Gender in Aquaculture and Fisheries: The Long Journey to Equality
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Gender Inequalities in Access to and Benefits Derived from the Natural Fishery in the Barotse Floodplain, Zambia, Southern Africa

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Abstract

People living in and around the Barotse Floodplain are some of the poorest in Zambia due to many factors restricting their abilities to engage in activities to secure food and income. Women, and in particular resident women, are especially constrained given certain gender norms and power relations that hamper them from accessing and adequately benefiting from the natural fishery. Resident women typically rely on other, less remunerative means to secure their livelihoods. Having greater capital, education and confidence, non-resident women fish traders have different relations with fishers but their negotiations can still put them at a personal and economic disadvantage in securing access to fish. This paper employs a social relations perspective to investigate the role that institutions play in producing and reinforcing gender inequalities within the natural fishery value chain. Qualitative data from two studies carried out in 2013 were analysed. Findings show how deep rooted certain norms, practices and power relations are and their influence shaping women's (and men's) participation in key nodes of the value chain. The paper suggests options that include approaches and interventions that recognise the centrality of social relations in determining constraints and opportunities for women and men dependent on the Barotse Floodplain fishery.

Introduction

Women's participation in small-scale capture fisheries varies greatly depending on the specific context. A study using data from nine low-income

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countries found the share of women working in small-scale capture fisheries ranged from 4% in Mozambique to 57% in Cambodia to 73% in Nigeria (Weeratunge and Snyder 2009). In Asia, especially in the Mekong region, women participate in almost all activities in the fisheries sector from the manufacturing of fishing gears to fish processing (Siason et al. 2002). In parts of India women net prawns from backwaters and process, sort, and market fish, and in the Philippines women fish from canoes in coastal lagoons (Kusakabe 2003; Gopal et al. 2014). Women in the Pacific Island of Kiribati fish peanut worm at low tide, dry and either keep it for household consumption or sell it in local markets. They also play a major role in the island's coastal fisheries, specifically small-scale processing of seafood for the domestic market (Campbell and Hanich 2014). In the Solomon Islands, women participate in gleaning and sale of marine resources (Kruijssen et al. 2013).

In Africa, more than one-fourth of the people working in the fisheries and aquaculture sector are women with a great majority of them being involved in inland fisheries as processors (69.2%) rather than fishers (6.7%) (De Graaf and Garibaldi 2014). In sub-Saharan Africa (SSA) more specifically, women are involved in post-harvest activities such as fish processing, selling and trading as well as harvesting fish, supplying boats and fishing materials and providing men with credit (Cox 2013). In West Africa, women market as much as 80% of seafood (http:// www.fao.org/ docrep/ 013/ i2050e/ i2050e00.htm_accessed 04 July 2015). In the coastal areas of Sierra Leone, women purchase and process fish and sell it in local markets or to traders for further inland distribution (Thorpe et al. 2013).

Zambia is a landlocked country in the southern region of Africa and is endowed with a significant number of rivers, lakes, streams, floodplains, and wetland areas. Natural fisheries provide an important source of income, especially for women and marginalised populations, who have limited alternative income opportunities (Musumali et al. 2009). People living in or along wetlands in Zambia such as the Kafue Flats in Southern Province rely heavily on natural fisheries in addition to small-scale farming and livestock production (Lungu and Husken 2008). Women fish on a smaller scale using baskets in certain unique areas or in the tributaries near their homes and use the fish for consumption or for local sale (Merten and Haller 2007; Haller and Merten 2008).

The Barotse Floodplain, located in Western Province, is an important yet under-researched natural fishery in Zambia. The floodplain is part of the larger Zambezi River basin. Fish from the floodplains are considered an important source of protein and income for Lozi-speaking people of Western Province (Van Gils 1988; Turpie et al. 1999). Fishing is highly seasonal due to the natural flooding cycle and an imposed fishing ban that occurs every year from December to March. Fishing conditions are best when floodwaters recede (generally in June/July) and fish begin to migrate back to the main channels. Simwinji (1997) classified the governance of the fishery as an open or free-access system (Madzudzo et al. 2013), although the traditional authority operating in the province ensures a level of governance of the fishery together with the Department of Fisheries working under the newly formed Ministry of Fisheries and Livestock. Nonetheless, some fishers fish during the off-season and use illegal gears (Turpie et al. 1999; Madzudzo et al. 2013).

