

Women in Fish Business: Contribution to Local and National Economy in the Zambian Context

Milu Elisha Kafumukache¹, John Moose¹, Eva Nambeye², Joyce Siwila³

University of Zambia, Lusaka, Zambia

DOI: <https://doi.org/10.51584/IJRIAS.2025.100900051>

Received: 08 September 2025; Accepted: 14 September 2025; Published: 15 October 2025

ABSTRACT:

This study examines the role played by the fish business in enhancing women's economic inclusion and driving economic development at both local and national levels. The sample consisted of 80 fish farmers and traders and critical informants from district fisheries offices, non-governmental organizations, and local fish farmers and traders' associations based in selected towns of Lusaka Province. Data was collected using one-on-one interviews and focus group discussions and analyzed using thematic analysis. The findings highlighted the economic inclusion facilitated by fish farming and trading through the emergence of women-owned businesses, and the empowerment through asset ownership. Additionally, the study revealed the resilience of women-led businesses in times of disaster and their contribution to employment creation and infrastructure development. The results also indicated the need to upgrade the quality of employment from temporary, low-wage wage, and insecure jobs to more stable and secure employment opportunities. In conclusion, the study demonstrated the importance of the fish value chain in promoting women's economic inclusion and augmenting their contribution to broader local and national development. The study recommends targeted training programs, financial support, policy advocacy, and collaborative partnerships to enhance women's empowerment and ensure sustainable development of the fish value chain.

Keywords: Fish Business, Economic Inclusion, Economic Empowerment, Women's Participation, Local economic development, National Economic Development

INTRODUCTION

The small-scale fishing sector, which is integral to livelihoods, income generation, and global fish production, plays a pivotal role in driving both local and national economies, particularly in the context of small-scale farming. Beyond its economic contributions, the sector directly enhances food security and nutrition by providing fish. The equitable distribution of these benefits requires analyzing distributional consequences, especially for vulnerable populations in small-scale farming communities (World Bank, 2004). Allison (2004) explained that in the broader context of the fish business, encompassing stages from fishing to marketing, the small-scale sector was a key component, contributing significantly to the economy by providing employment and income. The global relevance of the fish business in both developed and developing nations necessitates moving beyond conventional trade statistics.

The fish business in Zambia contributes significantly to economic growth, with a 0.32% contribution to GDP in 2016 and 6.1% to agricultural GDP (Kaminski et al., 2018). The overall fish production in Zambia amounts to slightly more than 100,000 metric tons, with fisheries accounting for approximately 85,000 metric tons. In contrast, the aquaculture industry is still in its infancy and contributes roughly 30,000 metric tons, representing 27 percent of the total fish production (World Fish, 2024). Integration of the value chain in to the national economy is 65%. However, the sector is not economically inclusive comprising a predominance of subsistence-oriented fish farming practices, contrasting with a developing commercial value chain dominated by a few lead firms. Although the value chain has shown signs of increasing vertical integration and tighter contractual relationships

among small-scale producers and large-scale traders, it still exhibits a dichotomy between an extensive smallholder sector with limited access to markets and inputs, and a commercial sector shaped by pioneering

lead firms driving total production (The European Commission, 2018; Kaminski et.al, 2018). Furthermore, despite providing employment for around 20,000 individuals, income distribution remains skewed, with large farmers reaping most profits and wages (The European Commission, 2018).

Women play a prominent role in the value chain, even though their contributions remain under-acknowledged due to the perception of fish farming as predominantly men's work. This lack of inclusivity hampers the growth of the sector and its contribution to the local and national economy (Mwema, 2021). This study set out to examine the specific roles women play in fish farming, identify barriers they face in accessing resources and opportunities, and propose strategies for enhancing their participation in this vital economic activity. By highlighting women's contributions, the research aims to foster greater recognition of their work, promote gender equity within the industry, and ultimately enhance productivity and sustainability in fish farming practices. Furthermore, it seeks to inform policymakers about integrating gender perspectives into agricultural policies that affect aquaculture development.

Definition Of Key Concepts

Value chain: The full range of activities required to bring a product or service from conception through production, transformation, and marketing to delivery to final consumers and final disposal after use (Kapinsky and Morris, 2000). It encompasses the flow of products, knowledge and information, finance, payments and social capital needed to organize different activities. In aquaculture, this concerns activities needed to produce, process, trade, and consume different fish and/or fish products.

