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The Aquaculture Technical, Vocational, and Entrepreneurship Training for Improved Private Sector and Smallholder Skills Project in Zambia

Dissemination and 2021 project planning workshop report

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About WorldFish

WorldFish is an international, not-for-profit research organisation that works to reduce hunger and poverty by improving fisheries and aquaculture. It collaborates with numerous international, regional and national partners to deliver transformational impacts to millions of people who depend on fish for food, nutrition and income in the developing world. Headquartered in Penang, Malaysia and with regional offices across Africa, Asia and the Pacific, WorldFish is a member of CGIAR, the world's largest global partnership on agriculture research and innovation for a food secure future.

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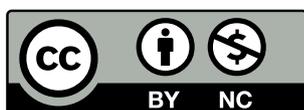
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- **Public sector** - Department of Fisheries Zambia (DoF) and
- **Civil Society** - Our special gratitude to the smallholder fish farmers for their inspiring collaboration in the implementation of the project.

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List of acronyms

| | |
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| ADAZ | Aquaculture Development Association of Zambia |
| AQ TEVET | Aquaculture Technical, Vocational and Entrepreneurship Training for Improved Private Sector and Smallholder Skills Project in Zambia |
| CEEC | Citizens Economic Empowerment Commission |
| DoF | Department o Fisheries |
| GIZ | German Agency for International CooperationNRDC |
| IAPRI | Indaba Agricultural Policy Research Institute |
| MFL | Ministry of Fisheries and Livestock |
| MTR | Mid-Term Review |
| NISR | National Institute for Scientific and Industrial Research |
| NRDC | Natural Resources Development College |
| SDGs | Sustainable Development Goals |
| UNZA | University of Zambia |
| ZAEDP | Zambia Aquaculture Enterprise Development Project |
| 7NDP | 7 th National Development Plan |

1. Executive Summary

This report summarises the proceedings of the Aquaculture Technical, Vocational, and Entrepreneurship Training for Improved Private Sector and Smallholder Skills Project in Zambia Dissemination and planning workshop that took place online in Zambia over 2 days on 28 and 29 October 2020.

2. Introduction

The Aquaculture Technical, Vocational, and Entrepreneurship Training for Improved Private Sector and Smallholder Skills Project in Zambia (AQ TEVET) is funded by the Norwegian Agency for Development Cooperation (Norad). The overall objective of the project is to develop the aquaculture knowledge and practical skills of students and smallholder commercial fish farmers (particularly women and youth) to enable them to find gainful employment in the private sector. It comprises two components:

- i. Upgrading the fisheries science curriculum (long- and short-term courses) and training tools as well as developing an online training platform and internship program at the NRDC, but with links to other TEVET institutions to scale the upgraded curriculum over the project life span and beyond and,
- ii. Enhancing the technical education, vocational and entrepreneurship skills of rural women, men and youth smallholder commercial fish farmers and increasing their linkages to input/output markets and entrepreneurship opportunities via private sector extension support and services delivery.

Workshop Objectives and Outcomes

The objectives of the workshop were:

- i. Disseminate the results of the smallholder fish farmer census conducted in Northern and Luapula Provinces of Zambia;
- ii. Disseminate the results of the AQ TEVET Independent Midterm Review (MTR) to stakeholders;
- iii. Review progress made in 2020 in project implementation;
- iv. Develop the 2021 Work Plan, budgets and work plans for the project and,
- v. Initiate discussion on the scaling of core innovations under the AQ TEVET project

Workshop Outcomes

The workshop had the following outcome:

- i. Improved stakeholder understanding of the smallholder aquaculture sector in Northern and Luapula provinces
- ii. Stakeholders updated of the progress made by the project
- iii. An assessment of 2020 progress by the project and the effects of COVID19 on project implementation
- iv. An updated work plan for 2021
- v. Identification of project innovations with the potential for going to scale

Workshop Approach

The workshop which took place on 28th and 29th October 2020 was virtual. Participants in the workshop were from tertiary institutions in Zimbabwe and Zambia (i.e. universities and colleges; NGOs in Zambia; DoF staff, Musika from the private sector) and Norway (BluePlanet Academy). Besides the private and public sector participants, the civil society and men and women smallholder farmers also participated in the workshop.

The workshop was divided into three sessions (See Agenda in Annex 1).

- a) **Session 1** – this was the Project Result Dissemination Session and was open to all stakeholders. A total of 71 participants attended this session (See Annex 2, Attendance list).
- b) **Session 2** – This was the Project Planning Session. This session was attended only by the project management and implementation team. There were 25 participants in this session. See Annex 2, Attendance list.
- c) **Session 3** – This was the Scaling Dialogue Session which focused on eliciting initial ideas from stakeholders to map innovations of the AQ TEVET project with potential for scaling. The session was attended by 30 participants drawn from tertiary institutions in Zimbabwe and Zambia (i.e. universities and colleges; NGOs in Zambia; DoFs, and Musika from the private sector. See Annex 2, Attendance list.

The meeting report is divided into three sections aligning with the three sessions of the workshop.

3. Session 1: Dissemination of the Midterm Review and smallholder fish farmer census results

Opening Remarks

The workshop officially started at 9.30 a.m with welcoming remarks from Dr Victor Siamudaala (WorldFish Country Director – Zambia and Southern Africa. He applauded the critical role played by each stakeholder towards the development of aquaculture in Zambia. He called upon all the stakeholders to actively engage in the workshop in offering their thoughts and opinions. After the welcoming remarks, participants were randomly assigned to breakout rooms to introduce themselves. Each group had five members. In the breakout rooms, each person introduced their name, what they do and their expectations from the workshop.

After the introductions, WorldFish through its Senior Scientist and Project Leader Netsayi Noris Mudege made a presentation explaining the objectives of the meeting as well as giving an outline of the goals and objectives of the project. Please see the presentation [here](#).

After her presentation, the independent Midterm review team led by Mulenga Mukanu presented their preliminary findings.

Midterm Project Review (MTR) Presentation of Preliminary Results

The consultant hired to conduct the mid-term review of the project presented the draft report of the assignment. Please see a presentation of the results [here](#).

a) Reflection on the scale of component 1 activities

One participant wanted to know why the project engaged only the Natural Resources Development College (NRDC) and not other institutions of higher education. The project team members answered that only one college was involved because the concept was still being tested. However, there was a potential that the concept could be scaled out to other training institutions in Zambia and the region. The scaling plan and strategy would depend on several factors including interest by other colleges, finances and the success of the proof of concept testing phase. For example, the projected scaled the upgraded curriculum component to Kasaka Fisheries Training Institute in Zambia.

b) Reflections on NRDC Curriculum Upgrading and Current Skills among Extension Services

Several DoF extension officers suggested that with the upgrading of the aquaculture and fisheries science curriculum officers who graduated earlier (an example of 7-10 years was given) needed refresher training.

Workshop participants also noted extension workers, coordinators in DoF, private sector actors, and farmers could benefit from the courses since they could all enrol.

Participants inquired whether the short courses are offered for free or on a fee basis. NRDC clarified that the courses would be offered at a yet to be determined fee. The NRDC college was currently conducting a benchmarking exercise to ensure that the courses were correctly priced and affordable.

The following was also highlighted:

- Some short courses can be done online, while others will be done at NRDC because of the need to do practicals.
- NRDC will share a program for short courses by the end of the year

c) Reflections on fingerlings

Inquiry 1: Some participants asked about the issue of fingerlings as many farmers experience challenges in accessing quality fingerlings.

Inquiry 2: Mr Rabson Nkhata, (District Fisheries and Livestock Coordinator for Chifunabuli District), asked what the project was doing to build the capacity of local fingerling producers including the government-owned Fiyongoli Aquaculture Research Center in Luapula Province to produce and provide quality fingerlings to farmers.

