Similarly, perceptions of fairness and satisfaction, particularly in terms of payment, influences trust judgements. Fish suppliers explained that fairness in terms of prices affect their opinions of the fish buyer's benevolence and consequently their willingness to work with them (see passages below).

Male boat owner, Kiyindi (G7): *if I have sold you my fish at about 10,000ugx and then I hear that another truck is giving 11,000ugx it means you are not trustworthy, so I'd leave the following day and sell to another truck*

Focus group respondent, Katosi (FGD9): *if you overly negotiate the prices for fish, let's say his price is 12,000ugx and you insist on 10,500ugx and he accepts and as he's weighing, someone asks them how much they've sold to you and they say 10,500ugx then they tell them you've been cheated, next time he'll first ask around 4 or 5 people before selling to you, they'll lose trust in you*

Similarly, Amarasinghe (1989) reports when fish buyers under-report fish market prices, frictions between fish suppliers and fish buyers are likely to arise.

6.2.1.5. Reciprocity

Boat owners also explained that they were more likely to trust a fish buyer to give them fish on credit if the relationship between them was reciprocal (IS5; G9).

Interviewer: is there anything else you base your decision to give this person fish-on-credit on?

Male boat owner, Katosi (G9): ...if they've also been lending you money when you don't have so you continue to run your activities.

Perhaps this comment reflects a sense of obligation rather than reciprocity and goodwill. As the passage below suggests through the respondents use of language, specifically the expression that they "have to" lend in return.

Interviewer: can you give your boss fish on credit, or does he have to give you cash right away? And what do you base your decision to give him fish on credit on?

Male boat owner, Katosi (IS5): I can supply him and then he says there's no cash then I'd have to lend to him and go

Interviewer: why must you lend to him?

Male boat owner, Katosi (IS5): looking back at all the good he had done for me

in the past

6.2.2. Trust between fishing crew and boat owners

The following section examines trust between fishing crew and boat owners as process based and analyses how displays of (dis)honesty, (dis)loyalty, and benevolence (or lack of it) influence interpersonal trust between the two actors.

6.2.2.1.(Dis)honesty

Fishing crew display dishonesty and damage trust relations and subsequently working relations between themselves and the boat owner by stealing fish and selling it to other buyers before the fish has been landed or selling it at other landing sites (G12).

Interviewer: *Why don't you trust the fishermen?*

Woman boat owner, Kiyindi (FGD7): *They usually catch more fish than they deliver and sell some off on the waters and bring what is left to you.*

Respondents referred to the practice of fishermen selling their catches outside of agreements with boat owners as 'theft', as one fisher explains:

Fisher, Kiyindi (G5): You have no right to sell that fish elsewhere, if you agreed with your boss and then sell to some else, that is considered theft, if he gets proof that you indeed sold some of your catch to someone else, he can take you to police.

One fish buyer claimed that in some cases, fishermen take fish buyer's money and do not return with any fish, but instead go and work from another location along the lake.

Male fish buyer, Katosi (G1): Fishermen are a great challenge, and what happens...they go with their [investor-fish buyer's] money, they can even look for them but this one [the fisher] decided to even cross up to Kalangala to go fishing, and then he may have gone with some millions of someone, and this one [the investor-fish buyer] remains stuck, it is a challenge, and then when they [the fishers] reach Kalangala they could also do the same thing and then rush back, so the fishermen have become a very big problem.

When asked why fishermen display such dishonesty respondents claimed that fishermen were generally untrustworthy (G8), greedy and lacked concern for their bosses and their agreement (FGD3; FGD9) (see below).

Focus group respondent, Katosi (FGD9): they are just greedy (laughter) even if you are to give those fishermen about 20kg [in shares] they'll still not be satisfied... fishermen are always looking for a high price for their fish, so despite

the prior agreement they have with their boss, they'll sell their catch to the highest bidder

Another respondent suggested that fishermen are alcoholics and lack integrity/ moral principles and therefore cannot be trusted:

Male fish buyer, Kiyindi (G8): Some are alcoholics and spend their money quickly in leisure activities like getting women, they don't mind about tomorrow.

This perception of fishing crew has been observed in other studies (e.g., Nunan et al. 2020). Nunan et al. (2020), in their study of Lake Victoria fisheries, found that fishing crew were often portrayed as unreliable, lazy and alcoholic. As a result of these reputations fishermen are generally subjected to a low social status (Nunan et al. 2020). Furthermore, these perceptions shape normative expectations of fishing crews' trustworthiness (McLeod, 2021).

Fishing crew that work between multiple boats were said to be particularly untrustworthy in this regard (FGD3; G11), as a fisher from Katosi expressed:

Fisher, Katosi (G11): working on one boat is far better than working on over 10 boats, no one can trust you if you are always working from boat to boat, most times such a person is a thief

These fishermen are perceived to lack loyalty to one boat owner which affects perceptions of their trustworthiness.

In some cases, boat owners explained that it is not the fishing crew but the boat managers who take fish from the catch, before delivering it to the boat owners (G7).

Some boat owners have resorted to employing 'spies' on their boats because they do not trust all the fishermen they have employed (FGD3; FGD7).

Woman boat owner, Kiyindi (FGD7): They [the fishermen] usually work in groups of 3 and there's usually 1 that is trustworthy who will come and report to you "so and so tried to sell some fish on the waters but I opposed to it". One of these three people on the boat can be employed as a spy, to spy for the boss on the other two... in that they can tell you what is happening

Carnaje (2007) similarly found that fish consignors relied on systems of local informants (spies) to monitor investee-fishermen. Furthermore, in Sierra Leone, Diggins (2023) observed that boat owners foster social networks across neighbouring fishing towns in the hope that someone will inform them if their boat's crew shows up to sell their catch in clandestine.

Due to the entangled nature of fisheries value chains, dishonest behaviour between fishing crew/boat managers and boat owners can have knock-on implications for relations between boat owners and fish buyers with whom they have made trade arrangements. For instance, a fish buyer "*might place fish orders and when he comes, he finds the fish are not enough*" because the fishers have sold some of their catch to another buyer (G7). This is most likely to affect the fish buyer's perceptions of the fish suppliers' reliability/competence and in turn trustworthiness.

Nevertheless, boat owners are also said to act dishonestly and 'cheat' fishers by tampering with weighing scales (like fish buyers were found to do). As a result fishers are paid for less kg than they caught (G5; G11). One fisher explained that they find a way to make the weighing scale read 7kg, when the catch weighs 10kg (G11).

Trust between crew and boat owners is also affected by boat owner's behaviours related to share agreements and payment for labour. Fishing crew explained that if a boat owner lacks integrity and fails to pay their crew what they have agreed, the fishing crew will lose trust in the boat owner and as a result will likely look to leave that relationship.

Fisher, Kiyindi (G4): *in most cases we might agree that the boat owner will pay me 5000 UGX for every kilo I bring them, then the boat owner reaches a point and changes and starts paying me 2000 or 3000 UGX, I might decide to leave and get another boat owner who promises better pay.*

Boat owners were also said to delay paying their employees or underpay them for their work (G12).

Interviewer: what brings about a bad relationship with your boss [the boat owner]?

Fisher, Katosi (G12): *if I work for my boss for two days without receiving payment, and then on the third day they only pay me for one day*

Carnaje (2007) also found that some boat owners failed to pay crew members according to the labour agreements they had made, and instead paid fishing crew irregularly or merely gave crew 'pocket money' or fish to take for home consumption.

Furthermore, fishers explained dissatisfaction towards boat owners when boat owners lacked flexibility/responsiveness and refused to alter share payments in accordance with market prices. One fisher, from Kiyindi, explained that, "*bad bosses...are adamant and don't want to negotiate*" for example "*...when the market price goes up and [they] still insist on paying you 1000 instead of 1300 or 1500 [per kilogram of fish caught]*" (G5).

6.2.2.2. Benevolence (or lack of)

Fishing crew's perceptions that the boat owner does not care for their well-being can also affect trust relations between the crew and boat owner. The passage below implies that some boat owners fail to maintain their boats and as a consequence risk the safety of their crew members.

Fisher, Kiyindi (G4): ...if the working conditions are not good and you also treat me poorly... [for example] there are some bosses who don't want to give you fishing gear or repair the boat but instead just want to keep making money from said boat...if it's been a persistent issue like not wanting to buy fuel, they want you to work in a boat they've refused to repair for over 3 years...you are likely to resign

Fishing crew stated that a boat owner's failure to display benevolence towards their fishing crew would likely motivate them to leave their employ. For example, failing to help them when they are struggling:

Interviewer: What factors would cause you to leave your boss?

Fisher, Kiyindi (G5): If they don't give you money, some can even leave you there to starve yet they are your employer, in cases where there's no fish in the waters.

Inversely, boat owners' provision of 'allowances' or small loans to fishing crew, in addition to the share agreement, is central to good working relationships between fishing crew and boat owners (G5). 'Benevolence' includes monetary assistance during times of financial hardship and payment of medical bills. Furthermore, such kindness encourages fishing crew to act with loyalty, as the passage below suggests.

Fisher, Kiyindi (G5): *The more we are given these motivations, the more we bond and be loyal to our bosses and work longer there.*

Nunan et al. (2020), O'Neill and Crona (2017), and Caranje (2007) also found that the care taken by boat owners to provide for the welfare of fishing crew beyond mere labour transactions develops affinity and trust between the actors and is instrumental to the functioning of the relationship.

6.3. Broader social and ecological environments of (dis)trust

Interpersonal trust is situated within the larger social context. The following section examines how meso- and macro-level social, environmental and political factors influence trust in dyadic trade relations. This includes an analysis of gender norms, the behaviour of and trust in governance actors, the prevalence of theft, and environmental dynamics, and how they impact social trust, and in turn, interpersonal trust.

6.3.1. Gendered dynamics of trust

Perceptions of, and behaviours related to trust are also influenced by socio-cultural norms operating at the meso and macro-level. This section examines how normative expectations, in this case related to gender, shape understandings regarding what actions are expected of men and women and in turn, how normative-expectations influence (dis)trust judgements. In addition, the following paragraphs explore displays of (dis)trust, specifically (dis)honesty and benevolence, in relation to gender.

Respondents described women as more innately trustworthy than men (G1; G7; G8). Women were also said to display trustworthiness more frequently than men (FGD8). Some said that women can be too trusting that “*unless she works with a man on her side who will be following up with those they've lent to*” they are likely to be exploited because “*this fishing business is not easy, you might lend someone your money and they disappear with it (laughter) that's why it requires a man who can switch gears and be strict so as to get their money back*” (G9). This statement suggests that women's propensity to trust is sometimes exploited.

More specifically, women were said to display more honesty than men (G10; G11); “*if a women promises to pay you she makes sure to do so*” (FGD4). Conversely, men were said to lie a lot (FGD8). When asked why men tend to lie, men participating in a focus group discussion in Katebo landing site, suggested that it's due to men's responsibilities at home. Traditionally, as the 'breadwinner', they are not able to

maintain their working capital and consequently delay payment or are forced to lie when they don't have the necessary capital (FGD4). However, respondents from another focus group, in Katosi, claimed that "*men are naturally liars*" (FGD8).

Some respondents claimed that women were less likely to cheat in the same ways that men did.

Male fish trader, Katosi (G10): the difference is that women are usually more honesty and trustworthy than men, if she says I've sent you this many kilos, you'll find that it's accurate, but a man will tell you I've sent a lot of kilos but when in reality they are few.

When asked to explain why women are less likely to 'cheat', respondents claimed that women "*fear cheating people*" (G10).

Male fish trader, Katosi (G13): women are very honest, she can even alert you and say "my husband currently has problems, if you give him your money he may not go on the lake to fish"

Furthermore, some respondents also claimed that women have more integrity in that they will follow through with the agreements they make, for example, on prices, (for example) (G11), unlike men, who easily waiver and are "*very unpredictable*" (G13).

Women were reported to display more kindness (FGD9) and were therefore perceived to care more about other's livelihoods than men, as suggested in the extract below.

Focus group respondent, Katosi (FGD8): *you can call a lady you've given fish on credit and tell them please try to work and send back the money, I need it for business, and she'll be responsible enough and make sure she informs you of whatever amount she has come up with, but you'll call a man and he won't even pick up, he'll take the whole day without picking and when he finally picks, he'll ask "what did you want me to tell you? I haven't got the money yet" [whereas] ladies generally feel for you and your business.*

Furthermore, women were said to express more empathy toward individual hardship and suffering (G7; G12). Therefore, they were apparently more likely to provide their trade partners with financial assistance when they asked (G7).

However, respondents claimed that men had more context specific empathy due to their first-hand experiences of fishing on the lake, there is less evidence that this is true of women (G11). Therefore, men were more likely to understand when fish suppliers experienced losses (G9), and more likely to trust their fishing crew when they tell them about the difficulties they have faced on the water (G5).

Fisher, Kiyindi (G5): *[It is easier to work with] men because in most cases they've also ever done this job and understands the hardships we experience*

better compared to a women, you will ask her that we repair the boat and she will say I don't have money, she will not care because she doesn't know the hardships you go through.

Most of these bosses [boat owners who are men] have also been fishermen at some point and understand that things may not go as planned, if you are given money to go fish and you don't catch any, it's hard to come back and tell a woman to give you more money to go back.

Nevertheless, some fishing crew appear to exploit women boat owners' ignorance about fishing and their propensity to trust to claim more benefits (G12). Fishermen do this by exaggerating the extent of their work to bargain for higher pay (G12). They were unable to manipulate men boat owners in the same way (G12).

Fisher, Katosi (G12): I prefer working with women because they don't understand our kind of work, you can easily lie to her that the weather was not so good on the lake, and she'd feel a lot of pity for you and even offer you a cup of tea.

