

CSA CIS MSD Workshop Report focusing on Aquaculture

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Executive summary

WorldFish in collaboration with International Water Management Institute (IWMI) hosted a multi-stakeholder dialogue (MSD) platform in the auspices of aquaculture. The workshop was held in Mansa, Luapula Province on 28th April 2022. Seventy-eighty (31% women) participants attended the workshop. AICCRA Zambia launched an MSD in February 2022 to share ideas on how to scale CSA CIS innovations. The workshop in Mansa was one in a series of meetings planned for the AICCRA Zambia CSA CIS MSD platform. This particular MSD workshop focused on aquaculture and particularly discussed issues related financing smallholder farmers and SMEs in the face of climate change, bench marking and credit worthiness of a smallholder fish farmers, and sharing practical experiences from integrated fish farms, aquaculture development association of Zambia (ADAZ) and the banks. In addition, we held a field visit to an integrated fish farm in Samfya district of Luapula province.

The theme of the MSD was on Aquaculture markets (input and output) and financial access and inclusion. Representatives from the following institutions: Aquaculture Development Association of Zambia, Mpeni fish farm, Luapula provincial fisheries officer, NATSAVE, and Agribit business presented on various topics related to the aquaculture value chain. Presenters shared ideas and experiences along the value chain and experiences regarding access to fish markets and farmed fish productivity and profitability. The presentations generated discussion among the participants of the MSD.

Mpeni Fish farm shared lessons and experiences on integrated aquaculture agriculture. The farm has eight fish ponds with an average size of 800m² each, a banana plantation at 8 acres, and other crops and livestock, including dairy cattle, goats, sheep, poultry, piggery, assorted fruits and vegetables. The farm uses an off-grid solar plant as the primary source of power and stressed that this has significantly reduced the cost of production as it is off-grid and, at the same time, reduced disruption of production resulting from power cuts from the national grid. Mpeni fish farm also emphasized the need to use green technologies such as solar energy and practice better management practices such as high-quality seed/fingerlings and feeds. The presentation by Mpeni generated discussion around fisheries standards to ensure that smallholder farmers were given access to high quality and resilient fingerlings from hatchery operators. Other issues that were discussed included water licenses and fish species zoning. SMEs discussed that the water management authority (WARMA) had introduced water rights, and the fees for getting the license were not clear for commercial and non-commercial users. Regarding fish species zoning, the farmer representatives wondered why the government continued not allowing farmers in the north to farm fish species such as *Oreochromis niloticus*, which have fast growth compared to *Oreochromis macrochir* and *tanganicae*. SMEs insisted that *Oreochromis macrochir*, and *tanganicae* species were neither good nor commercially viable. Participants expressed that *Oreochromis niloticus* gave commercial players an upper hand in the aquaculture markets and hence were able to lower the price of farmed fish at the peak of competition, which affected smallholders.

Acknowledgements

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Project background and workshop objectives.

AICCRA-Zambia aims to improve water, food and energy security through access to knowledge, technologies, and decision-making tools, to strengthen climate resilience in Zambia's agriculture and food systems in the face of a hotter and drier climate. The project has three components and these are (i) knowledge generation and sharing effective climate information services (CIS); (ii) partnership for delivery; and (iii) supporting the uptake of CSA innovations through piloting. AICCRA Zambia works with local partners to scale actionable climate information services and climate-smart agriculture technologies which promote gender and social inclusion. This workshop targeted accelerator partners aligned to CSA bundle 2 (see figure 1).