A number of different fishing methods are used to capture fish such as using nets and baskets. Women and men differ in the methods they use to catch fish, although Turpie et al. (1999) found that men comprise the majority of the fisher population. Post-harvest, fish are mostly sun dried. Within the value chain, women typically perform fish drying (Baidu-Forson et al. 2014). In their broad study of the Zambezi River Basin wetlands, Turpie et al. (1999) concluded that men dominate as the harvesters of natural resources (including fish) and women mainly participate in value-adding activities given their gendered role as caretakers of their families and their lack of mobility to engage in activities distant from their homes.

Norms and power relations that constrain women from accessing natural fisheries and participating in key profitable nodes of the value chain are often unexplored by research and development organisations working in such contexts (Lentisco and Lee 2014).Women often process and trade fish to meet certain basic household needs, thereby complementing the fishing activities performed by men (The WorldFish Center 2010). Women who become involved in trading fish typically do so because performing such a role within this node of the fish value chain requires less capital compared to fishing with relatively expensive gears (Béné and Merten 2008). The women's role, therefore, is a function of their lack of access to micro-credit and other necessary resources. Such inequalities in opportunities stem from attitudes,

beliefs, practices and "rules" dictated by social institutions that ultimately confine women to participating in less-profitable nodes of fish value chains (Weeratunge and Snyder 2009).

WorldFish and its partners are currently carrying out research in and around the Barotse Floodplain. The research adopts a gender transformative approach that aims to uncover and address the social norms and power relations that limit poor women's and men's involvement in aquatic agricultural livelihood activities (CRP AAS 2012; Cole et al. 2014a; 2014b; 2015; Rajaratnam et al. 2015). The approach uses a social relations framework (Kabeer 1994), described next, to examine the role institutions such as the family or community play in producing and reinforcing gender inequalities. This paper is particularly interested in the role social institutions play in influencing how women participate in the natural fishery value chain and why they may benefit less than men from the opportunities the fishery creates. Qualitative data collected during two different studies conducted in the floodplain were analysed for the paper and are described in the Methods section. Key results are presented and discussed and the paper concludes by providing options for consideration by research and development organisations working in the area. In particular, the paper focuses on approaches and interventions that enable women and men to critically reflect on and begin addressing the harmful norms and power relations that most often limit poor women from accessing and benefiting from the Barotse Floodplain fishery.

Social Relations Framework

Our research adopts a gender transformative approach. The approach is informed by Naila Kabeer's social relations framework (Kabeer1994), which can be used to better understand the complex ways institutions, and their associated formal and informal rules, influence power relations between different social groups. Such power relations disproportionately shape livelihood options and wellbeing outcomes within and across groups. Institutions include those at the local level, e.g., the household and community, and also those larger structural systems such as the market and State. The main aims of the social relations framework (Kabeer and Subrahmanian 1996; March et al. 1999) are to: 1) analyse existing gender inequalities in the distribution of resources, responsibilities, and power; 2) analyse relationships between people,

their link to resources and activities, and how they are modified through institutions; and 3) emphasise human well-being as the goal of development.

According to Hillenbrand et al. (2014), the social relations framework is less prescriptive and at its core appreciates complexity, and is therefore not commonly adopted and used by development practitioners compared to more conventional gender-analysis frameworks such as the Harvard Analytical Framework. The latter framework tends to guide analyses of differences between women and men as the goal is to identify gender gaps and subsequently fill them (Okali 2012). It fails, however, to shed light on the complex relationships between women and men and the changes in relationships over time (Locke and Okali 2010) and the diverse causes of gender inequalities at the varied institutional levels (Hillenbrand et al. 2014). It is argued that such an understanding enables the design of more holistic research and development programs and policies that help transform gendered power relations and assist poor and/or marginalised women and men to achieve their practical and strategic life goals (March et al. 1999).