6.3.2. Theft and its impact on social trust

Fishing crew explained that incidences of theft on the lake were high; thieves commonly steal nets and engines from boats (IS2; G4; G5; G7; IS5). Thieves were also

said to physically harm fishing crew with machetes (*pangas*) and carry guns (IS5; G4).

According to respondents, theft is driven by the high costs of inputs. They explained that the cost of nets is high, so if one cannot afford it they resort to stealing (G7). This theft is carried out by other fishermen (IS2) often from other communities (G5). The cost of the theft falls on the boat owner (G5). Respondents claimed that it was more likely for their boat owner-bosses, or capital lenders, to believe that they had been attacked when the thieves had physically harmed the fishing crew, leaving visible signs that they had been attacked (G4; G5; IS5).

Fisher, Kiyindi (G4): my boat once got faulty on the waters and then someone came to pick the engine because it was newer than theirs, they can even cut off your hand so you have proof to show to your boss that they indeed stole your hand and you didn't just sell it

Arguably, high incidences of theft on the lake are likely to affect social trust, increasing suspicion and affecting people's default perceptions about others trustworthiness. It might cause them to question whether their trade partner has really been the victim of theft or whether they are lying to disguise either their participation in the theft, selling fish outside of their agreements, or using their investing partner's money irresponsibly. Fishing is already an uncertain business, but theft increases the risk that fishers return with nothing.

In Tanzania, Katikiro et al. (2015) also observed social tensions as a result of the theft

of fishing gear. They report that theft is a result of the increased monetisation of fisheries products which has led to unregulated opportunism (Katikiro et al. 2015).

Due to the entangled nature of the fisheries value chain this risk is shared by multiple actors, including not only the fishers who are confronted by the thieves but also the boat owner who has had his equipment stolen. The fish buyer, who may have invested capital in this fishing operation and who is unlikely to receive the fish they were promised, is also affected, as well as the final trader/processor who may also have made agreements linked (though indirectly) to this boat. As a result, theft impacts interpersonal relations, including trust, between all these actors along the value chain.

6.3.3. Environmental decline and its impact on social trust

Focus group respondents in Katosi also suggested that poor environmental conditions influenced fisheries' actors to act in an untrustworthy manner. They claimed that fish suppliers' untrustworthiness corresponds with declines in the health of the fishery.

Focus group respondent, Katosi (FGD8): those who are not trustworthy it's due to the conditions of the waters, if it's not producing fish, if they've invested in a lot and not earning, it causes them to lose trust.

People are truly trustworthy but like they said certain circumstances force them to act otherwise.

I work with little capital, I can get my money and give it to a fisher but because there's no fish in the lake currently, you are likely not to see him again, he'll just delay with your money and find other rich bosses that are investing more in him, that's why I say there's no more trust as it used to be in the past, I'd get about 500kg but right now I get 50-20kg, you come here and sit and just go back when you've not got any fish

The nature of our job doesn't guarantee trustworthiness all the time, the lake can act up and fishers fail to catch fish and your supplier will start dodging not out of malice but because of the situation at hand...most people are trustworthy if the lakes provides a good constant supply of fish

Competition for scarce resources also appears to affect general social trust. Competition between fish buyers for fish, and perceptions related to unfair competition, affects social trust amongst this group of actors. For instance, fish agents (i.e, fish buyers who deal directly with the fish processing factories) are said to outcompete other fish buyers due to their high capital resources. This perceived unfairness contributes to the perception that fish agents are untrustworthy.

Focus group respondent, Katosi (FGD9): the middlemen who buy fish directly from the fishermen and sell to traders here [are untrustworthy], reason being since they also need fish from these fishermen, they persuade them with their

higher prices and end up taking fish meant for you... those ones cause us [other fish buyers] to incur the highest losses, those middlemen.

Moreover, competition is said to incite feelings of jealousy and betrayal which can lead to malevolent behaviour and in turn affect social trust. Respondents cited incidences whereby competitors would sabotage the reputation of others by feeding enforcement officers false information. Consequently, the accused fish trader would lose money due to the fines levied or bribes paid, and risk the quality of fish degrading as consignments were searched.

Male fish trader, Kiyindi (G6): *these enforcers also have spies who tip them off and say this person is carrying illegal fish in his consignment...your documents won't matter at that time, the police officers will first have to offload it and check, there's jealousy in this workplace, someone can incriminate you and report you to the police officers who'll first have to offload it and check to make sure.*

Other researchers have observed that uncertainty, including environmental uncertainty, positively influences opportunism (Wang et al. 2015; Huo et al. 2018). Carnaje (2007) found that uncertainty surrounding the frequency and amount of fish caught posed heavy demands on share contracts between boat owners and fishing crew in areas undergoing resource depletion. The low, uneven, and unpredictable nature of the catch also encouraged opportunism among the casual crew (Carnaje,

2007).

6.3.4. Governance actors and their impact on social trust

Respondents reported multiple incidences of malpractice by governance actors, specifically The Uganda People's Defence Force (UPDF) officers, working under the Fisheries Protection Unit (FPU) to combat illegal fishing operations on Lake Victoria. Several fishers, boat owners and fish traders reported UPDF officer corruption, at several of the studied landing sites. UPDF officers were reported to threaten and arrest fisheries actors without a legal precedent (IS1; IN16; G5; G9; G10; G11; G13; FGD8; FGD9). A table of direct quotes about such issues with UPDF-FPU officers is included in Appendix D.

According to respondents, officers were driven to behave unlawfully for monetary gain (G1; IS1; FGD9). Officers were said to benefit from the bribes that actor's pay to release themselves from arrest or to release their fish products from the custody of the officers (IS1; IN16), and also through the sale of confiscated fish and equipment, particularly fishing hooks and nets (FGD8; FGD9). Furthermore, even when acting within their remit, for example, to combat illegal activities by confiscating undersized fish. Some officers were reported to not only confiscate the undersized fish but the legally sized fish too (FGD2; IN14).

More worryingly, some UPDF officers were also said to use unnecessary violence

toward fisheries actors, including torture (IS5) and caning (G5). Officers were even accused of committing murder (IS5; G9), with no accountability or adequate repercussions (IS5). Moreover, these officers were said to create an environment of fear by coming and searching people's homes at night (IN7; IN16). These findings correspond to similar incidences regularly reported in Ugandan news media, detailed in Chapter 2.

Women fish trader, Kiyindi (IN6): these soldiers when they come the whole place is in fear and business is very low.

UPDF officers' malpractice was reported to impact actor's livelihoods by interrupting supply and correspondingly, trade (IN6; IN16; IN20; G2). Some respondents reported that they had experienced a decline in their profits since the UPDF were assigned to monitor and enforce activities on the lake (IN19).

UPDF officer corruption affects institutional trust and the confidence fisheries' actors have in the FPU. In addition, UPDF officer corruption is also likely to affect trust in fisheries governance more broadly, since the UPDF officers are agents of the governance system.

However, whilst several respondents cited negative experiences regarding the behaviour of the FPU, respondents reported more positive experiences regarding the behaviour of other governance agents - fisheries officers. In turn, they generally

considered the fisheries officers to be trustworthy (FGD8). This trust was seemingly based upon their competence and integrity (FGD7; FGD9); due to respondent's positive experiences of reporting wrongdoing to fisheries' officers and fisheries' officers properly managing the situation; including incidences where someone was using faulty weighing scales (G9) or selling fish outside of agreements with investor-fish buyers (FGD8; FGD9).

Nevertheless, UPDF officer corruption appears to have specific implications for interpersonal trust. Respondents claimed that UPDF officer's corrupt behaviour affects interpersonal trade relations by affecting fish supply and profits. As one respondent explained:

Focus group respondent, Katosi (FGD9): these marines have made it harder for us [to trust in fishermen] because you can invest in a fisherman and then they confiscate his fish, meaning you are also not getting fish too and yet there's nothing the fishermen can do to remedy that

Multiple actors along the value chain lose money when fish or equipment is confiscated or fishers are arrested. This increases suspicion among actors and can influence trust judgements.

Focus group respondent, Katosi (FGD8): for the years I've been in this business, about 12 years ago I'd buy fish and people were very trustworthy but not right

now, I don't know if it's because of the situation on the lake [referring to declines in fish stock] or because of these marine soldiers, you give someone 2million, 5million and they just keep telling you I don't have fish!

However, some people apparently take advantage of this and use the known behaviours of UPDF officers to disguise their wrongdoing (FGD9). Focus group respondents claimed that fishers pretend they've been caught by the UPDF to gain money from their employers (FGD8), or they claim that their catch was confiscated by the UPDF when they have sold their catch to another buyer (FGD9).

Focus group respondent, Katosi (FGD8): *there are those fishers who use that [UPDF officer behaviour] to trick and sell off the fish then they'll call you and claim the soldiers confiscated their catch and let them go, it's very rare but some do it.*

Institutions can act as antecedents of trust by creating favourable assumptions and expectations about a potential trustee's behaviour and by reducing the risk of opportunism (Hotte et al. 2019). However, in contexts where institutional control and legal sanctions do not work, or procedures prescribed are not followed, levels of institutional trust may be low (Hotte et al. 2019). Furthermore, regulatory variability/uncertainty at the meso-and macro-level is said to influence opportunism in interpersonal relations (Wang et al. 2015). In this context, perceptions of injustice, unfairness and corruption and the misuse of power by individuals within the FPU has

arguably reduced trust in the governance system. This lack of confidence in the governance system is likely to negatively affect broader social trust and contribute to what Fukuyama (1995) refers to as a 'low trust environment'.

6.4. Chapter Conclusion

This research revealed the significance of process-based trust. In line with sociological perspectives of trust (e.g., Granovetter, 1985; Lewis and Weigert, 1985) trust between value chain actors appears largely based on behavioural experiences, repeated interactions, and the process of getting to know the trustee. The study identified several behaviours that encourage and undermine trust in small-scale fisheries trading and labour relations. Various subcomponents of trust, including reliability, loyalty, honesty, benevolence, and reciprocity were identified as favourable behavioural characteristics of a trustee (Ford et al. 2020). The research found that performative displays of such characteristics encouraged positive trust relations, whereas behaviours opposing these characteristics undermined interpersonal trust (Turgo, 2016). This was true for both relations studied - between fish buyers and suppliers, and fishing crew and boat owners.

The study also highlighted the entangled nature of trust in SSF value chains. Since individuals typically participate in multiple relationships, dyadic relationships are embedded within a larger configuration of trust relationships at the network level. Consequently, untrustworthy behaviour in one relationship can have knock-on

implications for trust in other interpersonal relations within the value chain. For example, when a fisher acts opportunistically and undermines trust in their relationship with their boat owner, this will most likely affect the fish buyer with whom the boat owner has made trade arrangements. It is likely to influence the fish buyer's perception of the boat owner's competence, and in turn trustworthiness.

In addition, the research exposed the meso and macro-level social, environmental, and political factors that encourage and undermine interpersonal trust in small-scale fisheries trading and labour relations (Walker, 2006). Firstly, the study revealed that behavioural expectations, informed by socio-cultural norms operating at the community level, in this case related to gender, influence (dis)trust judgements. In this study, respondents claimed that women were innately more trustworthy than men. Moreover, women were also reported to display greater empathy and care towards their trade partner, in line with normative behavioural expectations of women as caring. However, the study also revealed how women's propensity to trust is easily exploited. Some fishing crew reportedly take advantage of women boat owner's trust to claim more benefits. Women were also perceived as too trusting regarding loan repayments.

Secondly, the research found that corruption and abuse perpetrated by UPDF-FPU officers, as well as high incidences of theft on the lake, destabilises social trust at the community-level by increasing suspicion - a key cognitive component of distrust (Emborg et al. 2020). In the same vein, the study found evidence that suggests

environmental decline makes it difficult for people to trust in interpersonal relations and is also contributing to what Fukuyama (1995) refers to as a 'low trust environment'. These factors combined increase the chances that boat crew will return with empty nets and be unable to fulfil their obligations with those waiting at landing sites (Diggins, 2023). This unpredictable nature of catches was found to place heavy demands on exchange relationships and provoke overly competitive, self-interested behaviour and thus affect default perceptions of an actors' virtue and in turn, trustworthiness at the community-level.

Consequently, trust appears somewhat fragile within interpersonal relations. The fragility of trust observed in this study has also been observed in the small-scale fisheries of coastal Sierra Leone (Diggins, 2023). Where Diggins (2023) observed that declining catches are both eroding trust in the natural environment and contributing to an ambiance of generalised mistrust (Diggins, 2023). The seemingly fragile nature of interpersonal trust detected in the small-scale fisheries of Lake Victoria is perhaps why regular performances of trust, including acts of reliability, loyalty, honesty, reciprocity, and benevolence observed in this study, are so important and reassuring to trade partners – partners must constantly prove themselves trustworthy to sustain and deepen trust (Turgo, 2016).

Chapter 7: How does power influence trust and in turn trade and labour relations in small-scale fisheries?

This chapter explores the relationship between power and trust, and its influence on trade relations. The chapter brings key findings from Empirical Chapter 5 on power, in discussion with findings from Empirical Chapter 6 on trust. Moreover, this chapter draws upon theoretical ideas presented and discussed in Chapter 3 to analyse the relationship between trust and power in the context studied. The first section discusses the effects of perceived power on perceptual trust. The second section of this chapter examines the effects of behavioural power on trust. This section explores the effects that both the exercise of noncoercive power, and coercive power have on trust, respectively. The chapter also discusses the implications of these dynamics for cooperation between value chain actors.

7.1. The effects of perceived power differences on trust

The section discusses the effects of perceived power on perceptual trust. These dynamics are discussed in relation to interactions between boat owners and fishing crew – firstly in unequal relationships, and secondly related to interdependent relationships. After, the effects of perceived power on trust are analysed in horizontal relations between fish traders.

