



## TECHNICAL BRIEF: SCALING RECOMMENDATIONS

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### INTRODUCTION

The FishFirst! Zambia project is focused on research for the development and scaling of staple-fish products for enhanced nutrition in the First 1,000 Days of Life. The project aims to determine ways of increasing access to nutritious fish diets among vulnerable family members, particularly mothers and infants. The project focuses on communities around Lake Kariba, in the Southern Province of Zambia. The districts targeted are; Siavonga, Sinazongwe, and Gwembe. This technical brief explores options to scale the production and marketing of the ComFA+Fish products/recipes with private and public sector actors and women.

The technical paper is based on focus group discussions conducted at the lessons learned workshop in Siavonga in June 2023. The scaling readiness assessment tool and approach were adapted from Sartas et al. (2020), and designed to enable critical reflection on whether technologies are ready for scaling or not and what support mechanisms and actions are needed to accelerate scaling.

### MOTHERS/CAREGIVERS NUTRITION PRIORITIES

Mothers mentioned that providing nutritious and diverse diets was crucial to promoting children's healthy growth. They said kapenta and other fishes like tilapia, groundnuts and dark green leafy vegetables are important foods for children. Women mentioned that due to the training they received, they now give their children nutritious foods and try to raise awareness among other caregivers that did not attend the nutrition training. However, they mentioned that since they have not reached many women, many children still do not get enough nutritious foods for healthy growth. They mentioned that sometimes mothers are overworked and do not have time to prepare nutritious meals for infants and young children. Other mothers work and leave children under the care of older siblings and nannies who may not feed the children correct and adequate foods.

Women mentioned several challenges to providing safe and nutritious foods for their children, especially ComFA+Fish. One was the need for knowledge and skills in nutrition and how to prepare dishes. Women may have many ingredients but only know one way of preparing dishes which may make the food boring, and their families lose interest in consuming it. Limited access to healthy and nutritious foods was also mentioned. For example, it a female participant said:

*'Cucumber does well here in the rain reason. So women dry the cucumber (makowa) to make relish to eat with nshima. But the problem is that this is not nutritious food. Even the village chickens are not for consumption. They sell them at the village market. In the old days when you visited a village your meal will be chicken and nshima but now that's not happening anymore. Everything is commercialized. In the valley here we have a challenge of food. We are stuck to nshima and makowa. However, this season we have a lot of vegetables'.*

In the same vein, it was noted that although kapenta is available, it is sold, and very little is left for home consumption. Men who mainly fish may also not know the importance of consuming small fish for household nutrition. As a result, they may sell all of it and leave nothing for household consumption. Additionally, kapenta is highly lucrative, which makes it difficult for families to leave some kapenta for household consumption. Food

availability can also be seasonal, resulting in women and their families lacking access to healthy and nutritious foods during some periods of the year, especially for seasonal foods such as sweet potatoes. Women also noted a high incidence of teenage pregnancies, which also affects the nutrition of the mothers and the babies.

Women that had participated in the ComFA+ Fish nutrition training and cooking demonstrations mentioned that they had cooked some of the ComFA+Fish dishes and modified others.

Table 1: The number of women that mentioned cooking a ComFA+ fish recipe

Dish	Which dish have you made at least once (#8 – total number of women asked)	Which dish have you continued to make for your children (#8 - total number of women asked)
Fortified Chibwaba Fisashi	8	8
Kapenta Chutney	8	8
Fortified Maize porridge	8	8
Fortified Bean-Vegetable Soup	1	1
Fortified Cassava Bites	1	0
Fortified Nutri-Biscuits	0	0

Dishes that fit well into local cuisine were likely to have been prepared more than once by the same person compared to those such as cassava bites and fortified nutri-biscuits that did not fit in the local cuisine and were more challenging for women to integrate.

Women modified some dishes to consider their tastes or other preferences. For example, women interchanged kapenta powder with powder from other tilapia fish species when kapenta was unavailable. Depending on availability, they also replaced chibwabwa fisashi (pumpkin leaves) with other local green leafy vegetables. Others mentioned substituting kapenta with other fish species due to developing allergies commonly associated with consuming kapenta. For Kapenta chutney, some women made it without oil but used peanut butter instead or dropped some ingredients such as garlic and curry because of the non-availability or test preferences. One woman who made cassava bites substituted cassava meal with maize meal.