The social relations framework as used in this paper aims to uncover some of the norms and power relations that cause gender inequalities within key nodes of the natural fisheries value chain. The main research question the paper asks is "what are the norms and power relations that limit certain social groups, e.g., women, and in particular, resident women of the Barotse Floodplain, from accessing the local fishery and benefiting from its resource base?" The paper distinguishes "resident" women from "non-resident" women. Residents are those who are typically *Lozi*- or *Mbunda*-speaking people who come from the local area. Non-residents are those people who come from outside the Barotse Floodplain, e.g., from urban centers in Zambia, or from neighboring Angola or the Democratic Republic of Congo, to purchase and process fish and then transport it back to their places of origin for sale to consumers.

It is hypothesised that by exploring the main research question using sound concepts and analytical tools, research and development stakeholders will better understand the attitudes and practices of people residing in this context. Thus, they will be able better to design and test interventions with women and men residing in the floodplain that aim to transform the norms and power relations that create gender inequalities. It is hoped that such research and

development efforts will help reduce gender gaps in access to and benefits derived from the Barotse Floodplain fishery, improve gender relations, and ultimately achieve more sustainable development impact for all. A simplified impact pathway to change is depicted in Figure 1.

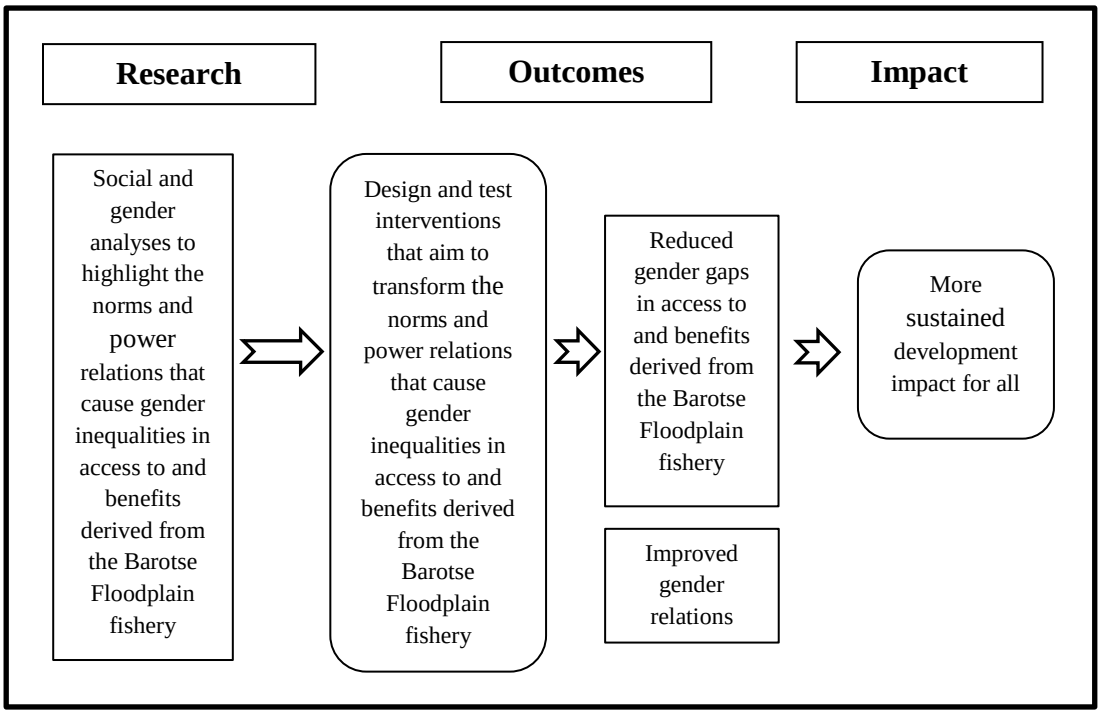

Fig. 1: Simplified gender transformative impact pathway

Materials and Methods

This section briefly describes the two studies carried out in and around the Barotse floodplain by WorldFish and partners including staff from Department of Fisheries. The first study was a gendered participatory fish value chain (FVC) study conducted in mid-2013 under the WorldFish-led research program called Aquatic Agricultural Systems (AAS). The study was carried out with mainly fishers, traders, and processors living and/or working in and outside fishing camps in the Barotse Floodplain. A value chain can be described as, "the full range of activities that are required to bring a product (or service) from its conception through the different phases of production to final consumers and disposal after use" (Kaplinsky and Morris 2001). Women and men were purposively selected by the study team based on their involvement in the natural fishery value chain, e.g., as fishers, fish processors or traders. This paper

analysed the content from seventeen focus group discussions from seven fishing camps (Table 1) that explored the norms and power relations that limit poor women's and men's participation in key nodes of the value chain.