In response, WorldFish explained that the Norad project has also been working in the issue of fingerlings. For example, the project is working with Tripple Blessings to make available sex-reversed fingerlings. Also, the project constructed a hatchery for catfish fingerlings in Kasama. Dr Catherine Mwema added that WorldFish is implementing another project titled Piloting inclusive business and entrepreneurial models for smallholder farmers and poor value chain actors in Zambia and Malawi. This project, which is funded by the GIZ, also focuses on improving the availability and the quality of fingerlings in Luapula and Northern provinces of Zambia.

Action point: Dr Mary Lundeba will follow up with Mr Rabson Nkhata to discuss how WorldFish can collaborate with Fiyongoli Aquaculture Research Center to improve the quality and availability of fingerlings.

d) Reflection on Partnerships and Synergy with other Ongoing Government Activities

There was a comment that the project needs to strengthen its collaboration with the Ministry of Fisheries and Livestock (MFL). The information presented by the MTR and the census could help the ministry in policy formulation and designing strategies to meet its objectives. For example, the ministry is trying to understand the role of the private sector in the aquaculture and fisheries sub-sectors. Some of the project information and resources could be useful in this endeavour. It was also noted that close collaboration with DoF under MFL could help to escalate some of the issues raised by the intervention project to high-level policymakers.

In response, the implementation team noted that there is already a high-level engagement with the DoF staff at the provincial, district and field level. Some of the DoF officers are engaged in activities or are aware of activities that are ongoing and actively participate. The synergy between the project and MFL has been there since the project launch. For instance, the project was launched by the Minister responsible for Fisheries and Livestock (through her Permanent Secretary) who was the Guest of Honour. Additionally, this dissemination meeting is an attempt to inform the ministry and other stakeholders about the progress the project has made and plans for the remaining time frame. *Action point:* The team can prepare a project brief/fact sheet of the midterm review and implication on

policy and aquaculture strategies for the Ministry of Fisheries and Livestock leadership at both the national, district and provincial level.

The Director of that Musika Development Initiatives (Musika) (one of the project partners), Mr Banda, stated, has a good working relationship with the parliamentary committee on agriculture land, and natural resources. As an *action point*, Mr Banda stated that he would use this existing relationship to leverage aquaculture issues. For example, Musika could target the ministry officials to visit the field to see what is happening with aquaculture on the ground. This high-level delegation could visit the field for a week so that when they get back to the capital, they can articulate aquaculture issues at a national level.

e) Reflections on Last-Mile Feed

The independent evaluators reported that with the help of the project between 2019 and 2020, three private feed millers (Aller Aqua, Novatek Animal Feed and Zhonghkai) had opened feed outlets in the northern region. Evaluators recommended in addition to the outlets which had been opened; the project needs to invest last-mile feed aggregators to bring feed closer to farmers. Some participants regarded this recommendation as great and timely. As a follow-up, Musika representative requested evaluators to provide information on private sector performance and other new entrants in the market to help Musika further engage them. Musika could also use this information to continue to encourage the private sector to invest in remote rural areas as last-mile distributors. Dr Catherine Mwema noted that the GIZ funded 'Piloting inclusive business and entrepreneurial models for smallholder farmers and poor value chain actors in Zambia and Malawi project', is building on the achievements of the AQTEVET project. The GIZ funded project is focusing on deepening the involvement of last-mile decentralised retailers and hatchery operators to get feed and seed closer to farmers. The AQTEVET project is doing this also by working with SMEs who are close to where the farmers are.

f) Reflections on Farmer Financing Facility

The independent evaluators reported that with the help of the project between 2019 and September 2020, three private feed millers (Aller Aqua, Novatek Animal Feed and Zhonghkai) opened feed outlets in the northern region. Mulenga added that most of the farmers know where to find or buy feed. The project the mid-term evaluators suggested that if possible, the project could link promising farmers to microfinance providers to access financing. They stated that there was a potential for engaging with microfinance institutions to be an additional partner for the project. Farmers gave an example of rearing broiler chickens as a farming enterprise that had benefited from microfinance loans. The evaluation team suggested that the project could partner with microfinance or other village banking models to explore the viability of financing smallholder aquaculture. Ms Susan Chakwira also felt that farmers in other agriculture sectors are supported, and the same should be extended to aquaculture. A farmer, Mr Venon Mutale supported this idea and mentioned microfinance institutions such as Altus Finance that are ready to offer loans to promising fish farmers. However, these financial institutions need an organisation to act as a bridge between them and the farmers. Dr Kathleen Katunansa Njobvu also supported the idea of loans. She gave an example of one successful smallholder fish farmer who failed to upgrade his earthen ponds to reduce water seepage because of lack of finance. Other extension officers also supported this idea.

Mr Banda from Musika sought clarification on the type of loan products the MTR were advocating for, and also clarification on the bridging arrangements for the other microfinance companies. He indicated that the smallholder aquaculture landscape is regarded as a risky area to invest in by financial institutions. He expressed concern that

farmers may rush to get these loans without understanding the cost structure of these loans. Mr Banda said,

"In most cases from the agriculture sector, which is well functional compared to the aquaculture market, loans are quite a challenge. Very few financial institutions are going to give us loans. From microfinance the costs are very high, even up to 60% interest. It means that you are setting yourself up for failure. Grants are cheaper to manage and low cost. There is a need to investigate more on financial inclusions and options that can be tailor-made to the industry. The cost of borrowing is high. If you borrow, you can set yourself up to fail. Farmers can employ a phased approach. We should explore value chain financing as opposed to loans."

Others participants supported Mr Banda's position. For example, Mirriam Kanyama stated that farmers who received the Citizens Economic Empowerment Fund (CEEC) loans from the government in 2013 have failed to pay back. Others have even abandoned their projects. Other farmers such as Mr Musanshi also supported the issue of grants after the explanation by Mr Banda. However, workshop participants emphasised that the grants should be based on co-financing principles to improve the grant recipient's commitment to success.

g) Reflections on Sustainability of Project Outcomes

Mr Ndala Shanda supported the idea of training SMEs on aquaculture. In addition to the aquaculture manuals as this will help to provide them with holistic information and knowledge base. He also suggested that SMEs who undergo that training should be awarded a skills certificate or a certificate of attendance.

h) Reflections on Other Services

Mr Francis Banda mentioned that in Kasama, there are no SMEs that supply aquaculture accessories (such as hapa material, aerators, water quality checkers, among others). Farmers source all equipment from Lusaka, which makes it expensive and also disadvantages women and young people who may fail to access these needed accessories.

Venon Mutale also wanted clarification on whether farmers can already access Zhongkhai feed. It was explained that the feed under Zhongkhai is still under experiment. After the results of the experiment, the team will then decide whether the results warrant it to be promoted or not. Results will be shared with stakeholders in September or October.

i) Other reflections and clarifications

During the presentation, evaluators explained that although the project had made significant progress, certain activities such as demonstration ponds (demo-ponds) had not yet been set up. Also, other technologies listed in the initial project plan had not yet been demonstrated. Dr Libakeni Nabiwa from Musika stated that the project decided to focus on feed and fingerlings after the team members realised that the smallholder aquaculture sector is rudimentary and informal. Before introducing and testing technologies such as automatic feeders, water quality meters and others, Dr Libakeni felt that it was essential to raise the farmer production, knowledge and technical skills to a level where they can be open to investing in other aquaculture related technologies in addition to the basic feed and seed.

The project also spent a lot of time than had been anticipated establishing the aquaculture markets for smallholders through private sector linkages which were non-existence in Luapula and Northern Province. This initial effort on market development coupled with the

outbreak of COVID 19 has delayed progress on testing the demo-ponds and other technologies listed by the MTR consultant.

Census Report

The Monitoring, Evaluation and Learning Coordinator for WorldFish, Keagan Kakwasha presented the findings of the smallholder fish farmer census that was conducted in Northern and Luapula provinces in 2019.

The key finds of the census are focus on the following key issues:

- The population of Smallholder Farmers and their Spatial Distribution
- Gender Analysis of the Smallholder Fish Farmers
- Input and Output Fish Markets
- Farmer Productivity and Incomes
- Challenges and Opportunities for Smallholder Aquaculture Production

See the presentation of findings [here](#).