### Mothers/Caregivers perceptions of scaling ComFA+ Fish Instant porridge

Women conducted a scaling readiness assessment of the ComFA+Fish instant porridge to understand what needs to be considered during the scaling of ComFA+Fish instant porridge.

Women highlighted that to be scaled, the ComFA+ fish instant porridge needed to be supported by the availability of kapenta, baobab fruit (mabuyu) and other local ingredients. They mentioned that instant small fish powder based porridge must come in different flavours so toddlers could find a flavour they like to promote its consumption. They also emphasized that ComFA+fish instant porridge should not only be targeted at infants and young children but also meet the needs of other groups, such as adolescents and pregnant women. Mothers stated that it would be good if the instant ComFA+fish-based porridge could be scaled because it is highly nutritious, with all the nutrients infants and other groups require. They stated that it is easy

to prepare and can be made by childminders, improving the health of infants and young children left under the care of older siblings, nannies and other relatives. Women also mentioned higher-level goals to support ComFA+ Fish powder instant porridge, such as supporting the government's efforts to promote good health for all, to promote educational attainment if it is integrated into school feeding programs, contributing to maternal health because of good nutrition, thus contributing to achieving zero maternal death and reducing HIV related deaths due to improved nutrition of those infected by the virus.

Women identified the following scaling outcomes as relevant to consider when scaling ComFA+ Fish powder instant porridge.

- Improved health of infants, young children and families at large
- Reduction in malnutrition for infants and young children
- Improved health of pregnant and lactating mothers
- Speedy recovery of the sick
- Improved lifestyle for the aged
- Increased number of children attending school since the porridge will attract them to schools that have school feeding programs
- Help mothers to deal with time poverty by providing a quicker way to make porridge.
- Increased incomes for local businesses

## How to scale ComFA+ Fish powder instant porridge

Women mentioned that the ComFA+ Fish powder instant porridge could be scaled through community markets, clinics, health facilities and school feeding programs, national shows and fairs. They stated that there is a need to invest in technologies to process other locally available ingredients, such as mabuyu (baobab fruit) processing technologies to extract the powder and usika (tamarind) extraction. They suggested the need for attractive packaging as well as investment in other product promotion strategies such as integrating promotion messages in churches, schools, markets, cooperative meetings, community meetings, crusades, national events etc.).

Potential challenges to scaling

They mentioned that the failure to sensitize and train caregivers could be a challenge since people may reject the technology. It was noted that if they are not well-informed, people may think the porridge or fish powder has been laced with ingredients that reduce their fertility. If that happens, the technology may be rejected.

## What stakeholders would be necessary to engage in the scaling-up process and why?

- Communities / especially mothers and caregivers (
- Ministry of Health
- Ministry of Fisheries
- Ministry of Agriculture
- Ministry of Education
- Ministry of Community Development
- Ministry of SME
- Ministry of Technology
- Other line ministries
- NGOs and Development partners (DAPP/World Vision/WorldFish/Maryland/ADRA) & FBOs
- Donor community
- Micro-finance institutions, including the Citizens Economic Empowerment Commission (CEEC)
- Local councils that manage Constituency Development Fund (CDF)

