



ICH LIEBE FISCH | I LOVE FISH PROJECT

REPORT ON SOLAR POWERED HATCHERY TRAINING OPERATION



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(QUALiVES)

INNOVATIVE FISH FARMERS NETWORK TRUST (IFFNT)

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REPORT ON SOLAR POWERED HATCHERY OPERATION TRAINING

SUMMARY

This report covers the training on solar-powered hatchery operation organized by the project 'Ich Liebe Fisch' From March 12 – 14, 2019 at the Bunda campus of the Lilongwe University of Agriculture and Natural Resources (LUANAR). This is part of the dissemination of knowledge and experiences, generated through the lifespan of the project, to various stakeholders in Malawi's aquaculture sector. The report covers the background of the training (the need for the training), the participants of the training, training content and lastly, the perception of the participants towards the training.

BACKGROUND TO THE TRAINING

Malawi's aquaculture production continues to lag behind regional neighbours, most notably Zambia. The challenges the sector faces have been discussed extensively; they range from poor linkage and flow of information between the academia and researchers, and the farmers to lack of institutional support for aquaculture start-ups. The Malawi government, however, in its National Fisheries and Aquaculture policy guide recognises two challenges as the biggest hindrances. These are; the long standing need for high-quality affordable feed for the fish and, of relevance to the training, the insufficient supply of highly fish seed. To highlight this, several report has established that most farmers recycle their seed and this results in poor growth and food conversion efficiency in the fish.

The project Ich Liebe Fisch, through several initiatives has sought to address the latter challenge by targeting an improved supply of fingerlings using sustainable and improved aquaculture. Through this, the project seeks to achieve its broader objective of improving health, nutrition and income of smallholder farmer communities. One of such initiatives has been the establishment of a solar-powered hatchery at Bunda fish farm of LUANAR. As part of its knowledge sharing and capacity building efforts, the project thus brought together a wide range of

stakeholders to training them in operation of solar powered hatchery for the improved production of fish seed.

PARTICIPANTS OF THE TRAINING

Participants were recruited following a call for the expression of interest to attend the training. The call asked participants to outline their motivation for attending the training as well interest and experience in fish farming. Twenty-one (21) participants were thus selected from a pool of forty-four (44) persons who had expressed interest. These were fully sponsored by the project; that is, they were provided with transport, accommodation and meals to attend the training. Participants were selected by strength of their motivation statement, experience in fish farming and potential to further disseminate the knowledge to be obtained at the training thus insuring that the training had far reaching impacts.

The project also invited some of the country's leading farmers to speak during the training about their experiences in the sectors as regards to seed production. These were the chairman of the Innovative Fish Farmers Network Trust (IFFNT) (a partner organization in the project), a practicing farmer and hatchery operator, and the Aquaculture Manager at Maldeco Aquaculture, the country's largest aquaculture producer and the largest private hatchery operator.

An additional ten (10) individuals also took part in the training and this comprised of the project team (including the two visiting German partners) and LUANAR personnel that facilitated the training. This brought the total number of participants in the training to Thirty-one.

PROFILE OF PARTICIPANTS

To ensure that knowledge and information from the training was spread throughout the country, participants were drawn from all three regions (equivalent to provinces) of the country. Table 1 presents a list of the profile participants in the training.

Table 1: List of participants in the Training on Solar Powered Hatchery Operation