After the presentation of the fish-farmer census, there was a plenary discussion session where participants sought clarification and reflected on the implications of the findings. Below we grouped the issues that were raised by the participants:

a) What more needs to be done?

Mr Given Mwila stated that the country still experiences a fish deficit and suggested that the project in collaboration with other programs and projects needed to intensify activities in the aquaculture sector in Zambia.

Mr Rabson Nkhata recommended that there was a need to provide location-specific results to districts. This will help districts to develop relevant strategies to tackle identified issues since some issue may be different from district to district.

b) More data needs

Mr Evans Mutanuka (Chief Fisheries Officer –capture fisheries unit) wanted more clarification on the survey data and had the following questions:

i. What is the nature of owned land since lending institutions need the security of tenure, such as title deeds to the land?

Response - Ms Mary Nyirenda clarified that three-quarters of the farmers have access to customary land, and very few have state-owned/individual titles.

ii. How relevant are government facilities (such as field research stations and fish farms) in providing fingerlings? And how can these facilities be improved to provide the services that they were set up to provide?

Response – WorldFish responded, that 90% of the farmers buy fingerlings from government-owned hatcheries. However, these hatcheries often run out of fingerlings which lead farmers to look for other sources of seed, including recycling their seed.

c) Addressing Sustainability of Project Outcomes

Mr Mutanuka proposed that the project needs a sustainability plan since it has been his experience that after donor-driven projects end, farmers abandon their investments.

Response – WorldFish responded that the issue of sustainability is at the core of the project model. For example, WorldFish and Musika are working with SMEs and other private sector actors and DoF to design support mechanisms to enhance project sustainability for the benefit of fish farmers.

d) Challenges of measuring harvest sizes

Dr Katunansa shared that since officers from the department are not engaged when the farmers harvest, the DoF has challenges estimating the smallholder sector annual production or yield. They are not able to collect this data at the point of harvest. She asked how this issue could be resolved. Solutions provided by the participants include:

- i. Consider using agriculture camp officers to collect data, especially since there are a limited number of fisheries officers. An average of 1 fisheries officer per district is not enough to get all the work done;
- ii. Consider using lead farmers to collect data.
- iii. Work closely with SMEs.
- iv. Design a simple template that can be standardised and used for data capturing

It was emphasised that efforts to coordinate these measures with other actors to avoid duplication of effort are essential. For example, the WorldFish is developing templates, and the ZAEDP project is developing similar templates. There are other online platforms such as the M-FLAIS developed by the Ministry of Fisheries and Livestock, under livestock development that can be utilised.

Evaluation of the First Session

The session organisers asked workshop participants to complete an online poll at the end of the first session. Participants were asked to respond to the following statement:

- My expectations for this meeting have been fulfilled.
- I would want to be involved in future dissemination events related to this project.
- I am now fully informed about the AQ TEVET project activities.

95% of the participants stated that their expectations had been fulfilled, while 5% disagreed

84% of participants agreed that they would want to be involved in future dissemination events, while the remaining participants disagreed

90% agreed that they were now fully informed about the AQTEVET project while 10% disagreed with the statement.

Vote of thanks

Mr Reuben Banda gave the vote of thanks at the end of the first session. He summarised the key issues that came up in the dissemination session and thanked the participants for their time and active participation.

4. Session 2: Project Planning

The planning meeting started with reflections on the first session by the project implementation team. Team members appreciated that the session was well attended.

Reflection on the results of the MTR

Team members highlighted the following as key takeaway messages from the MTR:

- a) The students appreciated the online learning platform for component 1. So the online learning platform needs to be integrated into the scaling phase. Online learning has become critical, especially in the context of Covid-19;
- b) It was clear from the MTR presentation that farmers and SMEs appreciated the role played by the interns in extension services to both the farmers and SMEs;
- c) Component 1 has developed many products such as short-term courses and the aquaculture skills training centre that have not yet been utilised by the targeted stakeholders; partly because of Covid-19. There is a great need to start utilising products such as short courses and the aquaculture training centre;
- d) There is a great need to look at the value chain financing models since finance was raised as a key issue. There is a need to explore the most feasible financing models that can work for smallholder farmers and students who want to go into the fish farming business;
- e) The models around aggregation of fish may need to be strengthened. There was one recommendation on working with cooperatives in terms of training to reach more women and also the volumes needed for trade.
- f) The need to share the draft evaluation report as soon as possible so that team members can provide feedback to the consultant;
- g) Need to continue developing approaches to engage women and young people and,
- h) Develop strategies for project sustainability

Reflection on the Census Report

Team members highlighted the following as key takeaway messages from the census results presentation:

- a) The census reflected the main challenges that the project is trying to address. The issue of lack of markets for grow-out fish, lack of access to feed and fingerlings were key challenges.
- b) The census was comprehensive but could not address some key questions such as knowing other livelihood activities carried out by smallholder fish farmers. This information can help the team to identify potential spillovers.
- c) There is a need to provide district-level data to the district DoF offices because challenges and opportunities may vary from district to district. For instance, while some districts may suffer from water shortages, others may not.
- d) The team should engage with the DoF, ZAEDP and FAO to see what data tools they have developed and if these can be used in Northern and Luapula Provinces. It is better to synchronise the templates that are being used so that farmers do not have too many templates.
- e) The need to develop good relationships of trust between camp officers, DoF officers and farmers was highlighted in the plenary reflections in session 1.

Update on Project Implementation in 2020

After the reflections, WorldFish shared the templates that would guide the discussion of the 2020 and 2021 work plans (See update on pending activities for 2020 in Annex 3 and the 2021 Workplan in Annex 4). Using these templates, the team first discussed progress against the 2020 work plan.

The following were major issues discussed by the participants.

- i. **Impact of Covid-19 on Project Implementation** - The advent of COVID19 disrupted the implementation of several activities for both component 1 and 2. Under component 1, NRDC locked down due to COVID19 restrictions. Hence some activities related to the evaluation of the e-learning platform, and internship program development validation could not take place (Please see details in Annex 3). However, activities that could be executed virtually continued. For example, development of the internship program, development and validation of the short courses curriculum, development of a sustainability plan for the aquaculture training centre all continued and were completed.

As a result of mobility restrictions and limits to the number of people in gatherings, activities under component 2 of the project were delayed and disrupted (Please see Annex 3 for details). Component 2 team also formulated several WhatsApp groups to help support farmers with information and training. Aller Aqua and other private sector players are active members of the groups and often disseminate information through these platforms.

WorldFish has also developed a COVID19 safety plan to enable the implementation of activities during outbreak whilst observing nationally stipulated safety guidelines.

- ii. **Issues specific to Component 1** - The need to develop a model to work with students under the following activities is critical:
 - a) Explore and set up options with finance Institutions to support aquaculture businesses for students who wish to start up their aquaculture business enterprises after their training and,
 - b) *Students to develop aquaculture business proposals*: While financial linkages are critical, models that enable students to get cheaper finance should be explored. The project will select ten students among the outgoing third-year students (five men and five women) to work with on the proposed model. Since these students did not undergo the business and entrepreneurship training course, they can be given some additional training by the project. There is a need to realign the project budgets to accommodate this need. It is challenging to deal with students who are still studying. However, it would be easy to engage the outgoing students after they finish their examinations. NRDC will advise on the students' selection criteria.
 - c) *Marketing strategy* - While the marketing strategy was submitted to NRDC for approval, Mrs Hellen Nkhata from NRDC will follow up on its status.
 - d) *Scaling* - The issue of scaling was discussed under component 1. Workshop participants suggested that the upgraded curriculum and online training platforms could be scaled out to local universities such as Copperbelt University, University of Zambia and Mulungushi University. Beyond Zambia, the upgraded curriculum could be scaled up to other universities in the region such as the Chinhoyi University of Technology in Zimbabwe. However, these scaling activities will need funding.