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- Private sector
- Media

## Recommendations for scaling ComFA+ Fish recipes and ComFA+ Fish instant porridge

1. There is a need to develop resources such as information packs with nutrition messages, more capacity and awareness-raising efforts targeted towards caregivers.
2. Training and information packs or other behaviour change campaigns targeting women and other caregivers should be in the local language.
3. Start-up capital for women to invest in farming and fishing could help them support their families and provide nutritious food throughout the year.
4. Invest in training women on food preservation techniques that do not affect the nutrition content of nutrient-dense foods in seasons when the food is abundant for use during hunger periods.
5. Nutrition requirements of young mothers and adolescent girls also need to be addressed. There is a need for transformative approaches/ campaigns to promote children's rights and spread knowledge and information to prevent teenage pregnancies. Since it was noted that young pregnant girls and mothers often present as malnourished with low blood count, young women could be encouraged to consume small fish such as kapenta and other nutrient-dense foods.
6. Women and girls could be targeted through clinics and hospitals since these provide an opportunity for engagement with the health sector when they come for antenatal and post-natal visits.
7. Churches could also be used to target women. In some churches, women gather once a month to discuss health topics. Some topics could focus on children's nutrition, especially the benefits of consuming small fish and fish powder. In some districts, such as Siavonga, there is a pastor fellowship where ministers from different churches meet monthly. They may be a good entry point to target women and men in churches with nutrition messages.
8. Other participants noted that there might be a need to have regular nutrition talks to keep communities informed. It was pointed out that some discussions also need to focus on men since they have the power to make decisions about food consumption in the household but often do not have the same information and knowledge women have about nutrition. So when it comes to deciding whether to keep some fish for household consumption or sell everything, women who have access to information from projects such as the FishFirst! Zambia project may not have a voice.
9. Can target traditional ceremonies in the different districts. For example, in Southern Zambia, everyone gathers at the Chief's palace during the Bagande Lwinda Ceremony to celebrate harvests. Nutrition projects could also take advantage of such events to disseminate information about small fish and fish powder consumption.
10. Programs targeting women can be flighted on local radio stations such as Kariba FM and Nyaminyami radio
11. There is a need for behaviour change campaigns targeting fisher folk so that they can keep some kapenta for home consumption because of the nutritional benefits that will accrue to their children. The District Commissioner stressed the need to change the mindset of people to keep a small amount of the fish they catch instead of selling off everything and raise awareness about the importance of consuming the fish, especially small fish.
12. Marketing and packaging of fish powder and fish-based instant fish porridges in small sachets that women can afford. 'In the market cooking oil is sold in different sizes. At the market, I repackage in little tiny plastics. I do the same with sugar and mealie meal. When I sell the little sachets of cooking oil, I make the same profit margin as when I sell the big bottles, but the little sachets are bought up faster than the big bottles. We repackage even washing powder like boom. We sell a pamela for 5 kwacha (A pamela is a small repackaged pack of mealie-meal).

## Government Representatives and entrepreneurs' Priorities on Nutrition

Government representatives listed the following as the most pressing nutrition challenges in Zambia:

- Inadequate metric equipment in health centres, as weighing scales break down and are replaced every few months.
- Lack of linkages between community activities and health activities and campaigns. There is a great need to link health initiatives and activities to community programs implemented by other government departments and stakeholders.
- Therapeutic foods are in erratic supply at the hospitals.
- Lack of nutrition data to identify early signs of sickness which leads to delay in referral for children at risk. By the time children are indefied and diagnosed as sick, , it is too late to implement and corrective measurest.
- Fisheries production is a challenge. There is a deficit in fish production, and the produced fish are primarily marketed outside the community. Very little is consumed by the communities that produce the fish. Because of high fish demand in cities, higher production may also not lead to higher fish consumption in the villages and communities where fish is produced. Producers care more about the money from selling fish rather than consuming the fish.

Government representatives mentioned the **ready-to-use therapeutic food** (RUTF) for nutrition management program as a key government program seeking to address malnutrition. The program focuses on training community health workers, promoting community-based adolescent and infant feeding practices, and identifying and timely referring any malnutrition cases to the relevant health centres. They also mentioned that other projects could easily build on existing government infrastructure to promote better health outcomes for infants and young children. For example, the government has community health workers and outpatient community referrals where children are measured and weighed regularly, and borderline and at-risk children are identified and targeted with treatment or malnutrition prevention programs.