7.1.1. Power and trust in an unequal relationship between boat owners and fishing crew

As presented in Chapter 3, relationships between boat owners and fishing crew are often unequal, with clear differences in terms of power and pay (Isaacs, 2013; Alonso, 2022). Within this relationship, boat owners control the means of production and thus maintain power through ownership of capital and property (i.e., boat, gear, and licenses) (Damayanti et al. 2018). Whereas, fishing crew, who own no resources besides their labour, work under the employer (Kunyati and Marta, 2022). As introduced in Chapter 2, fishing crew are among the poorest group within the Lake Victoria fisheries, and the gap between the owning and labouring classes has grown together with the commercialisation of the Nile Perch fishery (Wilson et al. 1999; Abila et al. 2006). In this study, fishermen also recognised their relatively low economic position. A fisherman from Kiyindi Landing Site stated: *“fishermen are at the lowest point of the value chain; we get the least money”* (G4). According to the encapsulated interest theory of trust (Hardin, 2002), introduced in Chapter 3, within unequal relationships such as those between boat owner and fishing crew, the less powerful fishing crew are unlikely to trust the more powerful boat owners, undermining cooperation. In line with the theory, this is because fishing crew believe that the boat owner is unlikely to value the relationship or experience significant consequences if they renege on their commitments (Farrell, 2004). Consequently, the fishing crew is likely to doubt that the boat owner will take the fishing crew's interests into account and behave in a trustworthy manner (Farrell, 2004). This study found some indication of the encapsulated interests theory reasoning in a couple of relationships between

boat owners and fishing crew where power relations appeared unequal. Some fishing crew from Kiyindi Landing Site expressed perceptions that boat owners do not care for the wellbeing of their fishing crew but care more about making money (G4; G5), implying that the fishing crew think that the boat owner's do not value their labour or care sufficiently for their interests. These perceptions, detailed in Chapter 6, were said to affect trust between fishing crew and boat owners.

The encapsulated interest theory, as outlined in Chapter 3, also concerns the set of possible alternatives the actor has if the relationship were to breakdown; in other words, it relates to their dependency on their partner (Farrell, 2004; Huo et al. 2019). If the actor has many alternatives, there is less reason for them to take the other's interests into account and have less incentive not to renege on their commitments (Farrell, 2004). In this study, the same fishing crew from Kiyindi Landing Site, conveyed that they felt more vulnerable than boat owners to the impacts of a failed relationship. This was due to the abundance of fishermen at the landing site desperate for work, which present boat owners with many alternative labourers (G4; G5). These accounts from fishermen are reflected in national statistics on unemployment, particularly youth unemployment, and evidence regarding labour migration to fishing communities, detailed in Chapter 2. The statement below from a fisherman from Kiyindi Landing Site demonstrates the perceived replaceability and in turn, low value that boat owner's place on their crew, as well as the power of alternatives.

Fisher, Kiyindi (G5): *If you refuse him [the boat owner], he will get someone else [another fisher], he [the boat owner] has the monopoly to say do this and this and this, if you [the fishing crew] fail to do this, leave, since there are very many [fishers] and they are all looking for [income for] survival*

Therefore, in line with the encapsulated interest theory, fishing crew may rationally distrust the boat owners because they know that the boat owners can easily substitute their labour, and therefore have little incentive, external to the relationship, to take the - perceptually dispensable - fishing crew's interests into account. Furthermore, according to Farrell (2004), when boat owners know that fishing crew have very few alternatives, they may be more inclined to take advantage of fishing crew in some circumstances.

In line with Farrell's (2004) ideas, under circumstances where fishing crew cannot trust boat owners, besides avoiding those relationships, fishing crew are likely only to cooperate to the extent that they are forced to. It was evident that, within these few relationships at Kiyindi Landing Site, the lack of alternative employment opportunities in the study areas, somewhat forced fishing crew to cooperate with untrustworthy boat owners. The lack of alternative employment opportunities was said to increase the fishing crew's dependence on boat owners for work and an income, and in turn, their relatively high level of vulnerability if the relationship were to breakdown. Hence, fishing crew explained that they sometimes continue to work with 'bad bosses' because they failed to find work elsewhere (G4). Furthermore, these fishing crew's

apparent dependence on boat owners seemed to discourage the untrustworthy behaviour of fishing crew. A fisherman from Kiyindi Landing Site suggested that the costs of renegeing on their commitments, or acting opportunistically, would outweigh the benefits, particularly in the context of high unemployment. The fisherman explained that he would not encourage fishermen to steal from boat owners by selling fish outside of their agreements because *“by the time they hire you to work on the boat it is because you have failed to find any other work and...[the boat owner] has become your daily bread, so you might do that [steal fish] just once and then lose out on four years of being employed there [by the boat owner]”* (G4). Other reasons fishing crew might be forced to cooperate with untrustworthy boat owners include familial obligations or kinship relations for crew working for a relative (Sudarmono and Bakar, 2012), and debt as fishermen might be forced to work for a boat owner until the money they have borrowed has been repaid (O’Neill et al. 2018; Roberts et al. 2022).

7.1.2. Power and trust in interdependent relationships between boat owners and fishing crew

However, this study found that in most cases power relations between fishing crew and boat owners were not as glaringly one-sided. Fishing crew appeared to have some power and agency in their relationship with boat owners. In opposition to the experiences presented above, fishing crew (G11) and boat owners (FGD2) in Katosi Landing Site expressed some fishing crew’s agency to exit a relationship and work on another boat (G11; FGD2). Skilled and experienced fishing crew also appeared to yield some power in their relationship with boat owners, as some boat owners were said to

try to poach experienced and skilled crew from other boats, offering fishing crew opportunities to bargain for better pay (G4). Experienced and skilled fishing crew's power stemmed from the dependence boat owners have on their knowledge and ability for income generation. This was particularly true for fishermen who can fish in deeper and more dangerous waters to catch larger-sized Nile Perch. The lucrative export market for the swim bladder of Nile Perch has arguably created this demand for and offers power to fishermen with these skills.

Moreover, this dependency on fishing crew appears to be intensified by the broader socio-ecological context of declining catches. As explained in Chapter 2, fish catches from Lake Victoria have declined since 2006 and fishermen claim to have to fish for longer hours and fish farther away from the shore (Mette Kjær et al. 2012). These trends were echoed in narratives from focus group respondents in this study who maintained that fishers are no longer getting as much fish as they did (FGD8). Arguably, these conditions make skilled and experienced crew more valuable to boat owners and further complicate the typical employer-employee power dynamics between boat owners and fishing crew. As Molm (2007) explains, the greater the need for the resources of others for the attainment of one's own goals, the stronger the dependency relationship. In keeping with this idea, in the context of declining catches, boat crew are in greater need of, and therefore more dependent on the labour, experience and skill of fishing crew to catch fish and to attain an income.

The dependence boat owners have on experienced and skilled fishing crew for income generation in tough socio-ecological conditions, appears to moderate the characteristic asymmetries in power between the actors deriving from their differences in terms of asset ownership, capital resources and social status. Fish scarcity has increased competition for fish, and at the same time, increased competition for, and the value of fishers who can reliably catch fish. Accordingly, both actors appear to value the relationship and thus need the relationship to go well. As one fisher from Kiyindi Landing Site expressed "*we all need each other*" (G5) referring to boat owners' and fishers' interdependence. Evidently, boat owners are not so powerful that they would not be affected by fishing crew reneging on their commitments. Therefore, according to the encapsulated interest theory (Farrell, 2004), it is expected that both actors, based on their interdependence, perceive that the other is trustworthy because their interests are encapsulated in maintaining that exchange relationship. In this context, the interests of individual actors cannot be fully separated from each other; one's goals cannot be accomplished without provisions from others (Molm, 2007). Boat owners rely on the productive labour of fishing crew, particularly experienced and skilled crew, and fishermen rely on the capital resources of boat owners for fishing equipment and inputs. This interdependence undermines the effectiveness of uni-directional sources of power, in terms of cooperation, whereby powerful actors' control and dominate exchange relationships (Nachum, 2021). As Nachum (2021) argues, interdependence is an important source of power, and can be a valuable mechanism for value redistribution in global value chains, that transcends the importance of other forms/sources of power. The power of

interdependence is found in reciprocity and mutual interests, rather than control and domination (Nachum, 2021). Conceivably, this is how trust and cooperation are possible in patron-client relationships, defined by hierarchical differences between patrons and clients (e.g., boat owner and fishing crew), because socioeconomic power asymmetries are corrected, to some extent, by power derived from interdependence (Nachum, 2021; Roberts et al. 2022).

7.1.3. Power and its influence on trust in horizontal relations between fish traders

Unequal power relations also exist in other value chain interactions, for example between fish traders operating at the landing site level and fish agents working directly with fish processing factories. Fish agents are ‘buy-and-sell dealers’ (Carnaje, 2007) who serve as bulking and transport agents in bringing the fish to processing factories.

As explained in Chapter 2, most fish factories in the study area use fish agents to procure fish from landing sites. Fish agents, in the Lake Victoria’s fishery sector, are reported have high capital resources, access to finance, and generally own vehicles for transporting fish, as well as boats and equipment and are one of the largest sources of credit for fishing equipment (Wilson et al. 1999; Namisi, 2005; Mette Kjær et al. 2012).

These agents were described similarly by focus group participants in Kiyindi Landing Site (FGD3). Fish agents deal in bulk and those participating in this study claimed to trade between 200kg and 10 tonnes of Nile Perch per day to processing factories (G3; G10; IS3). In comparison to fish traders in this study who sell to local markets who claimed to trade between 15kg and 500kg of Nile Perch per day (G8; G10; G13). Fish

agents also reported to provide loans of between 1 million and 30 million per week to boat owners (IS3). Some authors have expressed concerns that the growth in international fish trade from small-scale fisheries in the Global South has disproportionately benefited fish agents (e.g., Sharma, 2011). Several participants in this study similarly expressed feelings that fish agents, and fish processing corporations have captured many of the benefits from the Nile Perch export industry. Fish agents were accused of taking the majority of Nile Perch from landing sites, reducing availability and access for other fish traders and processors (FGD1). Furthermore, as described in Chapter 5, fish processing factories were said to have greater power to control market prices for Nile Perch (IS1; IS3; FGD1; G6; G10). Whereas local-level fish traders felt they had little, to no, power to negotiate these prices with the fish agents directly supplying the factories (G1; G12; FGD1). Processing factories were also said to overlook supply-side factors that affect the price of fish, and the increased costs of fish production, in setting their prices (FGD1). Hence, trade relations between local-level fish traders and fish agents were perceived to be unfair. Processing factories were perceived to underpay fish traders, yet sell their exported products at high prices, making much greater profits than local-level actors (G1). In other words, local-level fish traders perceived that the processing factories, and fish agents by proxy, did not take their interests into account. So, according to the encapsulated interests theory (Hardin, 2002; Farrell 2004), this perception is likely to affect local-level fish traders' trust in fish agents. Evidently, fish traders in this study distrust that fish processing factories, and in turn fish agents, will pay a fair price for their fish. However, many actors engaged in exchange relationships with fish agents described them as

trustworthy. As Chapter 6 outlines, factories were considered to be trustworthy in other respects – fish traders trusted that the factories, or agents supplying the factories, would pay for the fish, if not there and then, within a reasonable time (G7; G10; FGD8; FGD9). Fish processing factories are perceived to have high capital resources and thus power to pay suppliers for fish. Arguably, in this regard, power appears to have a positive effect on trust, at least empirically, based on actor's need for reliable/predictable partners. This finding reflects other studies that found a positive relationship between power and trust, based on actors' need for predictability when deciding whether to interact with others or not (e.g. Oskarsson et al. 2009; ÖUberg & Svensson, 2010).

Furthermore, these findings relate to ideas presented by Lewicki and Wiethoff (2000) and explained in Chapter 3, that one can simultaneously hold multiple and even contradictory trust judgments. Local-level fish traders in this study, seem to hold both positive and negative trust judgements towards fish agents, for equally valid reasons or (dis)affections. Bies et al. (2018) claims that such co-existing judgements can engender ambiguity and ambivalence in relationships. Arguably, the need for predictability in terms of payment outweighs the negative trust judgements based on price fairness. Moreover, this suggests that fish traders might compromises on price in favour of regular payment. Whilst fish agents and fish processing factories might not be trusted to pay a fair price, they are trusted to pay, and this is perhaps more important than getting a fair price. Since, delayed payments were cited as a common issue in other relationships (G7; IN2; IN11; IN15; FGD1; FGD8). For example, market

traders in urban markets in Mukono and Kampala were accused of being untrustworthy because they take fish on credit, make promises to pay within a certain period, and fail to follow through with such promises and keep delaying payment (FGD8). A boat owner from Kiyndi Landing Site explained the repercussions of delayed payments: *"If they [fish buyers] delay with our money, the business comes to a standstill, the workers can leave, you wouldn't have fuel to work"* (G7). A woman fish trader in Kasenyi Landing Site claimed to face similar problems with delayed payments: *"I buy my goods here and take them to the market, the problem is they [the market traders] take long to pay me. I have little capital, and when I use this little capital and then there is a delay in payment, it makes me stuck and not able to go to the market [to buy more fish]"* (FGD1). Delayed payments were reported to be a significant enough problem to cause breakdowns in cooperation (FGD8). Whereas unfair prices were not described with the same severity. Whilst unfair prices provoked a sense of frustration among participants, it was not described to have the same impacts on capital flows and thus, business activities as delayed payments and this is possibly why some fish suppliers continue to cooperate with fish agents, despite them holding some negative trust judgements toward the fish agents and factories regarding fish prices.