Morten from BluePlanet informed the meeting that the private sector in Norway pays for the development and sustainability of the Salmon Platform as building the content for the platform is expensive. There is, therefore, a need for additional funds to keep the Tilapia component on the BluePlanet platform. He also stated that everyone who has access to the BluePlanet academy on the Tilapia course could also access the salmon content. The salmon component has more than 600 videos, some of which can also be adapted for other fish species. WorldFish asked for clarification from BluePlanet regarding use of the platform by private sector actors in Zambia. Morten responded that the platform could be scaled out to the private sector. WorldFish/NRDC could supply BluePlanet with the names and email addresses of the individual private sector players who wanted to evaluate the content to see if their staff could benefit from the course. If interested, the additional staff can be added to the platform at a fee.

WorldFish also asked Morten for clarification regarding the scaling of the platform vis-à-vis the scaling efforts to date, especially those targeting the private sector. Morten highlighted the following private actors:

- *Lake Harvest in Zimbabwe* - Initially, 20 managers used the platform. Currently, they are registering close to 100 participants from Lake Harvest. Connectivity challenges have been experienced, but Lake Harvest is working on addressing that. Lake Harvest has also sponsored the development of additional content, particularly on internal procedures. The content on internal procedures is only visible to Lake Harvest because it's related to the core business of the company. However, BluePlanet is negotiating with Lake Harvest to make the other content which is not related to Lake Harvest's internal procedures available to other users of the platform.
- BluePlanet is also trying to build more content with Skretting, particularly on feed. Skretting is trying to scale this to ensure a basic knowledge of fish farming. Skretting is a big supplier of feed to Lake Harvest.
- In Uganda, Rwanda, Kenya and Tanzania, BluePlanet is also working with FoodTech Africa to scale up the platform.
- Other scaling activities are going on in Ivory Coast.

iii. **Issues specific to component 2** – the key issues discussed by the participants are:

- a) *Gender responsiveness to innovation approaches* - Demonstration ponds: nine (9) fish farmers will host these ponds. Five of the host farmers will work with Zhongkhai, and four of the host farmers will work with Aller Aqua. Only three of the host farmers are women. Dr Libakeni Nabiwa explained that Aller Aqua was only able to identify one woman to host demonstration ponds. The actor wanted to work with farmers who can manage ponds and pay back 50% of the cost of feed. Several women who were asked to host demonstrations were not willing to do so. Most of those who declined the offer to host did not have free ponds at the time that could be stocked for the demonstrations. Two other women who were willing to participate did not qualify because they were located outside the project area.

The project is offering a 30% discount on the fish feed that farmers are buying from Novatek to test the feed and stimulate their interest. Musika is considering an additional 5% discount for women farmers that purchase seed. Musika will provide a list of farmers (including sex, and age) of farmers who get these promotional materials for further follow-up.

- b) *Monitoring of field days* – WorldFish, through the MEL coordinator and its Kasama office, will develop a tool to monitor the field days. During field monitoring of

demonstration ponds, host farmers are encouraged to invite a minimum of 10 farmers. The monitoring tools will be implemented at each event with these farmers. Those hosting demonstration ponds are encouraged to invite couples as well as other single women to increase the participation of women.

For the larger field days which are attended by many people, including government officers, farmers, NGOs, a sample of the attendees could be asked to review the field day and give feedback.

Presentation of the Financial Report

WorldFish through the Project Accountant, Phyllis Kabamba, presented the financial report up to 31 September 2020. The report provided details regarding the burn rates for the different components of the project. She emphasised that the 2020 workplan should be within the limits of the available budget. Questions revolved around what would happen with Component 2 remaining activities after the end of Musika's contract in February 2021. Mr Munkombwe stated that Musika had signed MoUs with the private sector actors that will go up to June 2021. He also expressed Musika's commitment to the project and interest in continuing to engage with project activities if possible after February 2021.

There were several suggestions to address this issue:

- a) Musika stated that it could leverage funds from other projects to continue engaging with the private sector players and WorldFish;
- b) WorldFish could take over the activities but involve Musika during the implementation of activities and reporting and,
- c) If the project still has funds, WorldFish and Musika could sign an addendum to ensure that the remaining activities are carried out.

5. Session 3: Scaling

Participants in this session included representatives from Universities/colleges, local and international NGOs, representatives from GIZ, representatives from Ministry of Agriculture and Department of Fisheries as well as representatives from the co-project team organisations.

WorldFish through the Project Leader, Netsayi Mudege made a presentation on the Principles and Importance of Scaling. She also explained the purpose of the session. The purpose was to initiate a discussion to map the innovations from the project that has the potential for scaling. WorldFish made it clear that there no funds at present to scale up the innovations to be identified. The activity was designed to provide a platform for stakeholder engagement on potential mechanisms for scaling the work done under the AQTEVET project.

Specific issues that were highlighted by WorldFish include:

- i. What is scaling?
- ii. Innovation package and innovation systems for scaling;
- iii. Various steps in scaling including identification of innovation packages, understanding the innovation system, and, defining intended scaling outcomes,
- iv. Identifying scaling bottlenecks,
- v. The role of complementary innovations in scaling and,
- vi. Defining stakeholders to be involved and targeted in scaling.

See the presentation [here](#).

After the presentation, workshop participants were divided into two groups for the breakout sessions. One group focused on mapping innovations for scaling under component 1 of the project whilst the other group was tasked to identify the innovations for scaling under Component 2 of the project. Lizzy Muzungaire (WorldFish) and Morten Bergslen (BluePlanet Academy) were tasked to lead the breakout session on Innovation for Scaling under Component 1. Keagan Kakwasha (WorldFish), Mary Lundeba (WorldFish) and Libakeni Nabiwa was asked to lead the breakout discussion on Component 2. Group participants were given guiding questions to respond to as part of the group work (See Annex 5). After group work, the teams presented the results of the discussions in the plenary session. Below are the results for each group discussion and reflections during the plenary session:

Innovations for Scaling Under Component 1

a) Define the core innovation/Innovations from the component that you would consider for scaling.

The team agreed that innovations that should be considered for scaling are both soft innovations and selected hard innovations. Tangible technologies, such as seed and feed, can be regarded as hard technologies. Institutional innovations and business models can be regarded as soft innovations. Dr Libakeni Nabiwa, proposed fish feed as the core innovation. At the same time, fingerlings, market linkages, training and value chain financing are complementary innovations. He suggested feed as the core innovation since it constitutes close 60% of the cost of aquaculture production. Scaling up innovations around fish feed would make it low cost benefiting many farmers. Dr Libakeni Nabiwa, also proposed the urgent need to scale out the catfish component (fingerlings for catfish) to

promote catfish at a larger scale. He stated that there was already a huge market for dried and smoked catfish in the Democratic Republic of the Congo. He noted that there are very few large commercial players in Northern and Luapula regions except along the Lake Tanganyika. He felt that if farmers can get cheaper feed and get fish species that grow faster, they can increase the profit margins of their operations.

WorldFish added that the project could scale up the catfish using the approach used by Kasakalabwe Multi-purpose Cooperative. WorldFish also proposed that the radio programs were also critical for scaling. During an evaluation, there was a massive demand for radio programs by farmers. They said that the programs helped them to know where to find fingerlings, advantages of sex-reversed fingerlings, use of feed and other better management practices.

Some participants proposed that if successful innovations beings tested with Zhonghkai on cheap feeds could also be scaled.

WorldFish further proposed that the inputs **distribution and output marketing models** which engaged the private sector players to provide extension, inputs and output markets were the co-innovation that could be scaled out. The model of seconding an intern with these private sector players and providing motorbikes for mobility was considered co-innovations as these were critical to improving extension services as interns spend more time engaging with farmers.

b) Discussion on whether or not the core innovations should be scaled in this context, and why?

There was a big discussion about areas for potential scaling in Zambia. Some team members suggested Northwestern and Western provinces where they have lots of wetlands. Some participants cautioned the group to be careful when selecting regions for scaling. Northern and Luapula provinces have low levels of aquaculture commercialisation. It was recommended that it was better to focus on a mix of regions with various levels of commercialisation. This diversified regional focus can enable the private sector to define the mechanism for profit maximisation in the combination matrix of regions for scaling.