The second study was a social and gender analysis (SGA) conducted in late-2013 with women, men, and youths who live in ten communities in which WorldFish carried out research from 2012 through 2015 under the AAS program (Table 1). The ten communities are located in four districts in Western Province, specifically Lukulu, Kalabo, Mongu, and Senanga districts. Overlap in the data collected by the two studies exists, given some fishing camps that acted as study sites for the FVC study are linked to some of the communities where the SGA was conducted. The SGA primarily collected qualitative data using focus group discussions (Rajaratnam et al. 2015). Focus groups with women and men were organised separately so that both groups could freely discuss the topics under investigation. Study participants were asked to discuss social, material, and natural resources, wellbeing and inequality, seasonality, gender norms and trends, among other topics.

Table 1. Study of communities and fishing camps in the Barotse Floodplain, Western Province, Zambia

SGA Communities	**FVC Study Fishing Camps**
Kabula	Marana
Kapanda	Mulembe
Lealui	Likomokelo
Mapungu	Liyoyelo
Mwandi	Nebubela
Nalitoya	Makandaula
Nanikelako	Sikwenga
Nembwele	-
Sifuna	-
Situlu	-

The first author analysed the content of the data from the two studies. The analysis was guided by a directed content analysis approach, in which the coding framework utilised was derived from theory and research findings (Hsieh and Shannon 2005). Relevant data from the focus group discussions

were clustered under the codes derived from Kabeer's proposition of inter-related dimensions of social relationships, which are rules, resources, people, activities and power (March et al. 1999). The next section presents the results from the analysis that helped explore the research question

Results and Discussion

Gender norms and power relations prohibiting women from accessing and benefiting from the Barotse Floodplain fishery

The analysis for this paper focused on relationships, and to some extent negotiations, between women and men who are both highly involved in certain nodes of the natural fishery value chain, while less active in other key nodes for a number of complex reasons. Men are the primary fishers and women tend to predominate in the processing and trading of fish. As is common in all societies, girls and boys in the Barotse Floodplain learn such roles as children through attitudes, beliefs, values, and examples their parents, grandparents, and others enact through everyday interactions that over time become quite normalised and unquestioned. Such gender socialisation (UNICEF 2007) means that the identities of girls and boys are formed based on their sex and expressed through their roles and behaviors when they become adults. It is of little surprise then that the value chain could be characterised as being relatively sex-sequential or even -segmented, whereby men make up the vast majority of fishers (especially for commercial gain) and women comprise the greater proportion of fish processors. Many value chains take on such an appearance in this context (Farnworth 2011). The trend becomes slightly blurred when we move further down the chain as both women and men participate in the trading of fish.

Generally, gender norms and patterns are rigid in the Barotse Floodplain, and according to the content analysed from focus group discussions, very often disadvantage women in relation to men. Men, for example, are the main breadwinners, devoting much of their time to earning cash by participating in activities such as fishing. Women carry out biological roles of child bearing and other tasks socially assigned to them, within their homes. Examples of men performing the latter roles are rather circumstantial as reflected through the following comment made during a SGA focus group discussion:

> *A married man can only help in the cooking when the wife is sick or not around because Lozi culture does not allow. When a man helps the wife to cook he is considered to be not normal.* (Men's focus group, Kapanda Community)

Although gender roles within a particular context can be rigid, both women and men engage in reproductive and productive activities to differing degrees and in different ways (Kwashimbisa and Puskur 2014). In one fishing camp, it was reported that women are becoming increasingly involved in making decisions that were customarily made by men in the past. Some married women are now making decisions about selling fish, vegetables, livestock, and importantly, regulating the cash earned within their households. During a SGA focus group discussion, the following comment was made:

> *[Women] were not able to make decisions in big matters [in the past]… [They decided on] small matters such as house work, cooking, [etc.]. We can now make decisions on buying things. I can buy and inform my husband later, buy uniforms for our children without telling my husband, even other household goods.* (Women's focus group, Lealui Community)

Women's increased decision-making powers, it was felt, serve a purpose within the home that suggests women are actually safeguarding cash generated by men when fish, for example, is sold locally to traders or in distant markets. According to women who participated in the FVC focus group discussions, men tend to misuse the cash they generate from such sales. A similar trend was found when analysing the data from the SGA, specifically men's propensity to misappropriate the cash they generate from the sale of natural resources or after marketing their cash crops. Such a finding that women are becoming increasingly involved in making important economic decisions (e.g., how cash gets spent) is not uncommon within the literature as women are typically reported to spend income earned to ensure food and nutrition security within their homes (World Bank 2009; FAO 2011; Van Ameringen 2014). Arguably, this could be viewed as women taking on yet additional responsibilities as caretakers; no doubt a reflection of powered gender relations within the household (Cole et al. 2015).

Gender inequalities in fishing activities

In both studies, focus group participants generally reported that women are not intensely involved in fishing. Men commonly fish using boats and canoes and with nets. Women who fish do so by using baskets made from tree roots, sometimes using spears, and during times of the year when floodwaters are low. They do not typically fish in deeper waters, but rather in canals or smaller streams, given the methods they use. Women do assist their husbands, or other relatives to manage larger nets that require a boat, typically owned or paddled by men (Farnworth et. al. 2015). Their unequal access to the Barotse Floodplain fishery is reflected in the following comment made during a focus group discussion:

> *We do not have similar access to these resources. Men have more access than women because men are strong[er]. For example, in lagoons, men get a lot more of the fish than women. Men catch fish all the time while women have to wait for the dry season to use the fishing baskets.* (Women's focus group, Lealui Community)

Some women and children accompany men on fishing camps to perform certain roles, for example, removing fish that are caught in nets. Women most often process fish men catch by first removing the scales, gutting and then drying them. Both girls and boys acquire the knowhow to fish, scale, gut and sun-dry fish at an early age. Nonetheless, it was believed that children are taught to perform roles in line with their gendered identities:

> *Boys have also learnt how to fish while girls just stay at home and cook waiting for boys who have gone to fish.* (Women's Focus Group, Mwandi Community)

> *Girls work with us, we teach them women's work such as cooking, washing plates, sweeping, cultivating. They also go to school and [help do] most of the work which we do.* (Women's focus group, Mapungu Community)

Another reason why women are not regarded as the primary fishers is because many women find it difficult to acquire the necessary fishing gears such as canoes, boats, paddles, and nets. A small number of women do own

fishing gears, although in general, husbands make the decisions about when and where to fish and with what gears during cases when married women and men fish together. Married men also decide whether or not to sell the fish that is caught and whether to process fish that are unsold. Women thus play a significant role assisting in catching fish and carrying out subsequent post-harvest activities, although make fewer decision on when and where to fish, which fish get sold to the market or which get processed, and as a corollary then, which fish get consumed within their homes.

Although a dual system of governing the floodplain is in place, focus group participants felt the traditional authority controls access to fishing grounds. Men comprise the majority of traditional leaders. Water bodies used for fishing are allocated by the traditional authority and inherited, much like land, over time. Men primarily inherit these water bodies. Those from outside a particular village must pay a fee to fish in a water body owned by a village resident, and thus, men mostly benefit from this local tenancy agreement. Resident women have the right to fish in local water bodies. Focus group participants did not feel resident women were discriminated against fishing in local water bodies. However, it was clarified that resident men benefit more from fishing in these water bodies given they "are so much into fishing." In most fishing camps, non-resident fishers are required to pay *mubingu* (a payment in cash or in kind) to an *induna* (a local headperson) who represents the traditional authority.