7.2. The effects of behavioural power on trust

The following section examines the effects of behavioural power on trust. This section explores the effects that both the exercise of noncoercive power, and coercive power have on trust, respectively.

7.2.1. Non-coercive power

According to the encapsulated interest theory (Hardin, 2002), being powerful does not always serve the interests of those with power, since people may avoid dealing with them because they perceive that they are too powerful to be trusted. Therefore, it is down to the more powerful actor to convince the less powerful actor that they can trust them and create the possibility of cooperation. Arguably, in this case, more powerful actors like boat owners and capital rich fish buyers, achieve this by employing their power in a non-coercive manner. Non-coercive acts of power provide benefits to exchange partners and in this context, relate to patronage, specifically in-kind monetary support, problem solving, and mentorship. In the literature, these non-coercive acts of power within exchange relationships are commonly framed within patron-client relations (described in depth in Chapter 3). In this study, boat owners and capital rich fish buyers were reported to extend the following to their exchange partners: loans to buy food (G4), advanced payments (G5), money for a medical emergency, family emergency, or in the case of a bereavement (G5; G7; G12; IS5), financial support to pay school fees (FGD8; IN17), general monetary assistance during periods of financial hardship (G7; G12; IS5; IN17) which was said to vary between 5,000 – 20,000 UGX (G4; G5). Besides financial support, lender-fish buyers also provide mentorship and advice, for example about financial management (IS3). They also use their influence to help when they are in trouble with law enforcement (FGD8). In addition, one large-scale fish buyer claimed that they organise meetings and listen to the views and try to solve the concerns of the fish suppliers they partner with (G7).

As explained in Chapter 6, these performative acts provide a signal of goodwill and benevolent motives and thus influence an exchange partner's perceptions of the other's affections and thus, trustworthiness. When asked how important this financial support was, a fisherman from Kiyindi responded: "*It's very important, it makes me feel good and it brings about good working relationship*" (G5). Arguably, these performative displays of care are likely to offset or at least challenge any negative perceptions that for example fishing crew might have regarding the boat owner's valuation of their labour, and care for their interests, which according to Farrell (2004) is likely to derive from the power asymmetries between the exchange partners. Moreover, according to ideas presented by Huo et al. (2019), because of such acts, fishing crew are likely to rationally trust that the boat owners are unlikely to behave opportunistically to gain self-interest, considering the cost they have already paid in exerting non-coercive power.

Jain et al. (2014) describe non-coercive power as a mechanism that mediates positive consequences for compliance. Accordingly, boat owners and capital rich fish buyers exert non-coercive power to promote desired behaviour in their exchange partners and decrease opportunism through positive actions. There is some evidence of the effectiveness of such tactics in this study's findings. As detailed in Chapter 6, fishers claimed that boat owner's provision of financial hardship loans and payment of medical bills, for example, encouraged loyalty and long-term cooperation. The following passage from a fisherman from Kiyindi (G5) conveys the instrumentality of

non-coercive power for boat owners: “*The more we are given these motivations, the more we bond and be loyal to our bosses and work longer there*” (G5).

However, authors warn that non-coercive acts of power can mask untrustworthiness (e.g., Lewis 2008). They argue that such acts of kindness could be considered tokenistic, as they divert attention from forms of exploitation (Lewis, 2008). In this context this could be poor fish prices or share systems that provide boat owners an advantage over fixed wages (Carnaje, 2007). In such instances, they can be viewed as instrumental acts, serving the interests of the power holder, rather than affective or benevolent. Instead, the performative displays of benevolence, previously described, contribute to what Lewis (2008) refers to as a ‘façade of trust’. Lewis (2008) explains that where there are significant imbalances of power the process through which relations of trust are constructed can be hijacked by the power holder and distorted for their own vested interests. It could be argued that the non-coercive acts of power recorded in this study such as boat owner’s payment of fishing crew’s (or their family member’s) medical bills, funeral costs, and school fees, are used to conceal a relationship of domination, wherein boat owners enjoy disproportionate access to and benefits from fisheries resources.

7.2.2. Coercive behaviour and opportunism

The following section discusses the effect of coercive behaviour on trust, and opportunistic behaviour. Coercive behaviour is used to refer to when an actor uses their power to assert control in their relationship (explained in more depth in Chapter

3). In the study context, examples of coercive behaviour between trade partners were recorded and identified to include pricing control (e.g., demanding lower prices), channel structure control (e.g., limiting freedoms to deal with others), information control (e.g., withholding market information) and withholding pay. These examples are described in succession below, and later discussed collectively in terms of their impact on trust and opportunism.

This study recorded evidence that lender-fish buyers use their power over indebted fish suppliers to control fish prices (G2; G7; G8; G9; G10; IS4; FGD3; FGD4; FGD5). Respondents explained that lender-fish buyers have the power to set fish prices, and generally offer indebted fish suppliers lower than market prices (between 1000-3000 UGX lower than competitive market prices per kg) and claim this as a form of interest on their loan (G7). Furthermore, indebted fish suppliers were said to have no choice but to take the bad prices they offered (G2; G8; G9; G10), despite feeling they were being “cheated” (G9).

Moreover, as one respondent explained “*however low the price is, they can't sell to someone else*” (G7) as lender-fish buyers also limit their freedom to deal with other fish buyers. This could be considered another example of coercive behaviour as lender-fish buyers use loans, in part, to control fish suppliers. Through loan arrangements/advanced payments indebted fish suppliers are obliged to sell their fish to their loan provider, and cannot sell to other fish buyers, even when they are offering better prices (G7; G9; G10).

In addition, fish buyers, particularly middlemen, were said to further their control over fish supply and prices by withholding market information (IN1; FGD1; FGD6; G8; G10; IS5). Fish suppliers were said to have very little information about fish prices, beyond the landing site (G8; G10; IS5) and have little knowledge of where the fish buyers sell their fish or of markets beyond local markets (FGD1; FGD6; IS5). Middlemen were said to actively restrict fish suppliers' access to this information (FGD1; IN1). Price information, particularly information about the price the factories are offering, is apparently kept between the middlemen, truck owners and the factories (FGD3).

Boat owners were said to delay paying their employees or underpay them for their work (G4; G5; G11; G12). Carnaje (2007) argues that employers withhold payments to maintain their hold on good fishing crews.

This study observed that the use of coercive power can result in the other person feeling a lack of autonomy, frustrated and less satisfied with the relationship. Furthermore, the study found empirical evidence that the use of coercive power can increase opportunism – self-interest seeking behaviour - among the targets of coercive power.

Opportunistic behaviours, include labour shirking, output underreporting and input overreporting (Carnaje, 2007), what participants commonly refer to as 'cheating', are reported to be contingent upon the behaviours of their exchange partner (G5; G7;

G12). As the quote below demonstrates, opportunistic behaviour appears to be driven by and legitimated as retaliation.

Fishing crew, Kiyindi (G5): We have a saying that if you treat me poorly, it shows on the boat.

Respondents suggested that when fish suppliers feel cheated by fish buyers, in terms of low prices and in cases where fish buyers manipulate the weighing scales, this would likely make them act opportunistically and sell to another fish buyer (G7).

The passage below highlights how a sense of unfairness and perception that boat owners are exploiting their fishing crew, drives the fishing crew to act opportunistically, and display untrustworthy behaviour. Fishing crew explained that when they felt they weren't being adequately compensated for their labour, and for the volume of fish caught, they were likely to offset this low-wage by going behind the back of the boat owner and selling part of their catch underhand.

Interviewer: we have spoken to some boat owners who say some of the workers [fishing crew] sell some of the catch elsewhere [not to the boat owner], what causes the workers to do that? What are your views?

Fishing crew, Katosi (G11): some days you can be catching 10kg, 20kg or 30kg for a whole month and if you calculate it, you realise you've [only] made about

100,000 UGX yet you have a family and children to feed. Then you get lucky one day and go to lake and catch 150kg, you are likely to sell the 100kg on the side and deliver to them only 50kg so as to cover up for all the days you've not earned. Some bosses will not feel for you, you'll bring him 100kg and he says we agreed on 3kg [share payment] and yet still use shady weighing scales, so they end up cheating you in price, at the weighing scale, and not even pay you on time sometimes. Let me give you an example of hooks, a fisherman can get lucky and catch 200kg by hooks when the boss' investment was 2 million UGX, with fishing hooks, he usually agrees that he'll be paying you 8,000 UGX per kilo and by the time he deducts the initial 2 million UGX he gave you, you are barely left with anything.

These perspectives counteract narratives, evident in the language of participants in this study (see Chapter 6) and other studies (e.g., Diggins, 2023), of fishers as untrustworthy because they are simply greedy, and motivated to act opportunistically for economic gain. In these narratives, the focus is on the individual characteristics/drivers of behaviour, rather than looking at these actions from a relational perspective and acknowledging the role of power in these actions. Evidence from this study, detailed above, illuminates the relational dynamic of opportunistic behaviour in the case study area.

Furthermore, these findings complement ideas expressed by other authors (e.g., Nunan et al. 2020), that concealing catch can be seen as an example of 'everyday

forms of peasant resistance' (Scott, 1985) where labourers resist the exploitation of their labour. In the context of agrarian change, growing inequalities and deteriorating resource access various authors have observed and theorised that the rural poor/peasants employ various tactics, including avoidance, ridicule, petty theft (Scott, 1985), such as stealing a portion of grain from a farmer's field (Turner and Caouette, 2009), to resist the forces – at a micro-level – that impact upon the tangible circumstances of their everyday life. These tactics are conceived as continuous, mundane, and hidden ways of resisting and realigning material inequalities (Turner and Caouette, 2009). In line with this idea, the actions of fishing crew, could be considered context specific resistance to subvert the authority of boat-owning employers, to defend their material interests. When boat owners abuse their power, fishing crew react by stealing fish, and essentially take part in what Turner and Caouette, (2009) refers to as acts of 'petty revenge'. Furthermore, given that several fishers describe their actions as originating from a sense of unfairness and injustice, the nuance of such actions could be better recognised rather than depoliticised as 'opportunistic behaviour' - simply the outcome of self-interested, utility maximising behaviour. In the context of the commercialisation of the fish trade in Lake Victoria, particularly of Nile Perch, which has contributed to the stratification of the fishing industry, intensified competition between actors at the landing site level, and changed relations of production (as detailed in Chapter 2), these recorded behaviours could be reasonably understood as micro-level acts of resistance against the larger political-economic system and source of perceived injustice.

7.3. Chapter Conclusion

This chapter has demonstrated that in the study context, power influences trust through multiple processes, with various outcomes for trade relations, some positive, others negative. Though behavioural experiences of power within an exchange relationship appeared to have the most obvious effects on trust relations.

In the first section of this chapter, the research revealed how perceived power, specifically power asymmetries, influence trust judgements and cooperation within the exchange relationships studied. The encapsulated interest theory (Farrell, 2004) was applied to understand these processes. This study found some indication of the encapsulated interest theory reasoning in a couple of relationships between boat owners and fishing crew where power relations appeared unequal. Some fishing crew implied that boat owner's do not value their labour or care sufficiently for their interests and conveyed that they felt more vulnerable than boat owners to the impacts of a failed relationship, due the abundance of fishermen at the landing site which present boat owners with many alternative labourers. These perceptions, that boat owners can easily substitute their labour, and therefore have little incentive, external to the relationship, to take fishing crew's interests into account affects trust between fishing crew and boat owners. In such relationships, and in this context where there are few alternative employment opportunities, fishing crew appear somewhat forced to cooperate with untrustworthy boat owners.

The study also revealed the power of interdependence in exchange relationships between boat owners and fishing crew. Following The research showed how the dependence boat owners have on experienced and skilled fishing crew for income generation can moderate the characteristic asymmetries in power between the actors and create space for trust and cooperation (Nachum, 2021).

In addition, the research identified a co-existence of multiple and conflicting trust judgements in value chain interactions between fish agents and local-level fish traders (Lewicki and Wiethoff, 2000). The study found that whilst local-level fish traders may distrust a fish agent to pay a fair price for their fish, they, at the same, trust that they will pay, if not immediately, within a reasonable time. Therefore, it appears that local-level fish traders' need for predictability in terms of payment outweighs the negative trust judgements they hold based on price fairness and is possibly why local-level fish traders choose to cooperate with fish agents.

The second section of this chapter analysed the effects of behavioural displays of power on trust, specifically noncoercive and coercive displays of power. The study found evidence that supports the idea that coercive power results in negative consequences for trust, and non-coercive power produces positive trust outcomes within relationships (Jain et al. 2014). Specifically, performative displays of goodwill and benevolent motives, such as paying for an exchange partners' medical bills and supporting family funeral costs, were found to influence an exchange partner's perceptions of the other's affections and thus, trustworthiness, but also encouraged

loyalty and long-term cooperation (Farrell, 2004). However, given the instrumental benefits of these performative displays of trust for power holders, it is argued whether they are genuine displays of trust or in fact another form of coercion and a façade of trust (Banerjee et al. 2006).

Lastly, the study found that coercive displays of power from power holders left exchange partners feeling a lack of autonomy, frustrated and less satisfied with the relationship. These feelings were observed to motivate opportunism among the targets of coercive power. Such retaliatory behaviour to the use of coercive power is expected to fuel a downward spiral of trust toward distrust (Emborg et al. 2020). This study argues that a generalised atmosphere of mistrust is already detectable in the small-scale fisheries of Lake Victoria, the same as in other fisheries contexts (e.g., Diggins, 2023).

Chapter 8: Thesis Conclusion

This concluding chapter draws together the research findings and situates them in the broader literature examining power and trust in small-scale fisheries. The first section is a summary of the research findings in direct response to the three research questions. The second section discusses how the research has contributed to academic discussions in the field of small-scale fisheries. The chapter also presents some further study recommendations and lays out the broader implications of this research for theory, policy, and interventions in small-scale fisheries.