Keagan Kakwasha mentioned that Novatek had a big regional office in the Northwestern province. Dr Libakeni Nabiwa from Musika explained that in that region, Novatek thrives on poultry feeds since there is a huge demand for poultry in the mining areas. Aquaculture feeds most likely consist of a small portion of feeds sold. However, it would be good if the project can leverage on such infrastructure for scaling.

WorldFish suggested that the CGIAR, including WorldFish, has the mandate to uplift the underdeveloped areas as well as to lift people living in those areas out of poverty by providing alternative livelihoods. Thus, focusing only on commercial hotspots at the expense of other regions will defeat the purpose. WorldFish emphasised that while we need to be strategic in our scaling, WorldFish is pro-poor, and we work in the least developed zones.

WorldFish also suggested that we need to look at provinces from a business standpoint. Others require heavy lifting because of other constraints. It was observed that the low engagement of private sector actors in Luapula and Northern provinces provides the project with an opportunity for impactful investment.

Though the project is still validating and strengthening the proof of concept, the group agreed on the importance of empirical evidence to demonstrate the achievement of the projects on various innovations.

Zimbabwe - Dr Crispen Phiri informed the group that the aquaculture sector in Zambia is bigger than in Zimbabwe. However, the problems that beset Zambia's aquaculture sector are similar to Zimbabwe, so scaling the model to Zimbabwe would be relevant. Fish feed is a challenge in both Zimbabwe and Zambia. Zimbabwe had an excellent feed production sector in the region. Today Zimbabwe imports feed because of increased demand for feed in the aquaculture sector. Some fish producers such as Lake Harvest are importing feeds from Zambia. He stated that while it is attractive to look at places with good infrastructure, we should not to lose focus of the vulnerable small-scale aquaculture farmers. The aim should be to boost their livelihoods and improve their life.

While Zimbabwe does not have as many water bodies as Zambia, it has the highest number of human-made dams in Southern Africa after South Africa. There is an increasing demand for extension services among farmers who are using their small dams for aquaculture. So there is a need to strengthen skills as well as the aquaculture value chain. He described the aquaculture activities in Zimbabwe as follows:

- Lake Harvest along Lake Kariba being the most significant player in the aquaculture sector in Zimbabwe
- The community-based operator on lake Kariba
- Across the country – private institutions who are opening up aquaculture in areas with dams and high rainfall.
- Aquaculture Zimbabwe is an organisation that is supporting smallholder farmer and has had significant successes.
- Around Harare – residents are converting swimming pools into aquaculture units.

c) *What would be the intended scaling outcome?*

The team identified the following as possible scaling outcomes:

- Increase accessibility to inputs (seed and feed)
- Increased incomes
- Increase production
- Increased profitability

For the Zimbabwe component, Dr Crispen Phiri also suggested it would be essential to have a nutrition-related outcome.

The group ran out of time to discuss the other questions.

Innovations for Scaling Under Component 2

a) *Define the core innovation/Innovations from the component that you would consider for scaling.*

The team identified the co-innovation as the upgraded curriculum with e-learning as its complementary innovation.

b) *Discuss whether/not the core innovations should be scaled in this context, and why?*

The team agreed that the innovations should be scaled beyond Zambia to improve the sector as well as reduce the risk of people masquerading as fisheries expert.

A workshop participant asked whether it was possible to scale an upgraded fisheries curriculum or postgraduate initiative and have a regional centre of excellence for fisheries and aquaculture set up. In response, Dr Crispin Phiri stated that there were efforts in the past to set up a regional short course in Chinhoyi Kariba. The idea at that time was to try and develop a regional program at SADC level. The discussions have since stalled. However, the different parties to the discussion were trying to figure out at what level could the curriculum be harmonised. Chinhoyi University wanted a regional undergraduate level course so that students in Zambia, Malawi & Mozambique could attend the core modules in Zimbabwe. They would then attend specialised modules at the regional universities with key competencies on a specific topic and still attain a degree that is recognised across the region. The different countries could then host different centres of excellence. For example, Zambia could host a centre of excellence for fish feed and nutrition, Malawi a centre of excellence on fish health. These negotiations died down because of a lack of a coordinating body. He stated that at the time WorldFish was coordinating the discussions and when it stopped, and the entire process collapsed. He emphasised that because of heavy teaching loads academics lose focus quickly and need someone from outside the academia to drive the process.

c) *What would be the intended scaling outcome?*

The intended outcomes of the upgraded and harmonised curriculum were described as follows:

- A curriculum that produces highly knowledgeable and skilled graduates;
- A curriculum that equips potential extension agents with skills and knowledge to help farmers to improve production and productivity to develop an aquaculture value chain and,
- Increased production and productivity in aquaculture

d) *Will the selected innovation for scaling be useful, to contribute to your institution and national or international development objectives? If so, which ones?*

- Institutional to national to international (NRDC to UNZA to Chinhoyi and international through an online platform which can be spread internationally)
- SDGs (Hunger/employment/gender/youth)
- 7NDP
- National development plan

e) *What are the complementary innovations that would be necessary to support this innovation?*

- Online platform to intensify aspect of availability of quality seed and feed (can be linked to Skretting and Lake Harvest)
- Short courses curriculum (with intensified aspects of seed and feed)
- The field training centre can be turned into a centre of excellence to research low cost feeds using locally available raw materials
 - . For example, the research with Zhongkhai could be escalated.
 -
 -
 - There was a discussion about developing feeds that do not compete with human nutrition needs. Prof Crispen Phiri stated that there is a lot of work going on using insects. However, now there is a global movement to encourage humans to consume insects. This which means that there will always be competition between fish feeds and usage of raw materials for human nutrition. He stated that there is a great need to invest in research in aquaculture feeds in Southern Africa to get some concrete ways to reduce the cost of feed. He, however, emphasised that the sector will always compete for raw materials with other sectors, including human consumption.
- Compliance with institutional/national/regional regulatory guidelines

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

The following potential stakeholders were listed

- Academia (NRDC/University of Zambia/Chinhoyi University of Technology/Mulungushi University/Copperbelt University)
- Private sector (BluePlanet/Skretting/Aller Aqua)
- Microfinancing institutions
- NGOs (WorldFish/Musika)
- Government
 - Ministries responsible for fisheries, gender, youth and education and finance;
 - CEEC
- Research institutions (WorldFish/IAPRI/NSIR)
- Aquaculture Associations (ADAZ)
- Media
- Donor community

Session 3 Evaluation

At the end of the session, workshop organisers implemented a poll in which participants were asked to respond to the following statements and question:

- In your opinion, did the session on scaling meet its objectives?
- In your opinion did you get all information regarding the objectives of the session
- If we were to have another session on scaling in future what should we improve?

100% of the session participants agreed that the session had met its objective.

100% of participants said they had all the information regarding the objectives of the session

53% of participants suggested that in future, the organisers of the session could share more information before the workshop. 33% of participants felt that more time could be allocated. 13% of the participants felt that there was nothing to improve.

Closing Remarks

The workshop was officially closed by the WorldFish Country Director for Zambia and Southern Africa, Victor Siamudaala. In his closing remarks, Victor emphasised the need for continued collaboration to grow the aquaculture industry in the region. He implored the workshop participants to continue exploring potential scaling pathways and creating technologies and innovations that will stimulate productions and strengthen market linkages. He also called upon the partner organisations to work together for joint resource mobilisation to scale up the innovations if these innovations are to benefit many farmers.