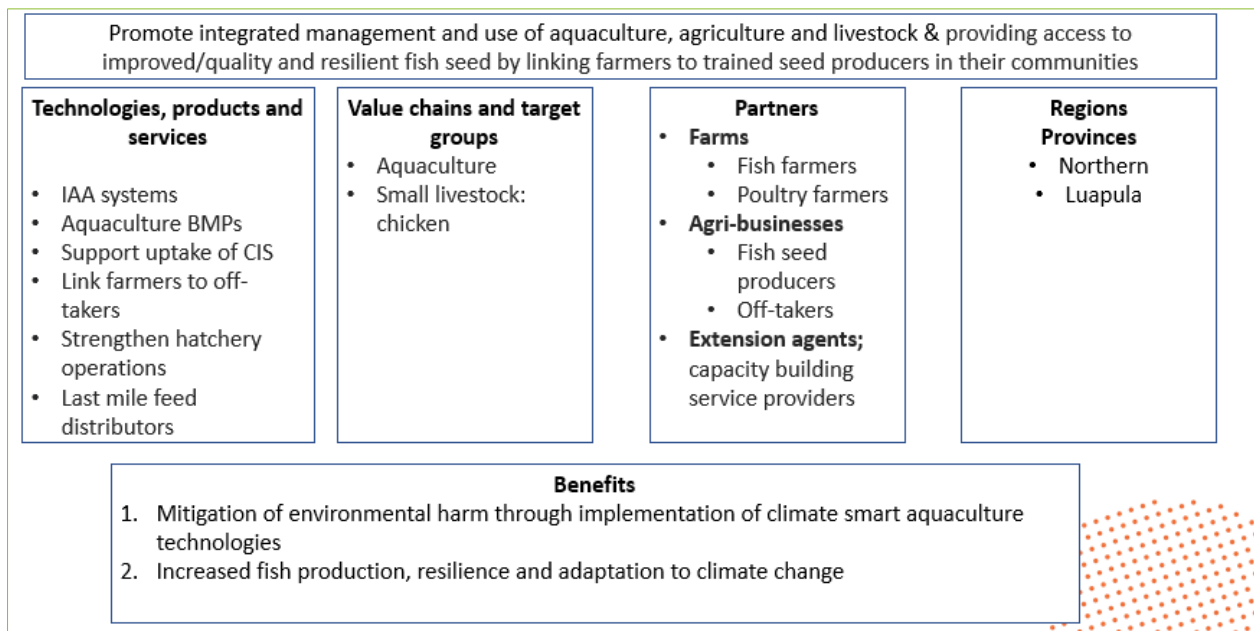


Figure 1: CSA Bundle 2: Integrated Aquaculture Agriculture Systems

The CSA bundle 2 seeks to promote integrated aquaculture agriculture and livestock and providing access to improved/quality and resilient fish seed by linking farmers to trained seed producers in their communities. This CSA bundle will (i) promote the integration of aquaculture with small livestock, particularly dual-purpose (village) chickens; (ii) promote access to improved/quality and resilient fish seed by linking farmers to trained seed producers in their communities; (iii) strengthen existing fish hatchery operations to ensure availability of high-quality seed/fingerlings of local fish species; (iv) strengthen collaboration with feed companies to bring commercial nutritious pond feed closer to farmers; (v) link farmers with off-takers to ensure market access to sell their fish; and (vi) improve farmer access to climate-smart information services through the integration of aquaculture into the agriculture data hub such as iSAT that will be developed in collaboration with the International Crops Research Institute for the Semi-Arid Tropics (ICRISAT).

The CSA Bundle 2 aims to achieve:

- Increase resilience, production and income for smallholder fish farmers, especially among women
- Increase resilience to climate change through adaptation of climate-smart information and use of better management practices
- Reducing environmental footprint through the implementation of sustainable climate-smart aquaculture practices

Others bundles within AICCRA Zambia included: Sustainable financing for off-grid solar irrigation; climate smart seed varieties to address drought; and diversified chicken and goat-legume systems.

Championing integrated farming systems in zambia by Mpeni farm ([see the presentation here](#))

Mpeni farm shared its experience on integrated aquaculture. The farm is located in Lusaka's Ngerere area, and it sits on a 15-acre piece of land. Mpeni integrated fish farm has eight fish ponds with an average size of 800m²; a banana plantation at 8 acres; and other crops and livestock sectors particularly dairy cattle, goats, sheep, poultry, piggery, assorted fruits and vegetables. The farm uses off-grid solar plant as a primary source of power, and this has enabled it to remain resilient in the face of climate change. The manager explained that use of off grid solar plant significantly reduced the cost of production, and at the same time, reduce the disruption of production resulting from power cuts from the national grid (Figure 8).

CLIMATE RESILIENCE

Mpeni farm has invested in two solar plants for the following reasons

1. Reduce our carbon footprint
2. Reduce cost of production by going off grid
3. Reduce disruption of production due to power cut (load shedding)

5 hp Solar plant

10 hp Solar plant

Figure 2: Offgrid solar plant at Mpeni integrated fish farm; an extract from Mpeni farm presentation