Illegal fishing is common in the floodplain for a number of reasons. It is believed that men are the primary group of people who fish during the fishing ban and/or use illegal fishing nets. Illegal fishing, it was felt, is contributing to the noticeable lower stocks of fish in the Barotse Floodplain fishery (CRP AAS 2013). It was argued during focus group discussions that some residents of the floodplain do not have other livelihood options and must use illegal methods or they cannot survive. Fishers from outside the floodplain also fish illegally, and local enforcement efforts usually do not succeed in prohibiting them from fishing illegally. Furthermore, it was explained that some village *indunas* perpetuate illegal fishing activities by demanding higher rates of *mubingu* payments from fishers using illegal gears in their controlled water bodies. Again, since *indunas* are typically men and men fish illegally, men are thus the

main beneficiaries of gains achieved through fishing or helping facilitate fishing during the off season and by using illegal gears.

Differences in experiences in trading fish

Participants of the FVC study reported that women were predominate in the fish trade in their communities although some men trade as well. When we take a closer look at the social groups who comprise fish traders, we find that non-resident women from outside floodplain villages or fishing camps primarily trade. Non-resident women traders bring in relatively large sums of capital to purchase fish. They have greater abilities to interact and negotiate with fishermen as their level of education seems to be higher than local, resident women. The way non-resident women traders relate to fishermen showcases a level of confidence in what they do. They move easily from one location to another, again, given their access to cash. In Marana fishing camp, as one example, most of the traders who come and camp were said to be non-resident women from Mongu and Kaoma (within Western Province) or originate from Lusaka, Kitwe, Solwezi (distant towns within Zambia) and as far as from bordering countries such as Angola and the Democratic Republic of Congo. They reside in fishing camps for a specified period of time, buy fresh fish, process and transport them for sale in markets located in their respective towns.

Non-resident women traders prefer to trade dried fish because it is seemingly easier to transport with fewer losses compared to fresh fish that needs to be transported with more care and within a shorter period of time. Transporting fish using boats and canoes that are mostly operated (if not owned) by men incurs costs and reduces the likelihood of resident women trading as they lack capital to trade fresh fish and the ability to travel frequently. Focus group participants from Makandaula fishing camp reported dried fish are also preferred because they are lighter for resident women who engage in such trade to transport by foot than fresh fish. Preference towards trading dried fish can also be attributed to women's negotiation skills as women tend to take more time negotiating, which impacts negatively on the quality of fresh fish being traded (Farnworth et al. 2015). In Likomokelo fishing camp, traders were said to vary by the fish species they trade. For example, resident women traders prefer to buy barbels and other small fish species because they are cheaper and easier to trade/barter.

Given their mutually benefiting nature, bonds between fishers and fish traders exist. There was general consensus that relationships between resident and non-resident fishers, fish processors and traders are amicable. For instance, when there is a local funeral, traders from outside a village or fishing camp contribute fish to help enable funeral activities to proceed according to local customs. Mutually-benefiting relationships between fishers and traders are also maintained by traders providing fishers with inputs and money in the form of credit in return for fish. Although positive relationships were reported to exist between fishers and traders, the contrary was also said to be true. Differences in relationships between fishers and traders can be attributed to the location and size of fishing camps. Nebubela fishing camp, for example, is a trading node where more people pass through to trade, compared to other fishing camps, and therefore, long-term relationship may not be necessary in this particular location.

Fishers during focus group discussions also expressed some mistrust they feel about some traders who come to purchase their fish. They recalled incidences when local *Lozi*- or *Mbunda*-speaking people pretend to be non-resident distant traders in order to purchase fish without establishing good relationships with fishers. These people do not contribute in kind during traditional ceremonies or when some kind of assistance is needed by fishers. They also do not buy or sell fish on credit, but use a barter system instead that is arguably viewed as exploitative from a local perspective. Women and men participants of a focus group discussion in Marana reported some traders who underpaid them for fish they provided, attributing their 'loss' to non-resident women traders' superior negotiation skills. In actuality, the smaller profits made are due in part because of the smaller volumes of fish residents trade and the need to sell their fish to earn cash to meet their basic needs (Farnworth et al. 2015).