Small-scale farmers: these are farmers that are characterized by marginalization in terms of information accessibility, capital, resources, technology, and assets (Hazell et al., 2007:1). Additionally, Hazell et al. (2007) point out that there is variability in the degree to which each of these factors is related, highlighting the absence of a universally recognized definition. The term "small" may refer to the size of land utilized, the number of workers involved, and/or the amount of capital invested (Gouldthorpe and Goodwin, 2013:55).

Local economy is the total of all economic activity within a nation's borders. It includes production, exchange, distribution, and consumption and is measured in monetary terms (Durlauf & Blume, 2008).

THEORETICAL FRAMEWORK

The Women in Development (WID) Theory by Ann Oakley (1974)

In exploring the role of the fish business in driving the local and national economy in small-scale farming in Lusaka Province, it becomes evident that the Women in Development (WID) perspective offers crucial insights into gender-inclusive approaches within this context.

Traditionally, development theories have often assumed that economic progress automatically benefits everyone, including women. However, the WID perspective challenges this assumption by emphasizing the active involvement of women in all facets of value chain growth and development. This perspective rejects the notion of women as passive recipients of development benefits and highlights their importance as active participants.

Moser's (1993) five policy approaches within the WID framework provide a strategic roadmap for implementing gender-inclusive development interventions. For instance, the Equity Approach acknowledges the multiple roles women play in the household, productive sector, and community. Within the fish business, this means recognizing women's contributions in processing and marketing and decision-making processes related to fishing activities and resource management. Policy interventions under this approach can focus on reducing disparities and enhancing women's self-reliance by giving them equal access to resources, training, and decision-making opportunities within the fish business.

Moreover, the Anti-poverty Approach within the WID framework is particularly relevant in small-scale fishing in Lusaka Province, where poverty rates may be high, and women may bear a disproportionate burden. This

approach advocates for targeted interventions to uplift women economically, such as providing access to credit, technical assistance, and market linkages. By empowering women economically within the fish business, poverty can be alleviated, and the sector's overall economic productivity can also be enhanced.

The chosen WID theory is well-suited for this study due to its focused examination of the unique barriers women encounter in the fisheries value chain. By considering social, cultural, economic, and political factors shaping women's participation, the WID perspective emphasizes the importance of active involvement for realizing economic benefits at the local and national levels.

METHODOLOGY OF THE STUDY

The study was conducted in Chilanga, Chirundu, Chongwe, Kafue, Luangwa, Lusaka, and Rufunsa districts of Lusaka province. To collect data, interviews and focus group discussions were conducted, targeting 80 small-scale women fish farmers and twenty key informants representing district fisheries departments, non-governmental organizations, and local aquaculture and fish traders' associations to gain insights into the practical experiences, challenges, and opportunities within the fish business. The methodology details are described elsewhere (Kafumukache et al., 2024). Purposive and convenience sampling techniques were used to choose the participants.

Data Analysis Procedures

The data analysis process adhered to the methodological description of Oso and Onen (2005), by utilizing thematic analysis. The objective was to systematically organize, interpret, and present collected information to gain insights into the intricate dynamics of the fish business led by women fish farmers and explore their role in the local and national economy. Initial steps involved tasks such as transcription, optical scanning, field note typing, and categorization based on data sources. Qualitative data was then systematically grouped into themes using manual color coding, offering a structured exploration of information pertinent to the study's research questions. Subsequently, a detailed analysis, including a coding process and thematic analysis aligned with the study objectives, delved into the nuanced aspects of women's role and economic inclusion in the fish business. This rigorous approach aimed to uncover underlying factors contributing to the chain's significance in driving economic development at both local and national levels, particularly within the specific lens of women's participation in small-scale fish business in Lusaka Province.

FINDINGS

The role played by the fish business in driving the local and national economy, particularly about its impact on women was highlighted by the participants. All the participants contributed to the discussions and outlined various aspects regarding the contribution of the fish business to the economy.