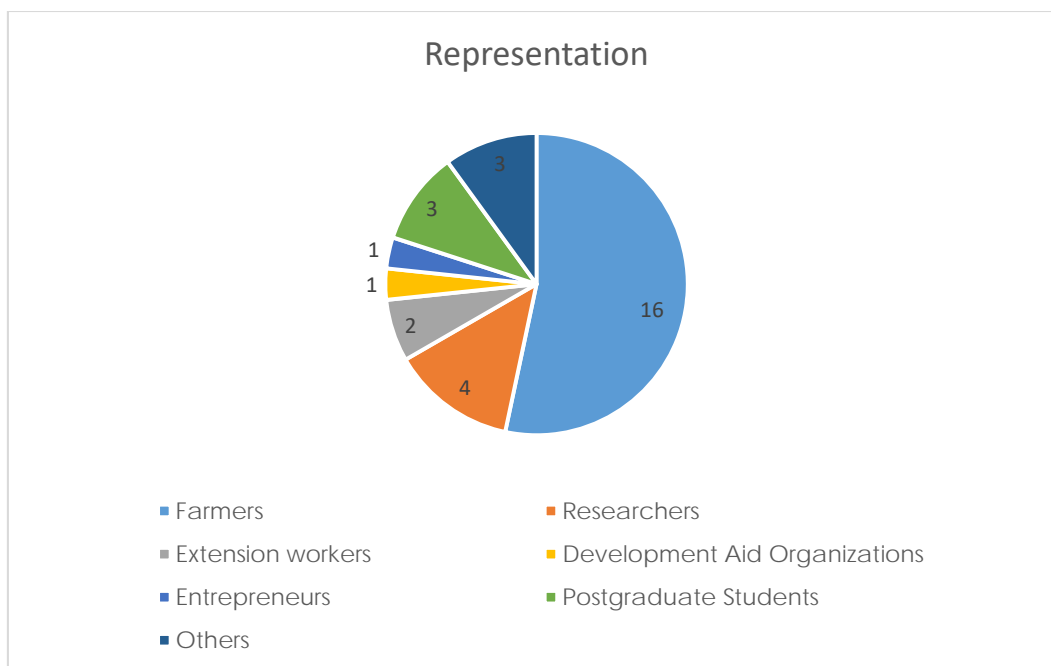
No.	Name	District of Origin	Region	Contact No. (+265)
1	Matthews Kasanama	Nkhotakota	Central	885419219
2	Synet Nyirenda	Nkhotakota	Central	996682222
3	Madalitso Banda	Nkhotakota	Central	998250488
4	Charles Evance	Nkhotakota	Central	995798742
5	Annie Abraham	Lilongwe	Central	999950637
6	Johnstone Mukumbwa	Karonga	Northern	993618166
7	Asafu Chijere	Zomba	Southern	999330313
8	Messias Macuiane	Blantyre	Southern	993020096
9	Lucky Penemulungu	Dowa	Central	999951955
10	Patrick Zakeyo	Zomba	Southern	881005079
11	Odoi Mwangonde	Mzimba	Northern	882789995
12	Hawa Gama	Zomba	Southern	888133759
13	Willy Ntangalea	Zomba	Southern	881041381
14	Stephano Phiri	Mchinji	Central	994761531
15	Moses Taison	Mchinji	Central	999495676
16	Alex Makanjira	Mchinji	Central	993709409
17	Esawo Abisoni	Mchinji	Central	N/A
18	Victor G. Maloya	Mzuzu	Northern	884548796
19	Sam Manguluti	Lilongwe	Central	992920181
20	Sirys Chinangwa	Lilongwe	Central	995181283
21	Jackson Chinangwa	Lilongwe	Central	885544565
22	Joshua Valeta	Lilongwe	Central	997814382
23	Peace Mnelemba	Lilongwe	Central	998195307
24	Daud Kassam	Lilongwe	Central	999103246
25	Elysee Nzohabonayo	Lilongwe	Central	993777447

26	Apatsa Chelewani	Lilongwe	Central	994329782
27	Hassib Sainan	Lilongwe	Central	881544501
28	Dennis Chinkhata	Lilongwe	Central	999772092
29	Laness Chavula	Mzuzu	Northern	999483723
30	Jean Chokani	Mchinji	Central	N/A
31	James Mangeni	Nkhotakota	Central	(+254)721622617