Resident women traders were said to be able to negotiate for fish more patiently, with some offering sexual services in return for fish they receive from fishers. Male respondents from Likomokelo fishing camp reported female traders to "lean their thigh" on male fishers as a way to negotiate for lower-priced fish. One of the reasons given by a male focus group participant concerning how some resident women allegedly provide sexual services in exchange for food or cash is:

> *Because when they face hunger, girls or women seek help from men for cash or food in exchange for sex.* (Men's focus group, Mwandi Community)

In another mixed-sex focus group held in Makandaula fishing camp, a male member cited an example of three non-resident women traders who visited their fishing camp with supplies of food and T-shirts. They were alleged to provide sexual favors in exchange for fish. Some fishers were also reported to refuse to sell their fish to such women traders if the latter do not accept their proposal for sex. High competition and scarcity of fish are among the factors that create spaces for fishers to coerce women traders to engage in sex-for-fish (Bene and Merten 2008). Married fishers who engage in the fore mentioned sexual relationships were reported not to bring cash or food back to their families and attribute their loss to poor fish catches. Studies in Zambia (Chabwela and Haller 2010; Merten and Haller 2007) and in other parts of Africa have revealed similar findings where women and men are involved in sexual relationships in exchange for fish (Chigwedere 2000; Ouma 2005; Kambewa et al. 2009; Kwena et al. 2012).

Although women generally were said to have better negotiation skills, they were also found to have barriers in communicating with traders from larger markets. This is especially true for women who assist their fisher husbands to trade their catches. Resident women's lack of education affects their ability to count and their lack of access to market information on current fish prices hinders them from negotiating competitive prices. Such circumstances also explain in part why resident women traders are less likely to engage in long-distance trading outside the floodplain.

Depending on the location of a fishing camp, some men fishers sell fresh fish, others sell processed fish. For example, at one fishing camp located near the provincial capital, Mongu, fresh fish are most commonly sold. Not all fishers have canoes or boats, and thus are required to rent when transporting fresh fish to distant markets. Such rentals obviously decrease the profits they make.

Resident women's engagement in other activities

Given the norms and power relations that restrict resident women's involvement as fishers, and in many ways fish traders in their local environments, resident women tend to primarily engage in fish processing but also other activities such as agricultural crop production, piecework (casual labor), mat making (using reeds or papyrus), beer brewing, among other livelihood activities. Resident women's access to and use of natural resources in the floodplain is greatly influenced by the gendered division of labor. In the Barotse Floodplain women's primary roles as caretakers of children, elders and the sick, and in performing other tasks such as cooking and washing clothes stems from gender socialisation from early childhood. Ultimately, resident women's involvement in these tasks restricts their mobility and limits the time they have to engage in higher cash-earning tasks within the natural fishery value chain including fishing and trading in distant markets.

Norms and power relations that become institutionalised promote and legitimise the livelihood activities undertaken by resident women and men in the floodplain. It ensures men's authority and control over women and further promotes activities and practices that are most likely to secure men's privileged position within institutional hierarchies (Kabeer 1994). These norms and power relations can be viewed as harmful because they create and perpetuate inequalities that disadvantage one social group (women) and advantage another (men). Resident women's unequal involvement in lower cash-earning livelihood activities outside the natural fishery value chain, it is argued, becomes necessary to generate income to secure food and other basic necessities for them and their family members. The underlying causes of these inequalities have to be understood in context in order to provide a space for women and men to reflect on and question them if any kind of transformative change is to occur (Cole et al. 2014b). Failure by research and development organisations to better understand the causes of inequalities in women's participation in key value chain activities and benefits derived from the Barotse Floodplain fishery could not only result in poor developmental outcomes, but could also further exacerbate gender inequalities in this setting.

Conclusions and Recommendations

This section presents recommendations for programmatic investments by research and development stakeholders. Specifically, it advocates for the design and testing of social change and technical interventions that enable women and men to address the norms and power relations that restrict certain social groups, in particular resident women, from equally engaging in and benefiting from the natural fishery in the Barotse Floodplain.