Importance of fish business in women empowerment and the local economy

Women engaged in fish farming play a significant part in enhancing economic inclusion by employing other women, fostering female empowerment and contributing to overall income generation for better livelihoods. The participants' responses, as portrayed in the following narratives, indicate that they recognize the important role the fish business plays in the local economy. However, it was observed that jobs provided by the fish business, despite their positive impact, tend to be temporary, seasonal, and characterized by low-skilled and informal attributes. This harms affected families because they do not have a continuous steady flow of income

Fish Farmers' Perspectives on the Influence of Fish Farming

Respondent	Statement
Respondent 5	"Our income is better with the fish business. We can plan for our families, and it's not just about survival. It's about progress."

Respondent 21	“The fish business secures our income. We can afford education, health, and more. It’s stability for our families.”
Respondent 22	“Fish farming isn’t just about money; it’s about growth. Women earn, and that leads to other businesses. It’s a chain of progress.”
Respondent 79	“Our income is better because of the fish business. It’s not just about today; it’s about building for the future.”
Respondent 12	“I’ve witnessed how the fish business changes lives through employment opportunities. It’s not confined by age or gender. It opens doors for women, youth, retirees, and those with physical limitations. It’s has given many people a chance to survive especially since jobs are hard to find.”

This study also found that the involvement of women in fish farming stimulates the emergence of other women-owned businesses, creating a ripple effect that accelerates local economic growth and entrepreneurship. Increased income from fish-based businesses was also observed to have a positive impact by giving women an increased sense of autonomy at the household level, in business, and in the community. Fish producers and traders opined as below:

Respondent	Statement
Respondent 9: Fish Farmer	"Being part of the fish business changes everything. It's not just about money; it's about independence. We earn and make decisions for ourselves."
Respondent 13: Fish Farmer	"Fish business brings women more than income; it gives us power. We're not just earning; we own assets and make choices."
Respondent 27: Fish Farmer	"Income from the fish business means control for women. We decide what to do with the money we earn. It's about empowerment."
Respondent 33: Fish Farmer	"Fish business is... about equality. Women here aren't just earning; they're making decisions and leading."
Respondent 34: Fish Farmer	“Women involved in the fish business also gain ownership of assets, increasing their bargaining power when dealing with male family members and granting them more decision-making autonomy.

It was also revealed that women's increased control over profits and resources enabled them to make independent financial decisions, leading to greater financial autonomy and enabling them to allocate expenditure independently. Women sometimes work as equal partners alongside men, promoting cooperative and empowering business relationships.

In addition to financial autonomy and the ability to make independent decisions, the participants indicated that fish businesses result in additional empowerment of women through asset ownership. Several participants highlighted this in the following selected quotes:

Respondent	Statement
Respondent 6: Fish Farmer	"The fish business is a way for women to own. We have shops and vehicles for transporting fish, and we have built houses. It's about financial strength."
Respondent 18: Fish Farmer	"Fish business is about more than income; it's ownership. Women buy

	things and own things like land, farms, shops, and vehicles. That gives us power not to depend on men."
Respondent 21: Fish Farmer	"Assets from the fish business empower us. We have more than money; we have something to show for our hard work."

Other participants explained that the assets were very important as they served as collateral for accessing credit, further empowering women economically and opening up more growth and investment opportunities. Additionally, there was an opinion that the fish business presents a viable alternative income generation activity, encouraging more women to shift from vulnerable livelihoods, such as commercial sex work, to more secure and dignified sources of income. It was further explained that the fish business is invaluable in helping women cope with disasters in the area, such as droughts, flooding, and disease outbreaks. As fish is not seasonal and can be sold throughout the year, it ensures a continuous income source even during times of disaster.

Participants also held that the fish business meaningfully contributes to infrastructure development in the local area. Tax revenue, fees, and levies generated from fish businesses are directed towards infrastructure development projects, benefitting the entire community. Beyond this, as more women become financially empowered through the fish business, they invest in building more shops, houses, and other establishments, further contributing to the development of the local area.

Infrastructure development was also noted in the case of education infrastructure. It was noted that some schools have established aquaculture projects as part of their overall production units. These projects have developed into viable income-generating businesses. The income generated from these ventures reduces their dependency on government grants for funding building projects.

Study participants' opinions regarding the contribution of the fish business national development

The study participants were asked to indicate how women's participation in the fish industry contributes to national development. The findings highlighted the multifaceted role of the fish business in contributing to Zambia's national development. The following perspectives signify the industry's recognition as a driver of national development.