### Entrepreneurs' Experiences

Among entrepreneurs, only two utilized the ComFA+Fish recipes. A male entrepreneur had made kapenta powder porridge for children to demonstrate to women at the under-5 clinics at Shimatika Health Post. Women liked the porridge. A female entrepreneur prepared fish powder for her grandchildren in Lusaka and occasionally sent it to them. The grandchildren like the kapenta fish powder-based porridge. However, all entrepreneurs that had attended the training did not utilize any of the kapenta powder recipes for business purposes because of the following reasons:

- They were not sure that their clients would like the products (restaurant operators)
- Lackof other ingredients, "In Sinazongwe, we have a challenge of growing pumpkins and sweet potato leaves. They tend to be difficult to grow in our area due to drought."
- Kapenta is expensive, so the dishes with kapenta powder would become expensive, and the clients may not afford (restaurant operators). Kapenta sometimes not available due to high demand from cross-border traders nationwide. Traders from different places, especially Lusaka and the Copperbelt, buy most of the Kapenta in Saivonga. Not much is left for the communities along the shores of Lake Kariba.
- The target market for the products is not clear. Business people were not sure that in a place like Siavonga, people would have the money to purchase kapenta fish-powder-based products.

- No equipment to grind the fish powder. The SMEs expressed concern that for them to integrate the ComFA+Fish products into their businesses, they need processing equipment, such as grinders to process the kapenta into powder, and package it nicely to attract consumers.
- For some business people, it also entails switching businesses. Switching businesses can be challenging and expensive since the business person must invest in new equipment.
- It is not easy to introduce new products. Big investments in market research are needed that SMEs cannot afford. They gave an example of large manufacturers like TradeKing, which can do market research and market campaigns to reach their target audiences when they are introducing a new product. The business people explained that once the products are widely marketed, they can negotiate lucrative contracts with local supermarkets to supply them with the fish powder. *“Introducing a new product to the market can be an exciting yet challenging endeavour for businesses. At the household level, we have tried these products, and my grandchildren like them. But you know it is natural to have fears and concerns when launching something new”*, explained one of the female participants.

## Entrepreneurs and government representatives scaling readiness assessment of ComFA+Fish instant porridge

Government representatives and entrepreneurs conducted a scaling readiness assessment of the ComFA+Fish instant porridge to understand what needs to be considered during the scaling on ComFA+Fish instant porridge. Entrepreneurs and government representatives supported that the instant ComFA+ fish porridge should be scaled to cut down on time to make the porridge since mothers will need hot water only, and it also uses locally available ingredients that are rich in nutrients.

Participants also mentioned that the porridge would help men to be more involved in childcare.

*“It can be prepared by both men and women. Men are lazy to cook porridge considering the time it takes to make it. So this instant porridge makes it easier for them to prepare food for children. God willing, they [men] may end up feeding the baby...because we know that they are lazy even to feed the baby”*.

It was mentioned that the government of Zambia imports therapeutic feeds (RUTF) from France and Spain. During the COVID-19 pandemic, this therapeutic feed was difficult to access, and it was in short supply. It was suggested then that it is better to promote the consumption of nutrient-dense foods in the first 1000 days of life to prevent malnutrition and reduce the demand for external therapeutic foods, which may become in short supply if supply chains are disrupted, as what happened during the time of COVID-19.

An entrepreneur from Gwembe district explained that instant porridge uses fish ingredients and can help provide nutritious food during droughts when staple food like maize production goes down. He said,

*“This one can help mitigate hunger caused by climate change. We stay in the valley, where the rain pattern is poor so in an event that farmers have not produced maize the innovation can improve nutritional availability”*.

Entrepreneurs and government representatives suggested several ways that ComFA+Fish porridge can be scaled out. They suggested that if it can be produced in large quantities, it can be integrated into school feeding programs. Currently, the school feeding programs in Gwembe, Siavonga and Sinazongwe promote a diet based on magwaza (plain boiled maize grain), soy porridge, and Shima with beans”. Integrating fish powder or ComFA+fish instant porridge could raise the nutrition content of the school meals. The ComFA+fish instant porridge can also be scaled in health centres and can be recommended for outpatients who have nutrition problems after an illness to take it to improve their health. Health workers in the group discussion were hesitant to include instant porridge in the diets of inpatients but advised that it could work well with outpatients. It was noted that traditional leaders should also be included in scaling out this porridge because their subjects

will easily take it up if they are on board. Sometimes it can be rejected if people think it is meant for family planning. That is where sensitizing traditional leaders could be helpful.