Annex 1: Workshop Agenda

Day1: 28 October 2020

| Time | Content | Facilitator |
|--|--|---|
| Session 1: Dissemination of results | | |
| 09:00 – 09:30 | Logging in and Registration | Lizzy Muzungaire (WF) |
| 09:30 - 09:40 | Welcoming and Opening Remarks | Victor Siamudaala (WF) |
| 09:40 – 09:50 | Meeting Overview and Objectives | Netsayi N Mudege (WF) |
| 09:50- 10:20 | Presentation: Project Mid-Term Review | Mulenga M Mukanu (Independent Reviewer) |
| 10:20- 10:50 | Reflection: Project Mid-Term Review | Lizzy Muzungaire |
| 10:50-11:20 | Presentation: Fish Farmer Census Report (Northern Region) | Keagan Kakwasha |
| 11:20- 11:50 | Reflection: Fish Farmer Census Report | Libakeni Nabiwa (Musika) |
| 11:50-12:00 | Meeting evaluation and next steps | Keagan & Netsayi |
| 12:10-12:20 | Vote of thanks (END OF SESSION 1) | Reuben Banda (Musika) |
| Session 2: Planning meeting | | |
| 12:20-12:30 | Team Reflections | Joshua Munkombwe (Musika) |
| 12:30-13:00 | Review of 2020 work plan and the effects of COVID19 on project implementation (progress, deliverables, outputs and impact) | Component 1: Team Component 2: Team |
| 13:00-14:00 Lunch | | |
| 14:00- 16:30 | Review of 2020 work plan and populating 2021 work plan taking into account the MTR findings (breakout rooms) | Component 1: Team Component 2: Team |
| 16:30- 16:40 | Presentation: Financial Report | Phyllis Kabamba |
| 16:40- 16:50 | Reflection: Financial Report | Netsayi N Mudege |
| 16:50 | Day end and next steps | Netsayi N Mudege |

Day2: 29 October 2020

| Time | Content | Facilitator |
|---------------------------|---|--|
| 09:00 – 09:10 | Recap | Netsayi N Mudege |
| 09:00 – 10:20 | Plenary presentation: Detailed Workplan component 1 and reflections and endorsement | Lizzy Muzungaire |
| 10:20- 11:40 | Plenary presentation: Detailed work plan component 2 and reflections and endorsement | Libakeni Nabiwa |
| 1140 – 12:00 | Finalisation of work plan and alignment of work plan with financial report and reflections (Breakout session) | Component 1: Team Component 2: Team |
| 12:00 – 12:10 | Next Steps | Netsayi N Mudege |
| 12:10 | End of Session 2 | |
| Session 3: Scaling | | |
| 14:00- 14:10 | Log-in and registration | Lizzy Muzungaire |
| 14:10- 14:25 | Presentation on scaling – to guide the scaling discussion | Netsayi Mudege |
| 14:25-14:30 | Reflections and clarification | Netsayi Mudege |
| 14:30 – 16:00 | Group 1: discusses component 1 scaling (Breakout room) | Lizzy & Morten |
| | Group 2: discusses component 2 scaling (Breakout room) | Libakeni, Mary and Keagan |
| 16:00- 16:30 | Presentation of scaling ideas & reflection Component 1 Component 2 | Lizzy Muzungaire Netsayi Noris Mudege |
| 16:30 – 16:35 | Session Evaluation | Keagan Kakwasha |
| 16:35 – 16:40 | Next steps | Netsayi N Mudege |
| 16:40-16:50 | Vote of thanks | Victor Siamudaala |
| 16:50 | End of the planning meeting | |

Annex 2: List of workshop participants by session

| | Name | Organisation | Designation | Sex | Location | |
|----|--------------------|--------------------------------|---------------------------------|-----|----------|------------------------|
| 1 | Victor Siamudaala | WorldFish | Country Director | M | Lusaka | V.Siamudaala@cgiar.org |
| 2 | Netsayi Mudege | WorldFish | Senior Scientist/Project Lead | F | Lusaka | N.Mudege@cgiar.org |
| 3 | Lizzy Muzungaire | WorldFish | Project Manager | F | Lusaka | L.Muzungaire@cgiar.org |
| 4 | Mary Lundeba | WorldFish | Scientist | F | Lusaka | M.Lundeba@cgiar.org |
| 5 | Keagan Kakwasha | WorldFish | MEL Coordinator | M | Lusaka | K.Kakwasha@cgiar.org |
| 6 | Tabitha Mulilo | WorldFish | Communication Specialist | F | Lusaka | T.Mulilo@cgiar.org |
| 7 | Mercy Sichone | WorldFish | Research Assistant | F | Lusaka | M.Sichone@cgiar.org |
| 8 | Henry Kanyembo | WorldFish | Research Assistant | M | Lusaka | H.Kanyembo@cgiar.org |
| 9 | Phyllis Kabamba | WorldFish | Paccountant | F | Lusaka | P.Kabamba@cgiar.org |
| 10 | Hanzunga Halumamba | WorldFish | IT Specialist | M | Lusaka | H.Halumamba@cgiar.org |
| 11 | Catherine Mwema | WorldFish | Post Doctoral Fellow | F | Lusaka | C.Mwema@cgiar.org |
| 12 | Reuben Banda | Musika Development Initiatives | Managing Director | M | Lusaka | reuben@musika.org.zm |
| 13 | Pamela Hamasaka | Musika Development Initiatives | Director-Cooperate Affairs | M | Lusaka | pamela@musika.org.zm |
| 14 | Joshua Munkombwe | Musika Development Initiatives | Director-Operations | F | Lusaka | joshua@musika.org.zm |
| 15 | Nabiwa Libakeni | Musika Development Initiatives | Manager-Aquaculture Development | M | Lusaka | libakeni@musika.org.zm |
| 16 | Victor Mushala | Musika Development Initiatives | Director-Finance | M | Lusaka | Victor@musika.org.zm |

| | Name | Organisation | Designation | Sex | Location | |
|----|--------------------|---------------------------------------|-----------------------------------|-----|----------|--------------------------------|
| 17 | Jayne Mutelo | Musika Development Initiatives | | F | Lusaka | jayne@musika.org.zm |
| 18 | Morten Bergslien | BluePlanet Academy | CEO | M | Norway | morten.bergslien@blueplanet.no |
| 19 | Manda Sinkala | Natural Resources Development College | Registrar | M | Lusaka | sinkalamanda@yahoo.co.uk |
| 20 | Hellen Nkhata | Natural Resources Development College | Head-Basic Sciences and Fisheries | M | Lusaka | hellenmuk@hotmail.com |
| 21 | Ziezo Nchimunya | Natural Resources Development College | Head-Education | F | Lusaka | ziezo.sikananu2@gmail.com |
| 22 | Muleya Mweetwa | Natural Resources Development College | Head-Agribusiness | M | Lusaka | mweetwa@nrdc.biz |
| 23 | Brenda Musonda | Natural Resources Development College | Training Officer | F | Lusaka | brenda1972musonda@gmail.com |
| 24 | Brian Chimbanga | Natural Resources Development College | Training Officer | M | Lusaka | bmwitwa@yahoo.com |
| 25 | Masautso E. Sakala | Natural Resources Development College | Training Officer | M | Lusaka | mas.sakala@gmail.com |
| 26 | Nils Vestvik | BluePlanet Academy | Programmer | M | Norway | nils.vestvik@blueplanet.no |
| 27 | Mulenga Mukanu | Independent Consultant (MTR) | Independent Consultant (MTR) | F | Lusaka | miss.mukanu@gmail.com |
| 28 | Liseteli Ndiyoi | Independent Consultant (MTR) | Independent Consultant (MTR) | M | Lusaka | lisetelin@gmail.com |
| 29 | Felix Mulenga | Kasakalabwe | Director | M | Kasama | Mulengafelix74@gmail.com |
| 30 | Wilbroad Musanshi | Hopeways | Director | M | Mansa | Hopeways01@gmail.com |
| 31 | Mubanga Seketeni | Adsek Enterprises Ltd | Director | M | | mubangaseketeni@gmail.com |
| 32 | Ndala Shanda | Kasama Farmers Basket | Director | M | Kasama | Ndasha1@gmail.com |