Respondent	Statement
Respondent 4: Fish Farmer	".... the export of fish products, brings a continuous injection of foreign exchange that has a substantial impact on our economy....it also creates jobs for the unemployed youth."
Respondent 23: Fish Farmer	"Fish plays a role in ensuring our food security. The consistent presence of fish has an effect on our overall well-being. It's not just about filling plates; it's about making sure that people have proteins and do not suffer malnutrition.... women have also benefited greatly since it is an easier way of earning an income than other businesses.....It's not only about empowering them but also diversifying our economy. Women's participation acts as a multiplier because when women run the fish businesses, it creates other businesses that depend on fish such as restaurants....so the fish business gives birth to other businesses, which then employ more people leading to positive transformations."

The opinions of key informant experts further augment the arguments brought about by the other study participants:

Respondent	Statement
Interview 11: Key Informant	"The export of fish products bolsters our foreign exchange reserves, impeding our overall economic growth. The financial infusion generated through fish exports isn't confined to its immediate boundaries; it radiates throughout the economy, bolstering the broader prosperity of our nation, the industry's significance lies not just in its tangible products but also in its role as a generator of diverse employment prospects. From women seeking empowerment to youth entering the job market, retirees seeking engagement and individuals with disabilities finding inclusion, this industry is a mixture of growth opportunities. It's not merely about jobs; it's about fostering a culture of empowerment and driving holistic societal progress."
Interview 14: Key Informant	"Aside from its economic dimensions, women's involvement becomes a conduit for advancing gender equality and empowerment. Moreover, women's engagement triggers a ripple effect of economic diversification, cascading from individual successes to communal growth. This interplay of personal and collective progress shapes the very trajectory of our national development."

These opinions depict that as a foreign exchange earner, the export of fish products bolsters the country's international trade and economic growth. The fish business is crucial in employment creation, providing livelihood opportunities for diverse demographics, including women and youth.

DISCUSSION

The research findings highlight the integral role of the fish business, within the aquatic trade. It was reported that the fish business creates employment opportunities that are particularly beneficial for women and youth in the local area. Women within the fish business make a concrete contribution to local economic development through their various activities including fish farming, fish trading and aquaculture related construction. These ventures enhance the participation of women in the local economy and augment their economic inclusion in the local and national economy. In these activities, women secure their livelihoods even as they become employers themselves, generating a positive cycle of empowerment and income generation (Chepkirui, 2023; Adam and Njogu, 2023; Kalaba et al., 2021; Waldorff, 2017). However, the results have indicated that many of the jobs offered by the fish business tend to be temporary and seasonal, often characterized by low-skilled and informal work arrangements. There is need to find ways to create job security for the affected category of women. Although these jobs are vital entry points into the labour market, it is essential to point out the need for policies and interventions that elevate these unsecure jobs in to more stable and secure forms of employment (Chepkirui et al., 2023). This could be achieved through targeted training programs and initiatives aimed at upgrading the skills and capacities of women engaged in the fish business (Adam et al., 2021). Such efforts would improve employment quality and bolster women's economic resilience in the face of unforeseen challenges.

Women participation in the fish business increased their income and had a positive impact on the local economies. This increased income was a catalyst for economic progress and stability within households. It was evident from participants' responses that this financial security enabled families to plan for the future and, therefore, would help them to invest in education and healthcare and pursue a higher quality of life (Chepkirui, 2023; Adam and Njogu, 2023; Kalaba et al., 2021; Waldorff, 2017). This, in turn, contributes to the overall well-being and development of the community, creating a positive feedback loop of prosperity.

Furthermore, an observation was made that the fish business empowers women by affording them greater decision-making authority over financial matters. This newfound autonomy extends not only to household finances but also permeates into the broader spheres of business and community engagement (Adam et al., 2021). Women become active participants in shaping the economic status of their communities, contributing to more inclusive and equitable economic systems. The shift towards greater financial independence empowers women to take charge of their destinies, developing a sense of self-determination.

It was also found that asset ownership is a critical element of women's empowerment within the fish business. Women acquire valuable assets such as shops, vehicles, and other real estate properties through their participation. These assets also function as collateral for accessing credit, providing women with more excellent financial stability and opening up new avenues for growth and investment (Agarwal, 2003). Thus, as women accumulate assets, they have better chances of securing their present and future economic standing (Kaminski et al., 2018; Rohe et al., 2018; Eleonore, 2017; Bene et al., 2007).