8.1. Summary of findings in relation to the three research questions

8.1.2. How do actors within small-scale fisheries experience a plurality of power relations?

This research has found that value chain actors within small-scale fisheries experience a plurality of power relations. Several cross-cutting factors help explain why SSF actors experience a plurality of power relations. Firstly, value chain actors often take up multiple identities or positions, for example a boat owner, is both a producer, employer, and fish supplier. As such, actors' experience different forms of power within each of these roles, and power relations vary within each of their interactions with other value chain actors. For example, boat owners maintain power through ownership of capital and property (i.e., boat, gear, and licenses) and have power over fishing crew to the extent that they provide them with employment, and fishing inputs.

But as fish suppliers, their bargaining power over fish prices, as well as their freedom to work with other buyers is constrained by their dependence upon credit from fish buyers, and subsequent debt relations (Nunan et al. 2020). This research also exposed the role of gender as an important power relation that affects the distribution and negotiation of power between exchange partners. For instance, interviews with fishing crew and boat owners reveal that women boat owners typically have less power over fishing crew than men boat owners. Whilst women boat owners have greater control over fish supply and fish prices than women without boats, their power in these situations tends to be partial and precarious (Alonso, 2022).

Secondly, power relations are affected by the socially embeddedness of SSF activities. Actors often work and live in the same environment and thus their economic relations are often intertwined with social relations (Turgo, 2016) For instance, kinship and marriage can be important to the functioning of fish businesses (Nunan et al. 2018a). Such social ties can complicate power relations between actors. For instance, in cases where a woman owns a boat and her husband, son or extended family member works on the boat as one of the fishing crew, her power over this asset, production and the fishing crew is likely mediated by these intra-household or intra-familial power relations.

Thirdly, the lack of appropriate formal credit services for business operators in small-scale fisheries significantly influences power-dependency relations (Parappurathu et al. 2019). In place of formal financial services, capital is a great source of power within SSF relations. For instance, whilst boat owners own important fishing assets, and some

own several boats, meaning they have significant power over the means of production, they are dependent upon credit from fish buyers to finance their fishing activities. Such dependency relations shift the distribution and negotiation of power between fish suppliers and fish buyers in favour of the capital lenders. Lastly, power relations are shaped by market conditions, including fish supply and demand. For instance, competition between traders, particularly when catches are low, provides fish suppliers with some leverage over fish buyers in terms of negotiating prices (Nunan et al. 2020). Furthermore, the lucrative export market for the swim bladder of Nile Perch has arguably created demand for and offers power to experienced and skilled fishermen who are willing and able to fish in deeper, and more dangerous waters.

8.1.3. How is trust encouraged and undermined in small-scale fisheries trade and labour relations?

This research revealed the significance of process-based trust and identified several behaviours that encourage and undermine trust in small-scale fisheries trading and labour relations. The findings suggest that in this context the process of getting to know the trustee, and behavioural experiences are significant to the development and maintenance of trust. Various subcomponents of trust, including reliability, loyalty, honesty, benevolence, and reciprocity were identified as favourable behavioural characteristics of a trustee (Ford et al. 2020). The research found that performative displays of such characteristics encouraged positive trust relations, whereas behaviours opposing these characteristics undermined interpersonal trust (Turgo,

2016). For instance, leniency in terms of loan re-payments, and empathy are valuable displays of benevolence that contribute to perceptions of the investor-fish buyer's trustworthiness. Whereas fishing crew display dishonesty and damage trust relations between themselves and the boat owner by stealing fish and selling it to other buyers, before the fish has been landed, or at other landing sites.

The study also highlighted the entangled nature of trust in SSF value chains. The research found that trust relationships at the network level can facilitate or constrain the relationship between two exchange partners at the individual level. Since value chain actors typically participate in multiple dyadic relationships, untrustworthy behaviour in one relationship can have knock-on implications on trust in other interpersonal relations within the value chain. For instance, the study found evidence that suggests when a fisher acts opportunistically and undermines trust in their relationship with their boat owner, this also affects the fish buyer with whom the boat owner has made trade arrangements and influences the fish buyer's perception of the boat owner's competence, and in turn trustworthiness.

In addition, the research exposed the meso and macro-level social, environmental, and political factors that encourage and undermine interpersonal trust in small-scale fisheries trading and labour relations (Walker, 2006). Firstly, the study revealed that behavioural expectations, informed by socio-cultural norms operating at the community level, in this case related to gender, influence (dis)trust judgements. In this study, respondents claimed that women were innately more trustworthy than men.

Moreover, women were also reported to display greater empathy and care towards their exchange partner, in line with normative behavioural expectations of women as caring. Secondly, the research found that corruption and abuse perpetrated by UPDF-FPU officers, as well as high incidences of theft on the lake, destabilises social trust at the community-level by increasing suspicion and arguably contributes to what Fukuyama (1995) refers to as a 'low trust environment' and affects individual propensity to trust. Lastly, and in the same vein, the study found evidence that suggests environmental decline is also contributing to a 'low trust environment' and makes it difficult for people to trust in interpersonal relations. The low, uneven, and unpredictable nature of catches was found to places heavy demands on exchange relationships and provoke overly competitive, self-interested behaviour and thus affect default perceptions of an actors' virtue and in turn, trustworthiness at the community-level.

8.1.4. How does power influence trust and in turn trade and labour relations?

The study revealed that power influences trust through multiple processes, with various outcomes for trade relations, some positive, others negative. Firstly, the research found some indication, in line with the encapsulated interest theory (Hardin 2002; Farrell, 2004), that perceived power asymmetries between exchange partners have some bearing on trust judgements within some of the exchange relationships studied. Some fishing crew conveyed their beliefs that boat owners do not care for their wellbeing or value their labour, and these perceptions were said to affect fishing

crew's trust in boat owners. The research suggests that these beliefs are influenced by the fishing crew's perceptions of the power-dependency relationship (Emerson, 1962) between the exchange partners, in which boat owners have the power to replace their fishing crew with one of the many fishermen at the landing site desperate for work. In such relationships, and in this context where there are few alternative employment opportunities, fishing crew appear somewhat forced to cooperate with untrustworthy boat owners.

Nevertheless, in other relationships between fishing crew and boat owners, the dependence boat owners have on experienced and skilled fishing crew for income generation within the tough socio-ecological conditions of the study context, appears to moderate the characteristic asymmetries in power between the actors deriving from their differences in terms of asset ownership, capital resources and social status.

In essence, interdependence appeared to be an important source of power in exchange relationships between boat owners and fishing crew and a valuable mechanism for value redistribution within the relationship that supports trust and cooperation (Nachum, 2021).

However, in other value chain interactions between fish agents and fish suppliers, where unequal power relations also exist, the study also found evidence of a positive relationship between power and trust. Fish agents were perceived to have high capital resources and thus power to pay suppliers for fish. Power in this regard appeared to

have a positive effect on trust, based on actor's need for reliable partners (ÖUberg and Svensson, 2010).

Secondly, the research revealed that trust relations seem particularly influenced by behavioural experiences of power within an exchange relationship and appeared to have the most obvious effects on trust relations, as reported by participants. The study found evidence that supports the idea that coercive power results in negative consequences for trust, and non-coercive power produces positive trust outcomes within relationships (Jain et al. 2014; Huo et al. 2019). Specifically, performative displays of goodwill and benevolent motives, such as paying for an exchange partners' medical bills and supporting family funeral costs, were found to influence an exchange partner's perceptions of the other's affections and thus, trustworthiness, but also encouraged loyalty and long-term cooperation (Farrell, 2004). However, given the instrumental benefits of these performative displays of trust for power holders, it is argued whether they are genuine displays of trust or in fact another form of coercion and a façade of trust. On the other hand, coercive displays of power from the power holder including pricing control (e.g., demanding lower prices), channel structure control (e.g., limiting freedoms to deal with others), information control (e.g., withholding market information) and withholding pay, result in the exchange partner feeling a lack of autonomy, frustrated and less satisfied with the relationship (Jain et al. 2014; Huo et al. 2019). The study found that these feelings resulting from the use of coercive power can motivate opportunism – self-interest seeking rather than

trustworthy behaviour - and conceivably fuel a downward spiral of trust toward distrust (as suggested by Emborg et al. 2020).

8.2. Contributions to knowledge

For the broader understanding of the social processes that underpin trade and labour relationships in small-scale fisheries, this thesis has contributed to advancing knowledge on the topics of power and trust. More specifically the thesis has, first, highlighted the plurality of power relations that actors within small-scale fisheries experience, and adds further nuance to understandings of how power is used to realise certain objectives. Secondly, the research revealed the importance of the socio-ecological context on behaviour and perceptions of (dis)trust within trade and labour relationships. Furthermore, the research also observed important interactions between power and trust, deepening understandings of cooperation in small-scale fisheries. These key contributions and their wider relevance to current academic discussions are considered in more detail in the sections that follow.

8.2.1. Researching power in relation to trust

This study focused on the relational power dynamics between value chain actors at the community-level, specifically relations between fishing crew and boat owners, and fish suppliers and fish buyers. In doing so, its findings contribute to the broad body literature on power in small-scale fisheries. More specifically, the findings relate to literature that examines power and access to fisheries resources (e.g., O'Neil and

Crona, 2017; O'Neill et al. 2018) and contributes important insights that help explain how and where benefits from fisheries resources are distributed among actors. Furthermore, this study is distinctive in terms of its analysis of power within the small-scale fisheries context, as power is directly examined in relation to trust. The research revealed how behavioural experiences of power within an exchange relationship influence trust, and how displays of coercive power provoke opportunistic behaviour. In doing so, it brings new insights to studies of power and its influence on cooperation within exchange relationships in small-scale fisheries. The research gives further empirical grounding to theories that hypothesise the links between power and trust within exchange relationships, specifically the encapsulated interest theory (Hardin 2002; Farrell 2004).

8.2.2. The plurality of power relations

Previous studies have highlighted the complexity of power relations in small-scale fisheries. For instance, Nunan et al. (2020) emphasised the fluidity of power in patron-client relations in small-scale fisheries, and Roberts et al. (2022) highlight the complexity of 'nested hierarchies', where actors function as both patrons and clients. This research supports these understandings and builds on this knowledge of power as complex and nuanced and brings these perspectives together in its acknowledgement of the plurality of power actors experience.

The plurality framing acknowledges that actors experience various sources and scales of power in different domains of their relationships with exchange partners. This study revealed various context specific sources of power in interpersonal relationships including being able to offer credit, demand for good-size fish and thus skilled crew and competition due to reduced fish supply. The study also exposed how gender norms and relations affect the balance of power in exchange relationships. Moreover, the research revealed how different sources of power may be more or less important in different domains of a relationship, or for the achievement of certain goals. For example, participants argued that the ability to offer credit was more important than gender in determining an individual's power to access fish. However, gender norms and relations appeared to alter women's power to demand higher prices, or command control over boat crew.

In the small-scale fisheries context, where exchange partners may also be relatives, friends, or neighbours, the domains of an exchange relationship tend to cover personal as well as professional boundaries. In many fishing communities, fishermen, boat owners, traders, and processors live side by side with one another, and as such may drink together, have attended school together, and this social intimacy creates an intense setting for exchange relations to take place (Turgo, 2016). Consequently, exchange relations are shaped by social ethos as well as economic imperatives. For instance, an actor's power to exit a particular economic relationship may be stifled by their personal relations with their exchange partner. In addition, an actor's power over their exchange partner in one area of their economic relation might be mediated by

their power relations with their partner in another domain of their relationship, which may be personal.

Like Nunan et al's (2020) study, the research highlighted the fluidity of power relations in small-scale fisheries. The research revealed how the scale or extent of an actor's dispositional power fluctuates and is weakened or strengthened under specific circumstances created by the dynamic socio-ecological context. These fluctuations can provide windows of opportunity in certain relationships for actors to exercise power in areas or domains they would at other times have less power to do so. For instance, the research revealed how seasonal variations in fish catches incite prompt short-term fluctuations in actor's power to negotiate fish prices. Whereas, the decreasing availability of fish, particularly good-size Nile Perch, is arguably causing gradual, more enduring shifts in actor's power to negotiate exchange conditions.

8.2.3. Socio-ecological environments of (dis)trust

This study revealed how meso and macro level social, political, and environmental factors affect interpersonal trust. The findings contribute empirical evidence to the idea of high- and low-trust environments originally introduced by Fukuyama (1995) and applied at the country-level to explore the implications of trust for economic growth. Whilst Fukuyama's application of the idea was a macro-economic analysis of trust, their ideas have been applied more broadly within recent years. Researchers have repurposed the idea to micro-level environments, including economic sectors,

organisations, spatial and institutional contexts (such as courts (e.g., Laster, 2021)).

The concept acknowledges that interpersonal trust takes place within a specific societal context. Previous research has highlighted the role of institutions and legal systems in creating environments that enable or disable trust (e.g., Welter et al. 2004).

I argue that the idea of a 'low-trust environment' might be usefully applied to understand trade and labour relations in the small-scale fishery studied. This study revealed how economic instability linked to the declining environmental conditions in Lake Victoria, and weak governance systems corrode people's ability to trust and impact cooperation and contribute to a 'low-trust environment'.

This study found evidence that suggests that the precarious economy of declining fish stocks is making it difficult for people to trust in their exchange partners. The low, uneven, and unpredictable nature of catches mean that crew increasingly return to the shore with empty nets, unable to fulfil their obligations with those waiting at landing sites. Whilst it's perfectly possible that crew just simply fail to catch anything, this uncertainty overstrains exchange relationships and rouses speculation and suspicion regarding fishing crew's trustworthiness. According to Emborg et al. (2020) suspicion is regarded as a key cognitive component of distrust. They explain that distrust develops if the trustor suspects the trustee will take advantage of them, fail to follow through on their agreements or manipulate the relationship to their own ends (Emborg et al. 2020). Similarly, a study from coastal Sierra Leone, describes how declining catches are both eroding trust in the natural environment, and contributing to an ambiance of generalised mistrust (Diggins, 2023). Diggins (2023) claim that the invisibility of fishing

grounds contributes to this suspicion, as customers on land describe these hidden spaces, from which many people are excluded, particularly women, as the sites of trickery and deception.