| | Name | Organisation | Designation | Sex | Location | |
|----|--------------------------|--------------------------------|--------------------|------------|-----------------|---------------------------|
| 33 | Mwamba Mutale Evans | Evamuta General Dealers | Director | M | Kasama | mwambam472@gmail.com |
| 34 | Francis Banda | Musika Development Initiatives | Intern | M | Kasama | francisbanda905@gmail.com |
| 35 | Thandiwe Foroma | Musika Development Initiatives | Intern | F | Mansa | thandiweforoma@gmail.com |
| 36 | Chibamba Malata | Musika Development Initiatives | Intern | M | Luwingu | chibambamalata@gmail.com |
| 37 | Misozi Ngulube | Musika Development Initiatives | Intern | F | Kasama | ngulubemisozi@gmail.com |
| 38 | Febby Siwiliza | Kasakalabwe farmer | Farmer | F | Kasama | |
| 39 | Janet Katongo | Kasakalabwe farmer | Farmer | F | Kasama | |
| 40 | Agness Bwalya | Kasakalabwe farmer | Farmer | F | Kasama | |
| 41 | Hildah Koni | Kasakalabwe farmer | Farmer | F | Kasama | |
| 42 | Laina Mvula Kapotwe | Hope Ways farmer | Farmer | F | Mansa | |
| 43 | Petronella Mumpangwe | Hope Ways farmer | Farmer | F | Mansa | |
| 44 | Henry Chilinda | Hope Ways farmer | Farmer | M | Mansa | |
| 45 | Venon Mutale | Hope Ways farmer | Farmer | M | Mansa | |
| 46 | Gloria Chitoshi | Triple Blessing Farmer | Farmer | F | Luwingu | |
| 47 | Kapambwe Nkole | Triple Blessing Farmer | Farmer | M | Luwingu | |
| 48 | Batonga Paul Chisanga | Triple Blessing Farmer | Farmer | M | Luwingu | |
| 49 | Mumbi Silvester | Triple Blessing Farmer | Farmer | M | Luwingu | |
| 50 | George Mwila | Hatchery Operator | Farmer | M | Mbala | |

| | Name | Organisation | Designation | Sex | Location | |
|----|--------------------|-------------------------------------|--------------------|-----|-------------|-------------------------------|
| 51 | Steven Pule | Hatchery Operator | Farmer | M | Kawambwa | |
| 52 | Mr. Chen | Zhongkai | Director | M | Lusaka | mcyzambia@gmail.com |
| 53 | Malawo Sikabalu | Skretting | Field Services | M | Siavonga | sikabalu.malawo@skretting.com |
| 54 | Royd Mukonda | Mukasa Agro Dealers | Technical Services | M | Kabwe | mukondaroyd@gmail.com |
| 55 | Mfuno Mwendalubi | Department of Fisheries | DoF Officer | F | Mporokoso | lubi.m2@gmail.com |
| 56 | Susan Chakwira | Department of Fisheries | DoF Officer | F | Chipili | susanchakwira@gmail.com |
| 57 | Miriam Kanyama | Department of Fisheries | DoF Officer | F | Mpulungu | seyubamiriam@yahoo.co.uk |
| 58 | Musonda Mushili | Department of Fisheries | DoF Officer | M | Kawambwa | musondamushili12@gmail.com |
| 59 | Mary Nyirenda | Department of Fisheries | DoF Officer | F | Mbala | nyirendaangiwe@gmail.com |
| 60 | Sanford Mazimba | Department of Fisheries | DoF Officer | M | Mansa | millanmazimba@gmail.com |
| 61 | Africa Muzungaire | Department of Fisheries | DoF Officer | M | Chipili | africamuzunga@gmail.com |
| 62 | Tafadzwa Chevo | University of Zimbabwe | Senior Lecturer | M | Zimbabwe | chevotafadzwa2@gmail.com |
| 63 | Evans Mutanuka | Department of Fisheries | DoF Officer | M | Lusaka | evansmutanuka@gmail.com |
| 64 | Rabson Nkhata | Ministry of Fisheries and Livestock | MFL Coordinator | M | Chifunabuli | rabsonnkhata@yahoo.com |
| 65 | Kathleen Katunansa | Ministry of Fisheries and Livestock | MFL Coordinator | F | Mansa | kathleenkatunansa@yahoo.com |
| 66 | Libanga Ochola | Kasaka Fisheries Training Institute | Lecturer | F | Kafue | lochola@live.com |
| 67 | Precious Daka | MFL | DoF Officer | F | Mungwi | dakaprecious8@gmail.com |
| 68 | Eva Nambeye | University of Zambia | Lecturer | F | Lusaka | evanambeye@gmail.com |
| 69 | Crispen Phiri | Chinhoyi University of Technology | Senior Lecturer | M | Zimbabwe | crispenphiri@gmail.com |

| | Name | Organisation | Designation | Sex | Location | |
|----|----------------------|-----------------------------------|----------------------------|-----|----------|--|
| 70 | Mzime Ndebele-Murisa | Chinhoyi University of Technology | | F | Zimbabwe | murisa.mzime@gmail.com |
| 71 | Robert Kanyembo | Novatek | Field Services | M | Lusaka | |
| 72 | Oswin Chibinga | University of Zambia | Dean-School of Agriculture | F | Lusaka | oswin.chibinga@unza.zm; ochibinga@gmail.com |
| 73 | Mwangala | GIZ | Field Services | M | Luapula | |

Key

| | |
|--|----------------------------|
| | Attended sessions 1, 2 & 3 |
| | Attended session 1 only |
| | Attended sessions 1 and 3 |
| | Attended session 3 only |

Annex 3: Pending 2020 activities and the impact of COVID19

| 2020 Pending activities | Reason | Activity Detail | Delivery date |
|--|---|-----------------|------------------|
| 1. Training students from NRDC using the upgraded curriculum, tools, and online training platform | | | |
| 1.4 Development of the internship program Aquaculture skills training centre launch Online training platform | The internship program was developed and submitted to NRDC for review and comments. The online platform was launched and is being implemented. However, the aquaculture skills Center was not launched because of delays in ZESCO connection. It will be launched on 18 November 2020 | | 18 November 2020 |
| 1.14 Review of the online training platform | On course. One review was conducted in 2019 and a second review in planned for December 2020, | | 05 December 2020 |
| 2. Students from NRDC gaining practical skills through internships specifically tailored to address the needs of the private sector | | | |
| 1.5 Implementation of the internship program | Delayed due to covid19 since NRDC shut dow. NRDC management to review the draft internship program on 12 November 2020, and thereafter give feedback to WF by 16 November and WF sets up date for validation on 26 November 2020 | | 28 December 2020 |
| 1.6 Reflection on the internship program with students, staff and potential employers from both government and private sector | This activity is dependent on the implemenation of the internship program hence it has also been delayed due to COVID19..... student placement in various farms and organisations in January 2021 | | 16 March 2021 |
| 1.7 Set up student profiles on NRDC website (linked to communications activities) | On Course | | 13 November 2020 |

| 2020 Pending activities | Reason | Activity Detail | Delivery date |
|--|--|-----------------|---------------|
| 3. Students from NRDC finding gainful employment with companies operating in the aquaculture value chain or set up their aquaculture-related businesses | | | |
| 3.1 Explore and set up options with Finance Institutions to support aquaculture businesses students who wish to start after their training | Need to find money from the budget to for students workshop on entrepreneurship and fund students proposals. On course | | January 2020 |
| 3.2 Students develop aquaculture business proposals | On course | | |
| 3.3 Implementation of the marketing strategy | On Course | | |
| 3.4 Monitoring of the marketing strategy | On course | | |
| 4. Scaling the upgraded fisheries/aquaculture package for adoption/modification by other TEVET institutes in Zambia | | | |
| On course | | | |
| 4.1 Dialogue with Mulungushi University, Copperbelt University, University of Zambia, and Chinhoyi University of Technology and others to determine the possibility of scaling of the aquaculture curriculum package | On course. Scaling done with KFTI in and Zambia and online training scaled with Lake Harvest of Zimbabwe private sector fish farm. | | |
| 4.2 Determining how the online training platform can be scaled and used by the private sector | | | |