They noted the following as key complementary innovations needed to scale out the fish powder, fish powder recipes and ComFA+ Fish instance porridge: Dried pumpkin leaves, groundnuts, grinders (solar+power), space where to process the powder, labour, machinery to process the fish, packaging materials, advertisement, having the grinders at a fare price which exempt some import taxes, pounding fish requires workforce if you don't have a motorized machine. The kapenta is also needed since it is a key ingredient in producing ComFA+ fish instant porridge.

They pointed out that scaling outcomes could include 1) Improving nutrition to reduce malnutrition, 2) Improving incomes, 3) improving cognitive Development in children and concentration in school 4) encouraging fish consumption of fish in the fisheries communities that are not currently consuming fish. They suggested a number of high-level development objectives that scaling out fish powder or ComFA+fish instant porridge could contribute to. It would contribute to one of the UN goals to end hunger through the provision of micronutrients through increased small fish consumption and employment creation as business people will be able to benefit from business opportunities, and the government will grow its tax revenue by taxing business people. If the technology is promoted, local cooperatives could take advantage of the constituency development fund (CDF) to fund new business ideas around the small fish value chain. Health workers also noted that the government has a program to improve maternal and child health, and promoting the consumption of small fish powder and ComFA+ fish recipes and instant porridge could be an important component of the capacity-building program on addressing malnutrition.

#### *Potential challenges to scaling*

1. Raw materials are expensive and may not be readily available. In times of fishing ban, in that period, there is likely to be less kapenta, and if it is available, the prices are high.
2. Lack of appropriate machinery - If there are no machines to process the kapenta into powder, it would be challenging to produce the fish powder or the powder may be of poor quality and rot before it is sold.
3. People may reject the fish powder and instant porridge due to suspicion and lack of trust.
4. People may worry that they need to consume a lot of kapenta to get nutritional benefits.
5. When introducing a new product, small businesses may not have enough funds to market the product.

#### **What stakeholders would be necessary to engage in the scaling-up process and why?**

- Community health workers
- Schools or the Ministry of Education,
- Ministry of Health
- Local municipal councils,
- Social welfare
- The Department of Fisheries to regulate the fish supply
- Yalelo, Kariba harvest, fishers association, fish farmer cooperative, farmers association, and Zamfresh could be contacted for supplying fish,
- Soup YaMbuzi Pub & Grill in Siavonga,

Local government for funding through CDF, citizen's economic empowerment commission (CEEC) and other funding institutions

#### **Recommendations for scaling**

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- Appropriate machinery to process the kapenta and preserve it when it is abundant for use when it is scarce
- Product acceptability: it is a new product, so it requires a lot of advertising or sensitization.
- The school feeding program is one program that can support the successful scaling of instant porridge.
- Secondly, existing cooperatives under CDF in these communities could support scaling these innovations. The cooperatives can access funding and use the money to buy machinery and other raw materials to produce instant porridge, provided they are trained to produce it.
  - The innovation can be useful in the government decentralization policy for the constituency development fund (CDF), where communities are requested to form cooperatives and develop a business idea that the government can fund through CDF. Cooperatives can produce and sell ComFA+ fish instant porridge.
- The Ministry of Health (using community health workers/volunteers) should be involved in awareness raising to promote the use of fish powder and the consumption of ComFA+fish instant porridge.
- The private sector can help produce ComFA+fish instant porridge because of its capacity to buy raw materials, grinders, and packaging before it reaches consumers.
- Another respondent added that it is important to consider traditional leaders to participate in the sensitization to help remove any misconception barriers that can hinder the adoption of ComFA+fish instant porridge. A group participant said:
  - “You see when I look at the fish powder, it looks like a spice or herbal powder which could be used for various reasons. Someone can think that it is used as a sex booster or birth control. These beliefs can affect adoption if people are not sensitized on what it is and what it is used for”.
- To scale up ComFA+ recipes and porridges, business people and others promoting them can target
  - School and nursery schools could be targeted with information as well. Hence the need to collaborate with the Ministry of Health.
  - Can also take advantage of national days such as youth day, women’s day to participate in events and activities and spread information on fish, fish powders and ComFA+ fish-based instant porridges

## REFERENCE

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Scaling readiness: Concepts, Practices and Implementation

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