However, unlike Diggins (2023) this research also exposed how weak governance systems contribute to a generalised environment of apprehension. The research found that the misuse of power by UPDF-FPU officers strains exchange relationships by contributing to the deepening uncertainty around whether crew will return with fish and corrodes trust at the community-level by increasing suspicion. Previous studies have highlighted how corruption undermines the legitimacy of fisheries governance (e.g., Nunan et al. 2018) and undermines trust between citizens and government actors and systems (Yan and Graycar, 2020). However, this study contributes unique insights that reveal that the petty corruption of governance actors not only influences vertical trust relations but has secondary implications for interpersonal trust between resource users.

Furthermore, this study's findings support Diggins' (2023) observations that trickery and deception appear to have become an essential skill of social navigation in the context of extreme precariousness, that many small-scale fisheries across the world face. Within the exchange relationships studied, every actor appeared to have their own illicit economic strategy to exploit small gains, whether using inaccurate weighing scales, rounding down to the nearest kilogram, or offloading catches before landing. Consequently, social vigilance – being able to successfully judge who can be trusted

and how far - also appears to have become a key skill for people working in Lake Victoria's fisheries. Comparable to coastal Sierra Leone (as described by Diggins, 2023), Lake Victoria's fisheries appear as an environment in which it is assumed that people will resort to such dirty tricks to seize the narrow opportunities they have to make a profit, and people have become accustomed to this deception. However, this atmosphere in which deception is normalised, does not offer a social system of predictability and security on which the emergence of generalised trust can rest. Instead, the uncertainty has created a low-trust environment in which trust is fragile, and people struggle to feel confident in even the most mundane or intimate exchange relationships (Diggins, 2023). Diggins (2023) argues that in such precarious environments, trust is never a 'natural' response to social interactions, but an anxiety-provoking process of deliberation. Hence, I argue, following Turgo (2016), that the fragility of trust in interpersonal relations in this context is perhaps why regular performances of trust, including acts of reliability, loyalty, honesty, reciprocity, and benevolence, appeared so important and reassuring to trade partners. The research suggests that partners must constantly prove themselves trustworthy to sustain and deepen trust.

8.3. Reflections on study and future research avenues

In order to unpack the intricate and complex relations that have been explored in this thesis, a case study approach was selected and undertaken in select localities on the shores of Lake Victoria, Uganda. Lake Victoria has specific fishing cultures and

particular environmental conditions which shape the social dynamics of power and trust in particular ways. In addition, the central landing sites chosen for this study were generally large, peri-urban sites, and as such presented particular physical conditions that formed the context of study. Further comparative work is required to apprehend how different social and environmental conditions might, or might not, lead to variations in what has been observed in this study. An exploration of such variations is pertinent as it could uncover important differences and nuances to the sources, processes and manifestations of power and trust.

This study used qualitative methods to gain an in-depth understanding of trade and labour relations in small-scale fisheries and capture the social nuances of economic exchanges within the study context. Though, because of challenges related to the recording of the structured interviews with individuals, and the dominance of group interviews and focus group discussions (because of their practicability in the study locations), this study is somewhat limited in its collection of individual level classifying data, and examination of participant's experiences and perceptions in relation to the specific circumstances of their exchange relationship. However, owing to the initial research focus (and thus design of the research tools) on digital technologies and women's experiences within their trade relationships, as well as the selection of women- or men-only group interviews and focus groups, the information collected enabled some differentiation of experiences based on gender. In fact, this research contributed important insight regarding quantitative gender differences in pricing that

have been scarcely explored until recently (e.g., Rice et al. 2023), and gendered relations between boat owners and fishing crew which are also underexplored. Nevertheless, future work is needed to comprehend how different relationship contexts, and individual level social characteristics and economic conditions affect experiences and perceptions of power and trust in exchange relationships in small-scale fisheries.

8.4. Final conclusions: Implications of the research

Altogether, the study has drawn attention to the increasing complexity of cooperation in small-scale fisheries. The incredibly challenging resource conditions, instability of economic flows, weak governance system and increasing integration into international markets, mean actors in Lake Victoria's fisheries are frequently confronted with dynamics that affect interactions, cooperation, and livelihood outcomes. Furthermore, the study has highlighted the sensitivity of trade and labour relations to changes at various levels – from the interpersonal to the macro-level. As such, the research has emphasised the importance of assessing how changes – including climate change, governance policies etc. – are affecting relationships, behaviours, and distributive outcomes in small-scale fisheries. Management and livelihood interventions should be wary of these dynamics to avoid unexpected, and undesirable trade-offs that may lead to inequitable distributions of costs and benefits among stakeholders, social and political conflict, and unsustainable conservation initiatives (Fortnam et al. 2023).

Lastly, the study exposed how overstrained trade and labour relationships are with impacts for cooperation, individual wellbeing, economic productivity, and resource governance. The low-trust environment identified is not only problematic for interpersonal relations but is not conducive to sustainable fisheries governance. Trust is key to collaboration between a complex system of actors and future work should explore how to facilitate cooperation and reduce opportunistic behaviour.

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Appendices

Appendix A. Table providing a description of the group interviews, as well as the participants in each group interview where available.

Data source code	Location	Occupation of participants	Number of participants	Gender of participants	Additional description of participants
G1	Katosi	Fish traders	2	Male	<ul style="list-style-type: none"> Deal in Nile Perch and Tilapia Used to work as fishing crew Buy from other fish traders Sell to fish processing factories and local markets
G2	Kasekulo	Boat owner	2	Female	<p>Participant 1:</p> <ul style="list-style-type: none"> Owns two boats Previously worked as a processor (smoker) Employs two crew on each boat <p>Participant 2:</p> <ul style="list-style-type: none"> Owns two boats Employs two crew on each boat, including a nephew <p>Sells to fish agent/middleman who supplies fish to processing factories.</p>
G3	Katosi	Fish traders	3	Male	<ul style="list-style-type: none"> Buy from fishermen and boat owners Sell to other traders who come from outside of the landing site/local area Trade between 1 and 10 tonnes per day

G4	Kiyindi	Fisher	2	Male	<p>Participant 1:</p> <ul style="list-style-type: none"> • Labourer employed by boat owner • Targets Mukene • Employed by a woman boat owner • Works on a boat of three crew members • Catches between 700kg and 1000kg per week and on a bad day between 15kg and 30kg <p>Participant 2:</p> <ul style="list-style-type: none"> • Targets Nile Perch • Works on his brother's boat • Works on a boat of two crew • On a good day catch 100kg
G5	Kiyindi	Fisher	7	Male	<ul style="list-style-type: none"> • Aged between 18 -50 • Labourers employed by boat owners • Some target Nile Perch and others Mukene.

G6	Kiyindi	Fish trader	3	Male	<p>Participant 1:</p> <ul style="list-style-type: none"> • Deals in Mukene • Trades approx. 30 tonnes per month • Sells to markets in Kisoro, Western Uganda, and the DRC. • Owns a 10-tonne capacity truck • Buys from stores at the landing site. <p>Participant 2 and 3:</p> <ul style="list-style-type: none"> • Deal in Nile Perch • Sell to other fish traders • Extend capital for fuel and fishing gear
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G7	Kiyindi	Boat owners	6	Male	<p>Participant 1:</p> <ul style="list-style-type: none"> • Targets Tilapia • Owns two boats • Employs three crew on each boat <p>Participant 2:</p> <ul style="list-style-type: none"> • Targets Tilapia • Owns four boats • Employs two crew on each boat <p>Participant 3:</p> <ul style="list-style-type: none"> • Owns five boats • Employs two crew on each boat <p>Participant 4:</p> <ul style="list-style-type: none"> • Owns two boats • Employs two crew on each boat <p>Participant 5:</p> <ul style="list-style-type: none"> • Targets Tilapia • Owns one boat • Employs two crew <p>Participant 6:</p> <ul style="list-style-type: none"> • Targets Tilapia • Owns two boats • Employs two crew on each boat • Sells mostly to truck owners/wholesalers
G8	Kiyindi	Fish traders	8	Male	<ul style="list-style-type: none"> • Deal in Nile Perch • Trade between 50 and 500kg per day

G9	Katosi	Boat owner	4	Male	<p>Participant 1:</p> <ul style="list-style-type: none"> • Targets Nile Perch • Owns three boats • Uses nets – 60 to 70 nets on each boat • Employs two crew on each boat • Catches 4kg to 5kg on a normal day and 10kg is a good day per boat <p>Participant 2:</p> <ul style="list-style-type: none"> • Targets Nile Perch • Owns two boats • Uses nets – 65 nets on each boat • Employs two crew on each boat • Catches 0 to 7kg on a normal day, 20kg to 30 kg on a good day • Sells to truck owners/fish agents or local traders <p>Participant 3:</p> <ul style="list-style-type: none"> • Owns three boats • Employs two crew on each boat • Uses nets – 80 nets per boat • Catches 30kg to 40kg on a good day, and 0 to 4kg on a bad day. <p>Participant 4:</p> <ul style="list-style-type: none"> • Targets Mukene • Owns one boat • Uses nets – 7 nets attached together • Employs three crew • Catches 400kg on a good day, and 3kg on a bad day • Sells mostly to women
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G10	Katosi	Fish trader	5	Male	<p>Participant 1:</p> <ul style="list-style-type: none"> • Deals in Tilapia • Trade around 100 heads per day • Earns 350,000 UGX on a bad day <p>Participant 2:</p> <ul style="list-style-type: none"> • Fish agent • Owns a truck • Deals 200kg on a bad day <p>Participant 3:</p> <ul style="list-style-type: none"> • Deals in Nile Perch • Buys 1 -1.5 tonnes on a good day, and 30-50kg on a bad day <p>Participant 4:</p> <ul style="list-style-type: none"> • Deals in Nile Perch • Trades 200kg on a good day, 15kg on a bad day <p>Participant 5:</p> <ul style="list-style-type: none"> • Deals in Nile Perch • Trades 300kg on a good day, 30kg on a bad day
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G11	Katosi	Fishing crew	6	Male	<p>Participant 1 –</p> <ul style="list-style-type: none"> • Catches approx. 15kg per day <p>Participant 2:</p> <ul style="list-style-type: none"> • Targets Nile Perch • Catches 200kg on a good day, 5-10kg on a bad day <p>Participant 3:</p> <ul style="list-style-type: none"> • Targets Nile Perch • Catches between 70-1000kg per week <p>Participant 4:</p> <ul style="list-style-type: none"> • Fishes with hooks • Can catch up to 50kg in one day <p>Participant 5:</p> <ul style="list-style-type: none"> • Targets Nile Perch • Uses hooks and nets • Catches between 80-1000kg per week <p>Participant 6:</p> <ul style="list-style-type: none"> • Catches 50kg on a good day
G12	Katosi	Fishing crew	6	Male	<ul style="list-style-type: none"> • Target Nile Perch • Labourers employed by both men and women boat owners

G13	Katosi	Fish traders	4	Male	<p>Participant 1:</p> <ul style="list-style-type: none"> • Deals in Nile Perch • Trades 200kg on a good day, 30kg on a bad day <p>Participant 2:</p> <ul style="list-style-type: none"> • Deals in Nile Perch • Trades on average 100kg per day but can range between 15kg and 500kg. • Buys from fishers by approaching boat directly, from boat owners and from fellow traders • Extends credit to suppliers (between 200,000 – 1 million UGX) • Sell to truck owners/fish agents and local traders
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Appendix B. Table displaying the codes used in NVivo to thematically organise the data, and the prevalence of the codes within the data

Code	Number of files with this code	Number of coded extracts
Arrangements with multiple suppliers	8	16
Boat owners	6	11
Capital as power to	2	4
Catches influencing power dynamics	7	8
Catches influencing opportunistic behaviour	2	7
Character-based trust	9	13
Competence	9	15
Competition between traders	14	17
Conflict between loyalty and better prices	3	8
Credit arrangements	16	43
Credit repayments	10	16
Debt and power over	10	17
Delayed (re)payments	6	7
Dependency	15	23
Differences based on fish species	4	11
Different scales of operation	4	6
Drivers of illegal activities	2	3
Empathy and understanding	17	30
Environment of mistrust	4	16
Factories	13	41
Factories as trustworthy	3	4
Familial ties	14	24
Fish 'wives'	6	9
Fish buyers power over	2	2
Fish for sex	18	36
Fish scarcity	3	3
Fish trader to fish trader links	9	21
Fisher to fish trader links	15	57
Fisheries officers	4	6

Fishers as untrustworthy	8	27
Fisher's organisation	4	9
Fishers power over	14	14
Fishing crew to boat owner links	10	62
Formal finance	3	4
Gender differences	20	49
Gendered working relations	4	9
Governance	6	14
Government mistrust	3	4
Honesty	7	10
Institutions	1	3
Institutions mediating opportunistic behaviour	6	8
Investment in fishing	26	67
Islands	2	8
Loans influencing trust	2	2
Loyalty	8	12
Market information	13	14
Men as distrustworthy	4	7
Men as trustworthy	2	2
Middlemen	6	13
Middlemen as trustworthy	1	1
Middlemen as untrustworthy	1	2
Middlemen power over	7	9
Mukene	3	13
Negotiation/Bargaining	17	34
Nile Perch	1	1
No tied arrangements	6	9
Normative trust	3	3
Obligation	1	1
Opportunistic behaviour	17	32
Over-embeddedness	3	5
Patron-client relations	14	19
Patron's sharing expertise	1	1
Phones	5	7
Prices	14	30
Prices and trustworthiness	1	1
Procedural (un)fairness	9	14
Process-based trust	18	44
Reciprocity	4	5
Risks	5	5
Scale influencing power to	1	1

Share agreements	7	16
Social embeddedness	10	18
Sources of distrust	21	44
Sources of trust	21	34
Spreading the risk	1	1
Subsistence provision	3	3
Theft	5	8
Tied arrangements	9	23
Traders as trustworthy	1	1
Tribalism	1	1
Untrustworthy	2	4
UPDF-FPU	14	37
Vulnerability	1	1
Women as distrustworthy	1	1
Women as trustworthy	11	17
Women boat owners	11	28

Appendix C. Table displaying the abbreviations used in text to represent each data source.