Figure 1: Occupational Background of Training Participants

No.	Name	Occupation	District of Origin	Region	Contact No.
	Matthews				
1	Kasanama	Farmer	Nkhotakota	Central	885419219
2	Synet Nyirenda	Farmer	Nkhotakota	Central	996682222
3	Madalitso Banda	Extension Worker	Nkhotakota	Central	998250488
4	Charles Evance	Farmer	Nkhotakota	Central	995798742
5	Annie Abraham	Farmer	Lilongwe	Central	999950637
	Johnstone				
6	Mukumbwa	Entrepreneur Aquaculture	Karonga	Northern	993618166
7	Asafu Chijere	Expert	Zomba	Southern	999330313
	Messias				
8	Macuiane	Coordinator-GIZ	Blantyre	Southern	993020096
	Lucky				
9	Penemulungu	IFFNT Chairman Research Officer- National Aquaculture Centre	Dowa	Central	999951955
10	Patrick Zakeyo Odoi		Zomba	Southern	881005079
11	Mwangonde	Farmer	Mzimba	Northern	882789995
12	Hawa Gama	Farmer	Zomba	Southern	888133759
13	Willy Ntangalea	Farmer	Zomba	Southern	881041381
14	Stephano Phiri	Farmer	Mchinji	Central	994761531
15	Moses Taison	Farmer	Mchinji	Central	999495676
		Assistant District			
16	Alex Makanjira	Fisheries Officer	Mchinji	Central	993709409
17	Esawo Abisoni	Farmer	Mchinji	Central	N/A
18	Victor G. Maloya	Technician	Mzuzu	Northern	884548796
19	Sam Manguluti	Farmer	Lilongwe	Central	992920181
20	Sirys Chinangwa	Farmer	Lilongwe	Central	995181283

	Jackson				
21	Chinangwa	Farmer	Lilongwe	Central	885544565
22	Joshua Valeta	Senior Scientist	Lilongwe	Central	997814382
23	Peace Mnelemba	QUALIVES	Lilongwe	Central	998195307
24	Daud Kassam	Senior Scientist	Lilongwe	Central	999103246
25	Elysee Nzohabonayo	PHD Student-LUANAR	Lilongwe	Central	993777447
26	Apatsa P. Chelewani	MSc. Student-LUANAR	Lilongwe	Central	994329782
27	Hassib Sainan	MSc. Student-LUANAR	Lilongwe	Central	881544501
28	Dennis Chinkhata	LUANAR	Lilongwe	Central	999772092
29	Laness Chavula	IFFNT Coordinator	Lilongwe	Central	999483723
30	Jean Chokani	Farmer	Mzuzu	Northern	999483723
31	James Mangeni	Farmer Benga Parish Representative	Mchinji Nkhotakota	Central	N/A (+254)721622617



NB: Of the 31 participants, 4 were female (13%).

TRAINING PROGRAM AND CONTENT

The training covered all areas in fish breeding and fingerling production, from broodstock selection and nutrition to fish larvae husbandry. Specific topics covered under the training were as follows;

- i. Introduction to solar powered hatchery operation
- ii. Aquaponics: Basics on production of fish and plants in barrels
- iii. Broodstock Management and present production methods for fingerlings: Case studies of Bunda fish farm and Maldeco Aquaculture
- iv. Quality considerations for feed for adults and juveniles
- v. Principles and practical approaches to production of all male fingerlings
- vi. Cryopreservation as a tool to improve performance of reproduction in fish

These were preceded by an introduction of the project Ich Liebe Fisch (background, aims, partners and sponsor).

The training also included hand-on sessions in the following areas:

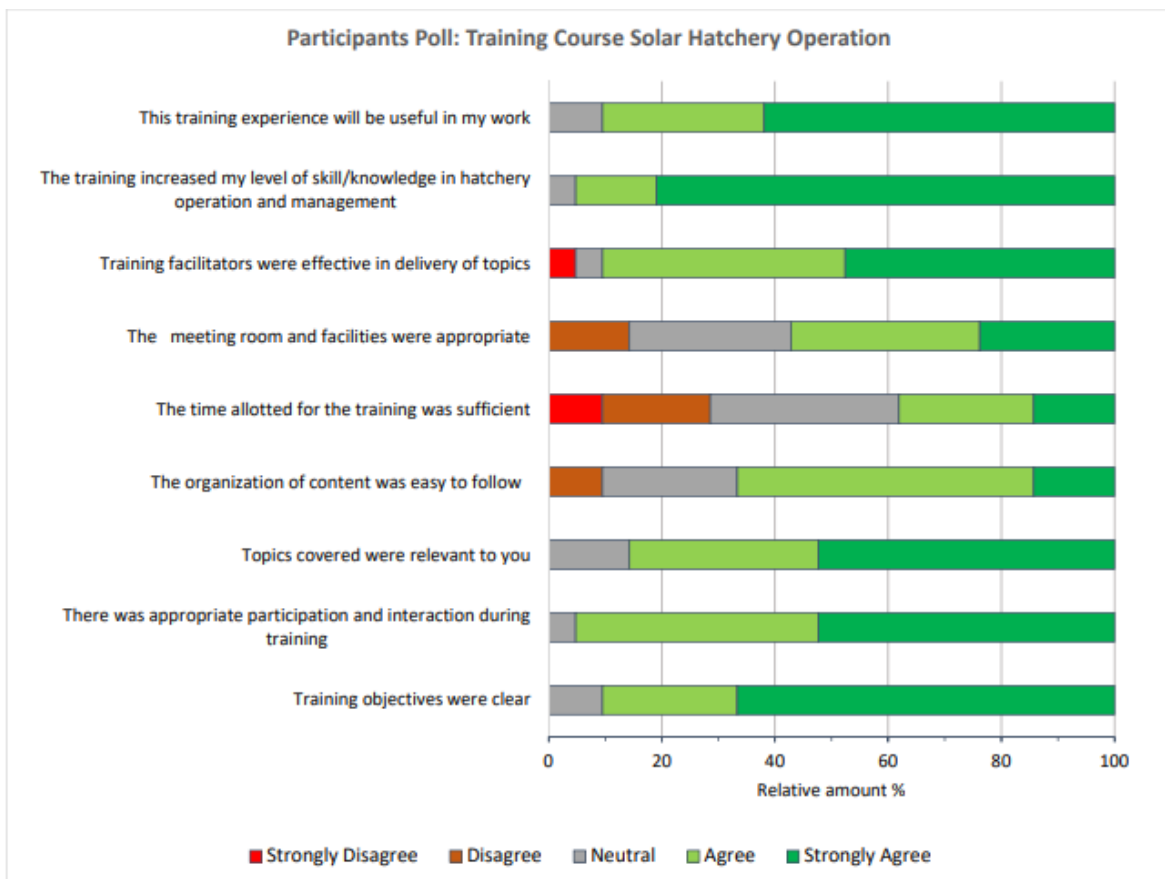
- a. Broodstock catching, sex determination, egg retrieval and incubation
- b. Inspection of larval samples and determination of weight and length
- c. Hatchery operation- determination of water quality parameters, water exchange, feed and feeding technologies



Figure 1: Farmers being drilled in measuring water quality parameters

TRAINING RESULTS

At the end of the training, participants were asked to fill evaluation forms where they were asked to assess various aspects of the training. This feedback was of course crucial in determining the success of the training and help guide similar trainings in future by the project. Figure 2 below presents the results of the poll.



The key takeaways from the figure above is that the participants found the training important as over 80% responded favourably to questions on the relevance of the training in their operations and its likelihood to improve on their pre-existing knowledge and training. This is especially important as this implies that

the training succeeded in its objective of building capacity in fish seed production among the participants.

Another key observation from the figure above is that participants reported satisfaction with their level of participation and indulgence in the training. Again, this is crucial in assessing the success of the training. It was the goal of the project to ensure that theoretical knowledge gained during the training is backed by hands-on experience. This is also an important consideration as the participants were expected to put their new knowledge into practices in their respective work stations and just as importantly, help further spread the knowledge by training other interested individuals.

The training rooms and facilities were rated negatively by the participants. This should be taken note of and a more 'pleasing' venue be selected in the case of future training under the project.

DISSEMINATION OF THE TRAINING PROCEEDINGS

For further outreach, the project has compiled training materials which have been shared to participants and other interested parties.

TAKEAWAYS FROM THE TRAINING

1. The training was a success as it met the need of the participants as supported by the high score by the participants in terms of relevance
2. The training also addressed an apparent disconnect between smallholder farmers in the country and leaders in the sector such as Maldeco in terms of knowledge and experience sharing.
3. There is a clear need for more similar training to further build capacity.