| 2020 Pending activities | Reason | Activity Detail | Delivery date |
|---|---|--|---------------|
| 5.1 Assessment and engagement of market actors | | | |
| 5.1.4 Mapping of Commercially oriented areas-market points, storage facilities, mobile markets-Munada | Delayed due to COVID19 lockdowns but markets points collected. Storage facilities not mapped | Maps on Market points and storage facilities | 30-Nov |
| 5.2 Commercially-oriented, gender- and youth-responsive market research | | | |
| 5.2.4 Design cost-shared field days and promotional activities, All Actors/SMEs | Field days were designed, but implementation was delayed due to the nationwide COVID19 Lockdown. Implementation of this activity will start in October 2020. Promotional Activities related to radio programs were implemented but will continue to be implemented until February 2021 | One field day each for Zhongkai and Aller Aqua(2020/2021). Feed promotion and radio programs for Novatek linkage with 8 SMEs(Hope Ways, Muletus, Adsek, Chilos, Triple Blessings Center, Eva Muta, Kasama Farmers Basket and Kasakalabwe) will continue in 2020-2021 | 21-Feb |
| 5.2.5 Review and update field days/promotional activities protocol | Delayed due to COVID 19, limiting interactions with the private sector and private sector unwillingness to invest in the region. Activities have now started. When field days and demonstration plots are implemented, the project team will update the protocol. | Updated protocols | 21-Feb |
| 5.2.7 Monitoring undertaking of field days | Delayed due to COVID 19 Lockdowns. We begin the implementation of activities in October. Activities to be implemented in October November, December include testing of distillers grain(Zhongkai), demonstration ponds(Aller Aqua) and support towards promotional feed(Novatek) | Zhongkai and Aller Aqua- 1 field day each. Continuous monitoring of the demo ponds including demonstrations to surrounding farmers | 21-Feb |

| 2020 Pending activities | Reason | Activity Detail | Delivery date |
|---|---|---|---------------|
| 5.2.8 Test gender- and youth-responsive field days and other promotional activities with the private sector in Northern and Luapula: All actors/SMEs | Field days delayed due to private sector hesitation to invest in the region as well as the compounding effects of COVID 19 lockdown, which further slowed all activities. Zhongkai and Aller Aqua demos are being set up now and will be operational by 30 November 2020 . Field days to be undertaken in November and 01 December | field day each for Zhongkai and Aller Aqua. Feed promotion and radio programs for Novatek linking with 8 SMEs(Hope Ways, Muletus, Adsek, Chilos, Triple Blessings Center, Eva Muta, Kasama Farmers Basket and Kasakalabwe) | 21-Feb |
| 5.3 Early-stage investment support (cost-share sub-activity) | | | |
| 5.3.1 Support provided to enable at least 7 private companies to set up in the northern region(Northern and Luapula Provinces) | <p>COVID 19 lockdown measures restricted efforts to engage the private sector due to restricted interaction. A total of 6 out of project target of 10 have been engaged. No more actors will be targeted.</p> <p>If this activity can be extended beyond February Musika, suggest targetting some technology companies Chemco as well as deepening SME engagement as suggested in the Midterm review.</p> | Continued support to 3 Primary firms(Zhongkai, Novatek and Aller Aqua). Support to 5 new SMEs linked to Novatek(Adsek, Chilos, Mulestus, Kasama Farmers Basket)). Also continued support to the three existing SMEs (Kasakalabwe, Triple C and Hope Ways) on the project | 21-Feb |
| 5.4 Increasing the capacities of private actors to deliver outreach, farmer training, and extension services | | | |
| 5.4.1 Develop MoU, provide financial support and Launch Intervention | Launches delayed due to COVID 19 public health regulations. Financial support continues as per signed partnerships. The launches will not be undertaken in 2020, but intervention activities have started and will continue in 2021. Beyond February, Musika may sustain some of these activities through cofinancing. | Support to Zhongkai, Aller Aqua, Novatek KasakalabweHope Ways and Triple Blessings Center. Also Novatel linkage to 8 SMEs(Hope Ways, Muletus, Adsek, Chilos, Triple Blessings Center, Eva Muta, Kasama Farmers Basket and Kasakalabwe) | - |

| 2020 Pending activities | Reason | Activity Detail | Delivery date |
|---|--|--|---------------|
| 5.4.3 Monitoring training of lead farmers by private actors: Aller Aqua, Zhongkai | On course and continuous targets farmer numbers not achieved because of COVID 19 lockdowns. | Continued support to building the capacity of lead/contact farmers for partners. | 21-Feb |
| 5.4.4 Assess any training tools, manuals etc. and document any experiences from private actors on the training of intermediaries/lead farmers: All Actors/SMEs, Farmers. | Delayed due to COVID 19 restrictions on gatherings. | Assessment and development of a report on experiences on the usage of training tools and manuals | 20-Dec-20 |
| 5.5 Technology demonstration and testing (partial cost-share sub-activity) | | | |
| 5.5.1 Work with the private sector (and other relevant stakeholders) to set up demonstration sites: Zhongkai, Aller Aqua | Delayed to COVID 19 and private actor hesitation to invest in the region. Demo sites are being set up for Aller Aqua Zambia and Zhongkai and will be ready by November 2020. | Development of demonstration sites. 4-Aller Aqua and 5 Zhongkai | 30/11/2020 |
| 5.5.2 Monitoring testing of technologies on demo ponds. | Delayed to COVID 19 and private actor hesitation to invest in the region. Demo sites being developed for Aller Aqua Zambia and Zhongkai | Continued support to building capacity of demo pond host farmers and surrounding farmers. | 28/02/2021 |
| 5.6 Capacity development of supply chain intermediaries (cost-share sub-activity) | | | |
| 5.6.4 Monitor the businesses and their abilities to function at a profitable level and reach lead and cluster farmers and other value chain actors at scale: SMEs/agents | Delayed to COVID 19 restrictions and some firms' unwillingness to engage agents. | continuous capacity assessment and business development support for intermediaries | 21-Feb-20 |
| 5.7 NRDC student internship opportunities with private companies collaborating with the project under this Activity | | | |
| 5.7.2 Support NRDC with engaging students for internships with the companies that were previously found to be willing to host internships with NRDC students. | Undertaken alongside Component 1 on the new curriculum. Four students attached on an internship to 4 SMEs. | Link with NRDC to create opportunities for internships | 21-Feb |

Annex 4: 2021 Work plan

Please see attached work plan.

Annex 5: Scaling Session Group Work Questions

A key project team member who understands the project component explains the project in 5 minutes. Group participants may ask clarification questions. The group will respond to the following issues/questions.

Define the core innovation/Innovations from the component that you would consider for scaling.

Discuss whether/not the core innovations should be scaled in this context, and why?

What would be the intended scaling outcome?

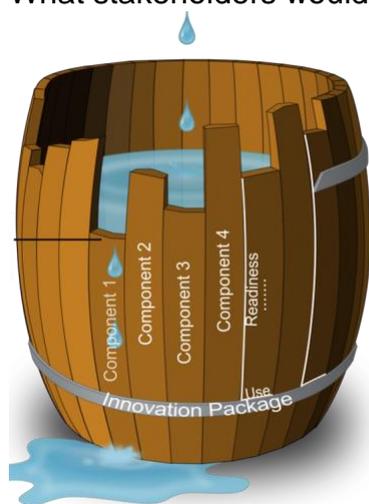
Will the selected innovation for scaling be useful, to contribute to your institution and national or international development objectives? If so, which ones.

What are the complementary innovations that would be necessary to support this innovation?

What are the bottlenecks that you are likely to encounter by examining the following landscapes as they relate to the core innovations?

- Innovation landscape
- Intervention Landscapes
- Stakeholder landscapes

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



Liebig's barrel

About WorldFish

WorldFish is an international, not-for-profit research organisation that works to reduce hunger and poverty by improving aquatic food systems, including fisheries and aquaculture. It collaborates with numerous international, regional and national partners to deliver transformational impacts to millions of people who depend on fish for food, nutrition and income in the developing world. Headquartered in Penang, Malaysia and with regional offices across Africa, Asia and the Pacific. WorldFish is a member of the CGIAR, the world's largest research partnership for a food secure future dedicated to reducing poverty, enhancing food and nutrition security, and improving natural resources.

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