Abbreviation	Location	Data collection method	Occupation of respondents	Number of respondents	Gender of respondents
IN1	Katosi	Structured interview	Fish processor	N/A	Woman
IN2	Katosi	Structured interview	Fish processor	N/A	Woman
IN3	Katosi	Structured interview	Fish processor	N/A	Woman
IN4	Mase	Structured interview	Fish trader	N/A	Woman
IN5	Kiyindi	Structured interview	Fish trader	N/A	Woman
IN6	Kiyindi	Structured interview	Fish trader	N/A	Woman
IN7	Kiyindi	Structured interview	Fish trader	N/A	Woman
IN8	Kiyindi	Structured interview	Fish processor and trader	N/A	Woman
IN9	Kiyindi	Structured interview	Fish trader	N/A	Woman
IN10	Kiyindi	Structured interview	Fish trader	N/A	Woman
IN11	Kiyindi	Structured interview	Fish trader	N/A	Woman
IN12	Kiyindi	Structured interview	Fish processor and trader	N/A	Woman
IN13	Kiyindi	Structured interview	Fish processor and trader	N/A	Woman
IN14	Buluba	Structured interview	Fish trader	N/A	Woman
IN15	Buluba	Structured interview	Fish trader	N/A	Woman
IN16	Buluba	Structured interview	Fish processor and trader	N/A	Woman
IN17	Buluba	Structured interview	Fish trader	N/A	Woman

IN18	Kato si	Structured interview	Fish processor and trader	N/A	Woman
IN19	Kato si	Structured interview	Fish processor	N/A	Woman
IN20	Mase	Structured interview	Fish trader	N/A	Woman
IN21	Mase	Structured interview	Fish trader	N/A	Woman
IN22	Mase	Structured interview	Fish trader	N/A	Woman
IN23	Mase	Structured interview	Fish trader	N/A	Woman
IN24	Mase	Structured interview	Fish trader	N/A	Woman
IN25	Mase	Structured interview	Fish processor	N/A	Woman
IN26	Mase	Structured interview	Fish trader	N/A	Woman
IN27	Mase	Structured interview	Fish trader	N/A	Woman
IN28	Mase	Structured interview	Fish trader	N/A	Woman
IN29	Mase	Structured interview	Fish trader	N/A	Woman
IN30	Mase	Structured interview	Fish trader	N/A	Woman
IN31	Mase	Structured interview	Fish trader	N/A	Woman
IN32	Mase	Structured interview	Fish trader	N/A	Woman
IN33	Mase	Structured interview	Fish trader	N/A	Woman
IN34	Mase	Structured interview	Fish trader	N/A	Woman
IN35	Mase	Structured interview	Fish trader	N/A	Woman
IN36	Kato si	Structured interview	Fish processor and trader	N/A	Woman
G1	Kato si	Group semi-structured interview	Fish traders	2	Men

G2	Kase kulo	Group semi-structured interview	Boat owners	2	Women
G3	Kato si	Group semi-structured interview	Fish traders	3	Men
G4	Kiyin di	Group semi-structured interview	Fishers	2	Men
G5	Kiyin di	Group semi-structured interview	Fishers	7	Men
G6	Kiyin di	Group semi-structured interview	Fish traders	3	Men
G7	Kiyin di	Group semi-structured interview	Boat owners	6	Men
G8	Kiyin di	Group semi-structured interview	Fish traders	8	Men
G9	Kato si	Group semi-structured interview	Boat owners	4	Men
G10	Kato si	Group semi-structured interview	Fish traders	5	Men
G11	Kato si	Group semi-structured interview	Fishing crew	6	Men
G12	Kato si	Group semi-structured interview	Fishing crew	6	Men
G13	Kato si	Group semi-structured interview	Fish traders	4	Men
IS1	Kase kulo	Individual semi-structured interview	Boat owner	N/A	Woman
IS2	Kato si	Individual semi-structured interview	Boat owner and fisher	N/A	Man
IS3	Kato si	Individual semi-structured interview	Fish trader (Large-scale)	N/A	Man

IS4	Kato si	Individual semi-structured interview	Boat owner	N/A	Man
IS5	Kato si	Individual semi-structured interview	Boat owner	N/A	Man
FGD1	Kase nyi	Focus group discussion	Fish processors and traders	20	Mixed
FGD2	Kato si	Focus group discussion	Fish processors and traders	9	Mixed
FGD3	Kiyin di	Focus group discussion	Fish processors and traders	7	Mixed
FGD4	Kate bo	Focus group discussion	Fish processors	15	Mixed
FGD5	Owi no Mar ket	Focus group discussion	Fish traders	22	Mixed
FGD6	Bulu ba	Focus group discussion	Fish traders	8	Women
FGD7	Kiyin di	Focus group discussion	Fish processors and traders	9	Women
FGD8	Kato si	Focus group discussion	Mixed	7	Mixed
FGD9	Kato si	Focus group discussion	Mixed	10	Mixed

Appendix D. Table of direct quotes concerning issues with UPDF-FPU officers

Description of respondent	Location	Respondent ID	Response
Male fish trader	Katosi	G10	...those marine soldiers...they are not doing what they were brought for, even when they find you with all the required fish equipment, they'll still find fault somewhere.
Fisher	Katosi	G11	... you can fish and get a good catch and then on your way back the soldiers confiscate it when you've not committed any offence
Male fish trader	Katosi	G13	...the marine soldiers...confiscate our fish on the lakes for no reason
Focus group respondent 1	Katosi	FGD8	even if they [the FPU soldiers] find when you've caught fully grown fish, they still confiscate it, I used to get a tonne of fish but now I can't, they steal our fish both on the lake and offshore, they can arrest you as you are moving on the road, and mostly they come from Kiyindi to come and enforce here, they ask for specific hooks and even when you buy them they still confiscate it
Focus group respondent 2	Katosi	FGD8	we thought they'd [the FPU] come to control the wrong fishing methods but instead they confiscate our hooks and nets then go and sell them to other fishermen
Focus group respondent 3	Katosi	FGD8	the UPDF has greatly affected us on the lake, we totally no longer get fish...these soldiers have destroyed almost all the boats...even the good boats
Fisher	Kiyindi	G5	they [the FPU soldiers] come to you even when you have all the requirements and take pictures of you while caning you and arrest you
Male boat owner	Katosi	IS5	people are dying for nothing on the waters, the government [FPU soldiers] tortures

			people on the lake...policemen [FPU soldiers], they do things without answering to anyone, they'll kill someone and get transferred and they bring in another officer
Male boat owner	Katosi	G9	the soldiers kill fishermen on the waters...truth is the soldiers are really disturbing us on the lake, about 3 days ago they arrested my boat when they were enforcing standard nets on the lake...these soldiers arrest us at times when we're not even in the wrong
Focus group respondent 1	Katosi	FGD9	the marines...they steal the fishermen's catch and still come here and try to squeeze money from us
Focus group respondent 2	Katosi	FGD9	they [the FPU soldiers] confiscate the fishermen's fish so they can sell it themselves and make money to use of the money for food, [because] they are paid poorly
Focus group respondent 3	Katosi	FGD9	they [the FPU soldiers] believe each time they make an operation, they must get something out of the fishermen, so however much they find you with all the legal qualifications, it's very rare for them to just let you go
Fish trader (fish agent)	Katosi	G1	It is a real challenge, the UPDF...even the fishing gears you are using you may have bought them in Uganda, but they will say this is wrong...and they may capitalise on that
Woman boat owner	Kasekulo	IS1	the UPDF...if they find you, they will illegally arrest you, take you with your properties, because they need some money...it can happen even if you have just paid [them a bribe], given them the money, lost your assets, even after two days they can arrest you.

Focus group respondent, women fish processor and trader	Katosi	FGD2	the military takes all the fish from us, whether you have the big ones [legal size] or the small ones [undersized fish], when they find them they take everything.
Women fish trader	Buluba	IN14	the police confiscated my fish because I had immature fish, even though I wasn't going to sell them, but eat them. They even took the big [legal sized] fish.
Women fish processor and trader	Buluba	IN16	Soldiers grab the fish...and illegally arrest us...they even come in our houses at night and search and if they find fish they grab us and or ask for money

Annexures

Annex A. Interview guide for structured individual interviews

Question guide for individual interviews with women fish processors and traders

Interview number:.....

Date:.....

Landing site location:

Demographic and socio-economic information

1. Do you originally come from this community?

1. Yes	2. No
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1.1. If not, why did you move to this place?

1. Work	2. Family/Friends	3. Marriage	4. Health	5. Education	6. Other
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2. How many people live in your house?

1. Adult male	2. Adult female	3. Male children	4. Female children
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3. How old are you?

1. Under 18	2. 19-29	3. 30-39	4. 40-49	5. 50-59	6. over 60
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4. What is your education level?

1. None	2. Primary	3. Secondary	4. Certificate (please specify)	5. Diploma (please specify)	6. Degree (please specify)	7. Other (please specify)
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5. What is your marital status?

1. Unmarried	2. Married	3. Single mother (including unmarried, divorced, widowed, and deserted mothers)	4. Widowed without children	
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6. Ethnicity

1. Buganda	2. Banyankole	3. Basoga	4. Bagwere	5. Banyole	6. Batooro	7. Bakiga
8. Bafumbira	9. Bagisu	10. Banyoro	11. Bakonjo	12. Basamia	13. Other (please specify)	

7. Do you have a bank account? Is it solely in your own name or is it a joint account? If a joint account, please specify who with?

1. Yes I have a bank account in my own name	2. Yes, I have a joint account (please specify)	3. No
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8. Primary occupation

1. Fish processing	2. Fish trading	6. Other (please specify)
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9. What fish species do you work with? For each fish species, how many kg of fish do you usually buy per week? What is the size of the fish you usually buy? And how much do you usually pay for this fish per kg?

Fish species	Mukene/Silver Fish	Tilapia	Nile Perch	Other (please specify)
Quantity (kg)				
Size (cm)				
Cost (UGX per kg)				

10. FOR FISH TRADERS...what products do you trade? How many kg of fish in this form do you usually sell/trade per week? How much do you usually sell this product for per kg? And where do you usually sell these goods?

Product	Whole fresh fish	Processed fresh fish (please specify)	Processed fish (smoked)	Processed fish (dried)	Other processed fish (please specify)	Fish market	Other (please specify)
Quantity per week (kg)							
Sale price (per kg)							
Market destination 1- within the village or parish 2 - in another county/sub-county 3 - in another district 4 - regional cross-border export 5 - international export							

11. FOR FISH PROCESSORS.... in what forms of value added goods are your harvest made into? How much do you usually sell this product for per kg? And where do you usually sell these goods?

Product	Fish paste	Fish sauce	Fish snacks	Smoked	Sun-dried	Kiln-dried	Other (please specify)
Quantity per week (kg)							
Price (per kg)							
Market destination 1- within the village or parish 2 - in another county/sub-county 3 - in another district 4 - regional cross-border export 5 - international export							

12. FOR FISH PROCESSORS.....What are the advantages and disadvantages of processing fish in this way?

13. In an average week, what percentage of your income do you usually get from fishing/processing/trading activities?

<10%	>10 - 30%	>30-50%	>50 - 70%	>70 -100%
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14. Estimated average weekly income (UGX) from fish processing/ trading activities

< 30,000	> 30,000 - 50,000	>50,000 - 70,000	>70,000 - 100,000	> 100,000 - 150,000
>150,000 - 200,000	>200,000 - 500,000	>500,000 - 1,000,000	>1,000,000	

15. Please identify any other fisheries and non-fisheries activities you engage in for food or money

Fisheries related activities:			
1.Fish harvesting (with boat)	2. Fish or other aquatic animal harvesting (without boat)	3.Fish farming/aquaculture	4.Fish processing
5.Fish trading	6.Fish marketing	7.Fishing net production or mending	8. Other (please specify)
Non-fisheries related activities:			
1.Livestock farming	2.Subsistence agriculture	3.Bee keeping	4.Agricultural labour
4.Trade in other products (please specify)	5.Other (please specify)		

16. How long have you been working in fish trade/or processing?

1 year or less	>1 - 3 years	>3 - 5 years	5 - 7 years
> 7- 10 years	>10 - 15 years	> 15 years	

17. Is your fisheries business formally registered? If not, why not?

1. Yes	2. No (please explain why)
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18. Does anyone else in your household work in the fisheries sector?

Who? (e.g. spouse)	Occupation (e.g., fish trader)

19. IF MARRIED....How much involvement does your spouse have in your work? Do they influence your work or trading relations? If yes, how?

Fish trade and power relations

20. How would you describe your relationship with your fish supplier(s)? How long have you worked with them? Why do you work with them? Is it an equal relationship? What are the advantages and disadvantages of this relationship?