The findings presented in this paper revealed contextual, structural and systemic gender-specific barriers, which limit women's abilities to properly engage in productive, economic and technical activities within the natural fishery value chain. The rooted norms within the household and community indicate that women are less likely to participate in fishing and benefit from the value-added activities they perform. Fishing, value adding and marketing are in many ways performed sex-sequentially (and often in sex-segregated fashion), with women and men taking on specific roles at particular nodes of the value chain. As a result, neither men nor women possess a full understanding of the fish value chain and of how the roles, responsibilities and relations of different actors intersect and interact at different stages. Gender relations are socially, culturally and historically constructed and they can be re-constructed (Agarwal 1997). They are not static. They are changing processes that are positioned within the natural fishery value chain as well as within the household, community, and state. Gender relations continuously reorganise and are relevant to production processes, adoption of technologies and economic activities.

However, what is important from the results presented in this paper is that processes of change are taking place and they can lead to increased opportunities or the formation of better conditions that could enable resident women in particular to benefit more from the structures and systems in place. This paper has highlighted that such processes of change include resident women's greater decision-making powers on how cash from fish sales get spent, some owning and controlling fishing gears, and becoming more involved in trading fish, albeit within their locale and under other restrictions. More importance has to be given to women's inclusion, participation and decision making if they are going to benefit from and adapt for change. They can become equal partners to men. Women play key roles within and outside the

value chain and should not be seen as disembodied social categories, but rather active participants who process information and strategise in their interactions with local actors as well as outside institutions (Maertens and Swinnen 2009). Raising awareness about gender equality, ideally through critical reflection processes, can empower and improve women's participation in the natural fishery value chain and other livelihood activities (Lentisco and Lee 2014).

The benefit from women's participation in a more inclusive value chain is that it places them in a more equal partnership with diverse groups of men who are part of different and wider social structures with diverse identities such as age, class, religion, and kinship that influence their relationships. These spaces foster enabling conditions for reciprocal respect and include men as objects of attention to become aware of unjust exclusionary norms and practices (Cornwall and Rivas 2015) embedded within structures and systems. The findings call for a shift of concentrating on women as a homogenous group to working with them as more diverse individuals that are closely related to girls, boys, and men in a more just and fair manner. This requires a change directed towards a clear recognition of the centrality of social relations within households and collective groups. In this case, social relations are integral to the natural fishery value chain and projected development pathways (Okali 2011).

Different strategies may be necessary to achieve equitable outcomes for women and men and different groups of women. Through gender analyses, researchers are entailed, first and foremost, to ask questions about the differences between women's and men's activities, roles, and resource to identify the developmental needs of women and men. Assessing such differences also makes it possible to determine women's and men's constraints and opportunities within the natural fishery value chain. However, gender analyses need to be complemented with processes of gender learning and understanding of the institutional environment.

In the end, the goal for any inclusive value chain is to bring stakeholders together to gain collective awareness of the system and structures that they are a part of, building trust amongst them and generating and sharing knowledge and opportunities for joint action. Through this collective action, stakeholders develop and strengthen capacities that will become important assets in not only sustaining and supporting the sustainability of the fisheries sector but also in

fostering institutions accountability in the sector. Continuous monitoring and reflection during the processes is critical to make adjustments along the way. Evaluations are recommended in order to influence policy making at system and sectoral levels.

Stakeholder platforms and networking are essential elements to ensure that the views of all groups are reflected in the functioning of the system, integration, selection of public actions, evaluation of outcomes and impacts, and ensuring commitment of all actors. Therefore when analysing the fisheries sector, these will reveal successes and failures in relation to governance and policymaking. Conclusions can be valuable in regards to the principles and opportunities for improving the governance of innovation systems. Policymakers can best approach the fisheries to align their development priorities and the demands of beneficiaries, especially female producers by considering power dynamics and relations.

The institutional challenges and constraints identified in the paper need to be recognised and addressed in future action plans and stakeholder activities at provincial, district, and program levels to properly achieve the development outcomes. These must be complemented with tailored approaches and tools adapted to the capacity needs of people as well as their socio-economic contexts (Jutting et al. 2010). Overall, the transformation of institutions and the development and implementation of policies require a profound understanding of the dynamics of power relations in the specific context and the contribution of decision makers who are determined to support learning processes that promote change and transformation.

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