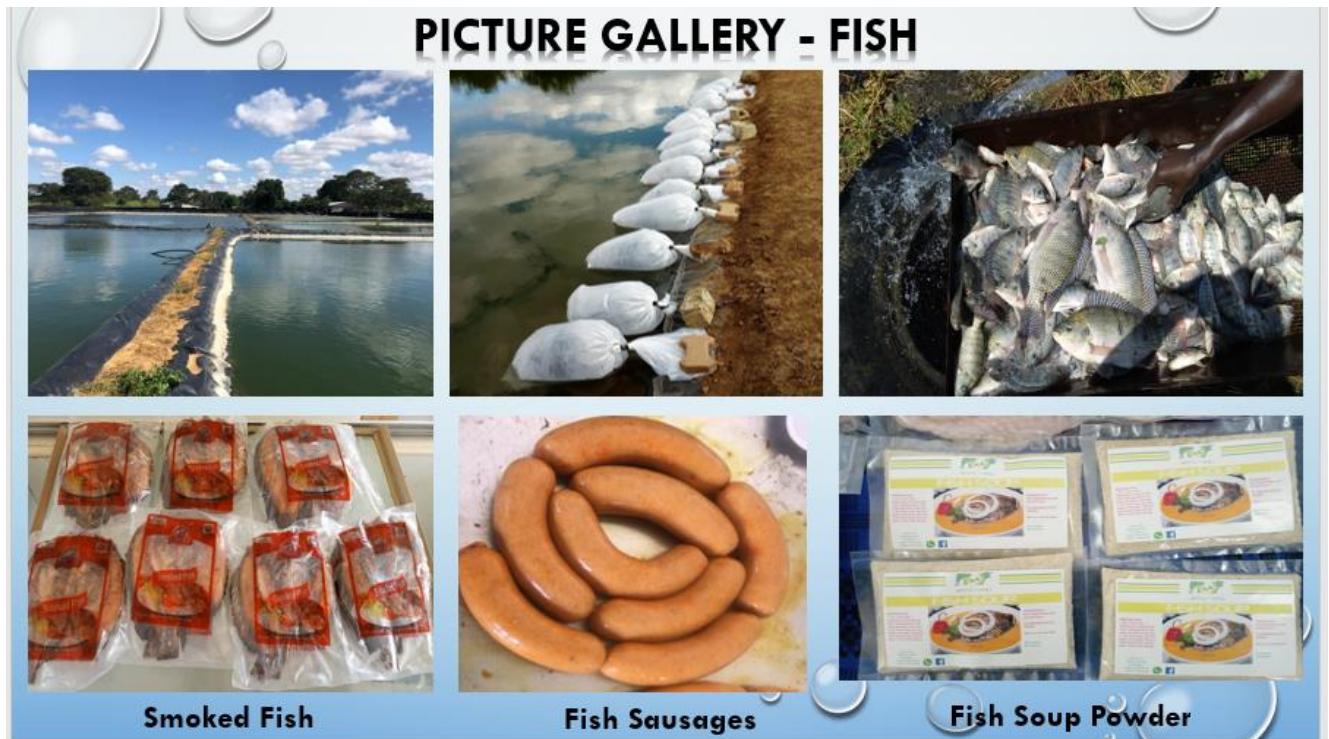


Figure 3: Assorted fish products from farm; an extract from Mpeni farm presentation

Bench-marking for smallholder fish farmers in Luapula Province by Amon Foloweza, Acting Principal Fisheries Officer ([see the presentation here](#))

Luapula Acting provincial fisheries officer Mr Amon Foloweza described gross profit per yield from a typical 600m² fish pond. This presentation was meant to help farmers and SMEs value their aquaculture investments when soliciting funds from financial institutions and accessing insurance. Mr Foloweza explained that the farmers need to consider fish stocking, survival rate, cost of feed and output markets, particularly buyers and sales price for their fish. These parameters were critical when valuing their investment as it entails the expected profit return. The farmers also need to practice better management practices starting with high-quality seed/fingerlings from reputable hatchery operators. Reflecting on the previous discussion, Mr Foloweza regarded off-grid solar energy as clean, reliable and sustainable energy in times of drought.

This presentation sparked discussions around fisheries standards to ensure that smallholder farmers were not accessing poor quality fingerlings from hatchery operators. Fisheries extension officers and SMEs pointed out that they had received reports from farmers that some of the fingerlings they buy from hatchery operators were extremely poor, which affected their businesses.

Other issues that were discussed included water rights and type of fish species zoning. Smallholder farmers discussed that the water management institute

(WARMA) had introduced water rights, and the fees for getting the license were not clear for commercial and non-commercial users. The ministry of fisheries and livestock representatives explained that the issues of water license were under discussion with WARMA. Once they conclude, they would be able to advise the SMEs and smallholder farmers on the requirements. Regarding fish species zoning, the farmer representatives wondered why the government had continued not to allow them to farm fish species such as *oreochromis niloticus* which have fast growth compared to *oreochromis macrochir*, and *tanganicae* –allowed in the northern region. The government representatives explained that the current fisheries regulatory framework guides species zoning; hence the farmers needed to comply. *Oreochromis niloticus* is not an indigenous species. Farming *reochromis niloticus* can cause negative environmental impacts. Thus, it is only allowed to be farmed in the Zambezi watershed in Lusaka and southern provinces. These species are highly commercial, and most of the big private sector players in the aquaculture value chain produce *oreochromis niloticus*. SMEs expressed a concern that if smallholder farmers continue to farm poorly performing species, they cannot compete which big commercial farmers cultivating *oreochromis niloticus* because the smallholders are disadvantaged in both access to quality and resilient fingerlings and feed. With these technologies, commercial players were able to lower the price of farmed fish at the peak of competition, affecting smallholders.