21. Who determines the fish prices? And why?

22. What factors affect your ability to negotiate a better price?

23. When fish catch/supply is low/high, how does this affect your relationship with the supplier? The cost of fish? And your ability to negotiate a good price?

24. Does the fish supplier sell to other fish traders/processors or markets? If yes, who? And how does this affect your business (e.g., in terms of fish supply, price, bargaining power).

25. Are you encountering any problems getting regular, suitable quality or quantity fish? If so, why?

26. What do you do when you can't get enough fish? How often does this happens?

27. Do you experience many fish losses? How much per week? What factors affect your fish losses?

28. What factors do you consider in setting your prices? Does the price you sell for change throughout the year, and why?

Questions about capital, credit and loans:

29. Where do you source the capital to buy fish?

1. Personal savings	2. Household savings	3. Credit (please specify from who?)	4. Loans from savings and credit groups
5. Bank loans	6. Informal lenders	7. Loans from family (outside household)	8. Other (please specify)

30. If through credit or loans...please ask the following questions

1. What is the nature of this credit/loan arrangement?
2. How would you describe your relationship with this lender?
3. How much do you usually lend, and how often?
4. How do you repay them?
5. Do they charge interest?
6. Is it a written, or informal agreement?
7. Are there any other conditions?
8. What do you do if you can't pay them back?
9. Have you ever not been able to repay? If yes, what happened?
10. How important is this arrangement to your livelihood? What would you do if this arrangement was to stop?

31. Do you provide credit/loan money or resources (e.g., a boat, nets, storage facilities) to anyone?

32. If yes...please ask the following questions

1. To who?
2. For what?
3. How much? And how often?
4. Why? How does this relationship benefit you?
5. What are the conditions of this loan (written, unwritten, interest, etc.)?
6. How do they repay you? What happens if they cannot repay?

Questions related to GBV, sex-for-fish transactions:

33. Has anyone in your household, including you, received food, money, job or fish in exchange for sex or a sexual relationship?

34. Have you ever been asked to exchange sex or a sexual relationship for fish, or money? If so, how often do you get asked this? And by who?

35. Have you heard of this practice taking place in your community? If so, what do you think drives/influences/causes this practice?

36. Have you ever felt threatened, or been threatened when carrying out your fisheries work?

Questions on change and aspirations:

37. Can you explain to me which advantages and disadvantages you have as a fish trader/processor?

38. Is there anything you would like to do differently? And why? What is stopping you?

39. How have your business activities changed over the last 10 years? Or from when you first started?

40. How were your fish trading/processing activities affected by COVID-19? How did they affect your trading relations? How did you cope with the impacts of COVID-19? Is your business still affected? Have you made any permanent changes to the way that you do business since COVID? If so, what? And why?

Questions on the role of mobile technology

41. Do you own a mobile phone?

1.Yes I own a mobile phone	2.Yes, I share a phone with my partner/husband	3. Yes, I share with another family member	4.No, I don't have a phone
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42. Do you own a smartphone?

1.Yes I own a smartphone	2.Yes, I share a smartphone with my partner/husband	3. Yes, I share with another family member	4.No, I don't have a smartphone
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43. Do you have access to a mobile money account? Is it solely in your own name or is it a joint account?

1.Yes I have a mobile money account in my name	2. Yes, it is a joint account (please specify who with)	2. No, I don't have a mobile money account
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44. Do you use any mobile technologies, devices or applications for your fish trade/processing work?

45. If yes....please ask the following questions

1. What technological services/applications do you use? (e.g., phone calls, SMS, mobile money, WhatsApp, Marketing Applications, Social Media, Website etc.)
2. What do you use it for?
3. When did you start using these services?
4. What were the main reasons you started using these technologies?
5. What role, if any, did consumers play in your choice to do business in this way?
6. How often do you use them? Have you always used them this often or has it changed over time?
7. What **positive effects** has using a mobile phone had on your livelihood? What things have changed as a result of having access to technologies?
8. What **negative effects or risks** has using a mobile phone had on

your livelihood? What things have changed as a result of having access to technologies?

9. Do you ever have to ask permission to use these technologies? If yes, who do you need to ask permission from, and how does this make you feel? What is stopping you from owning your own?
10. How did you learn to use these technologies for work? Did anyone help you or show you? Is there anyone who encouraged or discouraged you, and who are they?
11. How has using these technologies affected your relationship with others including a) fish suppliers, b) fish buyers, c) other women fish traders/processors, d) your spouse, and e) your children?
12. How has using these mobile technologies affected your life at home?
13. Does using mobile technologies affect the price you are able to buy and sell fish for? Is it easier or harder to negotiate prices via phone for example? If so, how?
14. How does using mobile technologies affect your safety or sense of safety at work?
15. How have mobile technologies affected your access to capital?
16. Has having access to mobile technologies helped you to build your fisheries social support networks? If so, how?
17. Do you participate in any group chats with fishers/fish processors/fish traders? If yes, what is the purpose of the group? Who are the members? Why do you participate in this group?
18. Are you able to use these mobile technologies as much as you would like? What stops you from using it as much as you would like to? What things would you like to do that you currently do not? Why? What do you need to be able to do these things?

46. If the participant doesn't use any technological services/applications...

1. Why don't you use a mobile phone for work? Is it because you don't want to or because you aren't able to or aware of how you could use them?
2. What are the main obstacles, and why?

Annex B. Focus group guide

Focus group question guide:

Part 1: Power and power relations between actors.

1. What power/influence do women fish processors and traders have? What factors affect their power? What do they have the power to do? Who do they have power over? Who has power over them? And why?

Additional probing questions:

- a. Who has the power to determine fish prices?
- b. Who has the power to make fisheries management decisions?
- c. How do women fish processors and trader's power and influence depend on age, socio-economic level, etc.?

2. This question concerns relations with fish suppliers.
 - a. How do you find/choose your fish supplier(s)?
 - b. Is it more advantageous to have one regular supplier, or many and why?
 - c. What makes a good relationship and why?
 - d. How do you maintain your relationship with your fish supplier? And how does your fish supplier maintain their relationship with you?
 - e. How important are credit/financing/loan arrangements between fish suppliers and yourself, and why?
 - f. What makes a bad relationship and why?
 - g. Is it easy to find another supplier if you need to?
3. Sex in exchange for fish is a documented practice amongst fishing communities in Lake Victoria. Have you heard of this practice taking place in your community? If so, what and who do you think drives/influences/causes this practice?
4. Have you ever felt threatened/harassed, or been threatened/harassed when carrying out your fisheries work? If so, by who and in what circumstance?
5. What other challenges/obstacles/disadvantages do you face as a fish trader/processor?

Part 2: ICTs

1. What mobile technologies, services and applications do you use for your work in the fisheries sector? And what do you use them for/ what is their function/purpose? What do they help you to achieve?
2. Is there a particular type of person/certain people who is more likely to use these technologies for their work? Who? And Why?

Additional probing questions:

- A. Are some technologies more useful for certain types of fisheries work/tasks, scale of operation/activities, types of markets, than others? If so, what and why?
3. What are the positive effects/advantages of each of these technologies, services or apps? What things have changed as a result of using them?

Additional probing questions:

- A. Does using mobile technologies affect the price you are able to buy and sell fish for? Is it easier or harder to negotiate prices via phone for example? If so, how?
- B. How have mobile technologies influenced the markets/consumers you sell to?
- C. How have mobile technologies affected your access to capital? Access to training and information?
- D. Has having access to mobile technologies helped you to build your business and social support networks? If so, how?
- E. Has using these technologies had any impact on your ability to manage domestic and paid work?
- F. Has using these technologies had any other impact on life at home? e.g. your relationship with your spouse?

4. What are the barriers/challenges/obstacles? What stops you from using them as much as you would like to? Or why don't you use certain technologies? Is it because you don't want to or because you aren't able to or aware of how you could use them?

Additional probing questions:

- A. Do you ever have to ask permission to use these technologies? If yes, who do you need to ask permission from?
- B. Are there any negative effects or risks associated with each of these technologies, services or apps? Are there particular risks for women in comparison to men?

Annex C. Focus group guide on trust

Question guide for discussions on trust (w. related concepts from literature in blue)

PROVIDE EXAMPLES/STORIES WHERE POSSIBLE

1. Generally, are people working in the fisheries sector trustworthy? Why or why not? Who is trustworthy and who isn't? – **propensity to trust in social, cultural, political, environmental context**
2. What are the characteristics of a trustworthy fish supplier/fish buyer? How do you know someone is trustworthy? – **characteristics of trustee (social proximity (e.g., familial, marital, friendship or tribal ties), personality, gender, other identities, moral values, attitudes, ability (skill and competencies), integrity (acting in accord with a set of shared norms and values), moral indulgence (greed)**
3. What are the characteristics of a distrustworthy fish supplier/fish buyer? How do you know someone is distrustworthy?
4. Can the fish supplier/buyer be trusted to do somethings/at particular times/in particular contexts, and not others? If so what, and why? – **one can hold multiple trust judgements, some positive, some negative, context specific. Trust/distrust judgments are time and context specific, trust judgments may vary over time and across domains of a given relationship.**
5. What factors promote trust in a trade relationship? Which are most important? – **components of trust (communication, sharing of information, transparency, power (im)balance, fairness ie., in distribution of resources, prices, competition, patronage, environmental uncertainty, relationship building behaviours, cooperating (e.g., reaching compromise), adaptability, opportunistic behaviours (coercion, taking advantage), reciprocity.**
6. What factors lead to distrust in a trade relationship? Which are most important?
7. Why do you work with people who display signs of distrust/risks (e.g., failed payments, selling fish elsewhere?) – **motivation to trust, willingness to accept vulnerability, rational cost-benefit analysis, trust-as-choice, links to multiple trust judgements.**
8. How does giving and receiving credit affect trust/distrust? - **reciprocity, process-based trust**
9. In terms of trust, is there a difference between male and female buyers/suppliers? If so, what, and why? – **gender-based trust**
10. Are you more likely to work with someone who you have familial, marital, friendship or tribal ties to? Explain why or why not.
11. How do power imbalances or fairness in the distribution of resources affect trust between actors?
12. How does environmental uncertainty affect trust between actors?

Annex D. Question guide for fish traders

Question guide for fish traders

Please briefly explain the work you do (scale of operation, species, markets etc).

1. How do you find/select your fish suppliers, and WHY? Are they male, female?
2. Do you work with one regular supplier, many, or buy randomly, and WHY?
What are the advantages and what are the disadvantages?
3. What makes a good relationship, and what makes a bad relationship with fish suppliers?
4. Who has the most power/influence in this relationship, what do they have the power to do, and WHY?
5. Do you provide any money/advanced payments from these suppliers? If yes, how much, how often, and how important is this arrangement to yourself and to the supplier?
6. Do you receive fish on credit from any of these suppliers? If yes, how often and why? How important is this arrangement to yourself and to the supplier?
7. What, if any, are the differences between male and female fish suppliers/buyers? Explain the reason for these differences.
8. Sex in exchange for fish is a documented practice amongst fishing communities in Lake Victoria. Have you heard of this practice taking place in your community? If so, what and who do you think drives/influences/causes this practice?
9. Have you ever felt threatened/harassed, or been threatened/harassed when carrying out your fisheries work? If so, by who and in what circumstance?
10. What other challenges/obstacles/disadvantages do you face as a fish trader?

Annex E. Question guide for fishing crew

Question guide for fishing crew

Please briefly explain the work you do (scale of operation, species etc).

1. How do you find/select a boat/boat owner to work on/for, and WHY? Are they male or female boat owners?
2. Do you work for one or many boat owners? and WHY? What are the advantages and what are the disadvantages?
3. What makes a good relationship, and what makes a bad relationship with boat owners?
4. Who has the most power/influence in this relationship, what do they have the power to do, and WHY?
5. How do you get paid for your work? How much, how often? Who decides the payment terms?
6. What, if any, are the differences between male and female boat owners? Explain the reason for these differences.
7. Do you receive any non-monetary benefits from the boat owner? If yes, what? How important are these benefits to you, and your relationship with the boat owner?
8. Sex in exchange for fish is a documented practice amongst fishing communities in Lake Victoria. Have you heard of this practice taking place in your community? If so, what and who do you think drives/influences/causes this practice?
9. Have you ever felt threatened/harassed, or been threatened/harassed when carrying out your fisheries work? If so, by who and in what circumstance?
10. What other challenges/obstacles/disadvantages do you face as a fisher?

Annex F. Question guide for boat owners

Question guide for boat owners

Please briefly explain the work you do (number of boats, number of crew hired, scale of operation, species etc).

1. How do you find/select your fish buyers, and WHY? Are they male, female?
2. Do you work with one regular buyer, many, or sell randomly, and WHY? What are the advantages and what are the disadvantages?
3. What makes a good relationship, and what makes a bad relationship with fish buyers?
4. Who has the most power/influence in this relationship, what do they have the power to do, and WHY?
5. Do you receive any money/advanced payments from these buyers? If yes, how much, how often, and how important is this arrangement to yourself and to the buyer?
6. Do you give fish on credit to any of these buyers? If yes, how often and why? How important is this arrangement to yourself and to the buyer?
7. What, if any, are the differences between male and female fish buyers? Explain the reason for these differences.
8. How do your crew get paid? Who decides the payment terms? How much, how often?
9. How do you select/recruit your crew?
10. Do you provide your crew with any non-monetary benefits? If yes, what and why?
11. What makes a good relationship, and what makes a bad relationship with fishing crew?
12. Sex in exchange for fish is a documented practice amongst fishing communities in Lake Victoria. Have you heard of this practice taking place in your community? If so, what and who do you think drives/influences/causes this practice?
13. Have you ever felt threatened/harassed, or been threatened/harassed when carrying out your fisheries work? If so, by who and in what circumstance?
14. What other challenges/obstacles/disadvantages do you face?