In addition to individual empowerment, the fish business contributes to the broader economic resilience of communities, particularly in the face of disasters. From the results, it was explained that the consistent availability of fish as a marketable product throughout the year ensures a stable income source, even during times of crisis like droughts, flooding, or disease outbreaks. Thus, women-led businesses are a potent contributor to food security in their local areas, which in turn augments the economic resilience of local areas in times of disaster (Edwards, 2000; Onoja et al., 2012; Eleonore, 2017; Genschick et al., 2018; Khan et al., 2018). Moreover, women within the value chain often play instrumental roles in supporting vulnerable individuals and participating in post-disaster recovery efforts, further highlighting their contribution to community resilience. In so doing they form an immediately available social safety net for vulnerable persons in their communities (Dale, 2020; Adam et al., 2021).

Beyond direct economic empowerment for women and other vulnerable groups, the study revealed that the fish business also contributes to infrastructure development within the local area. Tax revenue, fees, and levies generated from fish businesses are reinvested into the community, supporting the construction of essential infrastructure. This contribution to infrastructure development is expected to create positive outcomes and impact for local and national economic development (Mabounda et al., 2005; Bene et al., 2007). It also catalyzes broader community development (Chepkirui, 2023; Kizito, 2016).

Furthermore, the findings stress the transformative potential of the fish business for women's economic empowerment and economic diversification at the national level. This aligns with the literature's assertion that the small-scale fisheries sector can contribute significantly to national economic growth by contributions to GDP through direct and induced impacts (Bene et al., 2007). Additionally, the study findings highlight the potential of the fish value chain to challenge traditional gender norms and promote an inclusive economic environment, aligning with the literature's discussion on the active participation of women in promoting hygienic and food safety aspects of the landing sites (Den de Pryck, 2012).

CONCLUSION

When the results are synthesized holistically, they demonstrate that the fish business in Zambia is a key contributor to the economic inclusion for women, which results in a multi-layered local and national development impact. Because the value chain actively engages women in various facets of the industry, it is a potent force for gender empowerment and self-sufficiency. It breaks down traditional barriers and presents women with a tangible pathway to economic independence, strengthening their capacity to contribute to the national economy.

Based on these findings, several recommendations are proposed to ensure women's empowerment and sustainable development of the fish business in Lusaka Province: (i) targeted policies and initiatives aimed at providing financial resources and entrepreneurial training to empower women to establish and expand their fish businesses, should be developed to; ii) promoting gender-inclusive policies within the fishing business, including equal pay and representation should be encouraged, this can create an environment conducive to

women's economic empowerment; (iii) Encouraging the adoption of sustainable fishing practices and offering infrastructure support such as access to cold storage facilities and transportation networks can further amplify the economic impact of women in the fish business while ensuring the long-term sustainability of aquatic resources. Ultimately, an approach that addresses environmental sustainability is imperative for maximizing the positive contributions of women in the fish business to local and national economies.