**Financing and marketing for smallholder fish farmers by Major Kaluba rtd
ADAZ National Coordinator ([see the presentation here](#))**

The Aquaculture Development Association of Zambia (ADAZ) national coordinator presented on aquaculture in prospective markets, and outgrower schemes. According to Retired Major Kaluba, the monthly fish supply deficit per province stands at 4.38 metric tons. He called on smallholders to enhance fish production and also create aggregation centres so that their yield could easily reach the available markets. ADAZ has a network in export markets, particularly exporting to DRC, and Angola, but has not been able to meet the supply as most of the fish is consumed within the local markets in Zambia. He pointed out that DRC and Angola want a continuous supply of fresh fish at 32 tons and 20 tons, respectively. Major Kaluba explained that this demand would increase the number of aquaculture farmers in the country; hence, the call to enhance climate-smart aquaculture practices came at the right time. This presentation stimulated discussion around outgrower schemes. The SMEs stated that if farmers were to work as individuals without cooperatives or aggregation centres, they would not be able to utilize the available markets because it is challenging for an individual farmer to have a continuous monthly supply of over 20 tonnes of fish. If they aggregate, this will make it easier to meet the demand. Triple Blessings Center an off-taker who buys fish from smallholders and expressed an interest in working with ADAZ to explore its network and other markets in the sector.

Finance in the Agricultural Sector by NATSAVE ([see the presentation here](#))

This presentation aimed to inform the SMEs and farmers about the processes and available finance products. NATSAVE indicated that the bank has branches spread in remote and rural districts to enable farmers to access their products. Because of the challenges farmers face, NATSAVE is offering access to reasonably priced and affordable financial services to farmers and entrepreneurs. The presenter explained that the country currently has 2 million crop farmers, 1.5 million livestock farmers, 1.05 million MSMEs and 20,379 registered farming cooperatives. Many more farmers are not registered, and the bank found it appropriate to attend such meetings to inform more farmers of the available services and loan products. The bank noted that there had been numerous calls for economic diversification. It desires to partner with the aquaculture value chain and other value chains promoted by AICCRA to impact development, financial inclusion, and sustainability. Plenary discussions showed that most SMEs felt that the interest rates were high and not suitable for emerging farmers. The financing model for NATSAVE is one of the most accessible/cheaper for farmers as it does not require collateral.



Workshop agenda

AICCRA Zambia CSA-CIS-MSD Workshop: Aquaculture Bundle

28th April, 2022

Venue: Teja Lodge, Mansa

Agenda

28th April 2022

Time	Activity	Facilitator
08:00-08:30	Registration	Mercy Sichone
08:30-09:00	Introductions	Lizzy Muzungaire
09:00-09:30	Mpeni Farm share experience	Mrs. Tembo
09:30-10:00	Aqua-culture development Association Zambia ADAS Share their experience with micro-finance, out grower scheme and marketing & value addition	Nelson Kaluba
10:00-10:30	Tea Break	Mercy and Agness
10:30-11:00	Bench Marking / harvesting estimates; credit worthiness of a smallholder fish farmer	TBA
11:00-11:30	Financial services for small scale fish farmers & SME	NATSAVE
11:30-13:00	Overview of the CIS & CSA and definition of key concepts Reading historical climate information	Livingstone and Desire
13:00-14:00	Lunch break	Mercy and Agness
14:00-15:00	<ul style="list-style-type: none">• Expectations from participants Understanding the value of weather and Climate Services to fish value chain actors <ul style="list-style-type: none">○ Introduce the concept of climate change and variability	Livingstone and Desire



	<p>and other associated weather and climate behaviour</p> <ul style="list-style-type: none"> ○ Exploring the relationship between Climate Information Services (CIS) and fish operations 	
15:00-15:30	Health Break	Mercy and Agness
15:30-16:30	<ul style="list-style-type: none"> ○ Participatory dissemination of Digital Agro-Climate Advisory P-DACA 	Livingstone and Desire



AICCRA
Accelerating Impacts of CGIAR
Climate Research for Africa



About AICCRA

Accelerating Impacts of CGIAR Climate Research for Africa (AICCRA) is a project that helps deliver a climate-smart African future driven by science and innovation in agriculture.

It is led by the Alliance of Bioversity International and CIAT and supported by a grant from the International Development Association (IDA) of the World Bank.

Discover more at aiccra.cgiar.org