REFERENCES

1. Allison, E. (2004) The fisheries sector, livelihoods and poverty reduction in Eastern and Southern Africa. In: Ellis, F. & Freeman, A. (eds.). Rural livelihoods and poverty reduction policies. London: Routledge, forthcoming.
2. Bene, C. et al (2007). Increasing the contribution of small-scale fisheries to poverty alleviation and food security. FAO Fisheries Technical Paper 481. Rome: FAO.
3. Chepkirui M, K V (2023) The effect of dietary Aloe vera powder on growth performance and survival rate of *Oreochromis niloticus* fries. Int J Aquac Fish Sci 9(1): 004-011. DOI: <https://dx.doi.org/10.17352/2455-8400.000086>
4. Dale, B. (2020). Gender Mainstreaming in Agriculture Value Chains: The Quest for Gender Equality, Employment and Women's Empowerment in Arsi Zone, Ethiopia. Submitted in Accordance with the Requirements for the Degree of Doctor of Philosophy, In the Subject of Development Studies, at the University of South Africa.
5. Dey de Pryck, J. (2012) Good practice policies to eliminate gender inequalities in fisheries value chains. Food and Agricultural Organization of the United Nations, Rome, Italy.
6. Dione, D. (2005). Contribution économique et sociale de la pêche artisanale au Sénégal. October 2005. Sustainable Fisheries Livelihoods Programme (SFLP) report. 39pp.
7. Durlauf and L. E. Blume (eds.) (2008) The New Palgrave Dictionary of Economics, 2nd Ed. London: Palgrave Macmillan, 410-20
8. Edwards, P. (2000). "Aquaculture, Poverty Impacts and Livelihoods". Natural Resource Perspectives,
9. <http://www.odi.org.uk/nrpl>
10. FAO. (2018a). Developing gender-sensitive value chains Guidelines for practitioners. Rome: FAO.
11. FAO 2020. The state of world fisheries and aquaculture 2020, Sustainability in action. Rome: FAO. doi: 10.4060/ca9229en
12. Goodwin, J. and Goldthorpe, J. (2013). Small farmers, big challenges: A needs assessment of Florida small-scale farmers' production challenges and training needs, Journal of Rural Social Sciences, 28(1): 54–79.
13. Githukia, C.M. et al (2020). Gender roles and constraints in the aquaculture value chain in Western Kenya. African Journal of Agricultural Research, 16(5):732-745
14. Hazell, P et al. (2007) The future of small farms for poverty reduction and growth. 2020 Discussion Paper No. 42. International Food Policy Research Institute, Washington, DC.
15. Kaplinsky R and Morris M. (2000). A handbook for value chain research. Ottawa: International Development Research Centre (IDRC).
16. Kaminski, A.M., Genschick, S., Kefi, A.S. and Kruijssen, F. (2018). "Commercialization and upgrading in the aquaculture value chain in Zambia". Aquaculture, Vol. 493, 1 August 2018, pp. 355-364
17. Kaminski, A.M. (2020). "Fish Losses for Whom? A Gendered Assessment of Post-Harvest Losses in the Barotse Floodplain Fishery, Zambia". Sustainability, Vol.12:10091
18. Longley, C., Singh, S.H., Beveridge, T.M., Cole, S., Banda-Nyirenda, D., Heck, S. and Hother, A. 2014. The Role of Fish in the First 1,000 Days in Zambia. Institute of Development Studies, Brighton
19. Longwe, S., (1995). Supporting women's development in the third world: Distinguishing between interventions and influence in gender and development. 3(1) Oxford: Oxfam
20. OECD, (2012) Making global value chains accessible to all. Paris. (also available at www.oecd.org/dac/aft/MakingGlobalValueChainsAccessible_Web_USB.pdf).
21. Oso, W. Y., & Onen, D. (2005). A general guide to writing research proposal and report: a handbook for beginning researchers. Kisumu: Options Printers and Publishers.

22. Mabounda, D., Ondo Magne, J.J. & Rarambyath, G.A. (2005). Evaluation de la contribution de la pêche à l'économie gabonaise. June 2005. Sustainable Fisheries Livelihoods Programme (SFLP) report. 43pp. (available at www.sflp.org)
23. Mafimisebi. etal (2009). Rural women's productivity and welfare issues: A cause for concern in: Agbamu, J.U (Ed). Perspectives in agricultural extension and rural development, Springfield Publishers Ltd., Owerri, Nigeria.
24. Mafimisebi, Taiwo Ejiola, (2007). A comparative economic analysis of two cassavabased business activities exclusive to the female gender in Oyo State, Nigeria. Journal of Agricultural Extension
25. McDougall C. (2021). Gender integration and intersectionality in food systems research for development: A Guidance Note. Penang, Malaysia: CGIAR Research Program on Fish Agri-Food Systems. Manual: FISH-2021-26.
26. Ministry of National Development Planning. (2017). 7th National Development Plan 2017–2021: Accelerating development efforts towards Vision 2030 without leaving anyone behind. Lusaka: Ministry of Finance.
27. Moser, C. O. N. (1993). Gender Planning in the Third World: Meeting Practical and Strategic Gender Needs. World Development, 21(8), 1257–1269.
28. Mwema, C. (2021). Gender-integrated Business Strategies Empower Women in Zambia. World Fish Country Office, Lusaka
29. World Bank. 2004. Saving Fish and Fishers: towards sustainable and equitable governance of the global fishing sector. Report No. 29090-GLB, Washington DC: World Bank, Agriculture and rural development Department, 93 p.
30. World Fish. (2024). World Fish Zambia country Profile. WorldFish Zambia Office, Lusaka. <http://www.worldfish-zambia@cgiar.org>