

Projectupdate

Geographical Focus:	Malawi
Call Reference:	“Forschungskooperationen zu Welternährung” Research cooperation for global food security and diversified agriculture for a balanced nutrition in Sub-Saharan Africa.
Project title:	Improving Community Health-Nutrition Linkages through Solar Energy Based Fish and Crop Integrated Value Chains- ICH LIEBE FISCH
Cooperating Partner:	<ol style="list-style-type: none"> 1. Fraunhofer Research Institution for Marine Biotechnology and Cell Technology (EMB) 2. Association for marine aquaculture mbH (GMA) 3. Lilongwe University of Agriculture & Natural Resources, Aquaculture and Fisheries Science Department (LUANAR-AQF) 4. Lilongwe University of Agriculture & Natural Resources, Department of Human Nutrition and Health (LUANAR-HNH) 5. Lilongwe University of Agriculture & Natural Resources, Department of Food Science and Technology (LUANAR-FST) 6. Quantum for Urban Agriculture and Environmental Sanitation (QUALIVES) 7. Innovative Fish Farmers Network Trust (IFFNT)
Duration:	1 st March 2016 – 30 th September 2019
Budget:	1.265.641,50 €

Scope and aim of the project



Traditionally, Malawi is a fish-eating nation. However, what is left on the table is mainly maize. Overfishing resulted in the collapse of the Tilapia fishery in the lake Malawi since the beginning of the 90ies. Tilapia, known locally as Chambo, is the country's favourite fish but hardly affordable anymore to most Malawian people. Thus, the Project "Ich liebe Fisch" aims to improve the supply of Tilapia specifically in rural communities and to improve crop production by introducing small-scale Aquaponic facilities and enhancing pond-based integrated aquaculture-agriculture (IAA) approaches. Specifically, the goals of this project are (a) to enhance the production of endemic fish species by breeding and hybridization, (b) to establish a specialized solar powered hatchery and optimize rearing protocols of *O. karongae*, in order to improve the sustainable supply of fingerlings for on-growing farms, (c) to use an IAA system approach to integrate nutrient fluxes between animal and crop production, (d) to implement training courses for local communities and smallholder farmers, thus ensuring capacity development and (e) to monitor the changes in health status and food habits of local families and especially children and elderly people after implementation of the IAA system to ensure a benefit for the whole community and (f) to facilitate establishment of a community agriculture-nutrition-health linkage innovation platform and networking with relevant institutions to ensure sustainability beyond the project's life cycle.

Results and key statements

In 2017, the focus of the project was a) on the detailed planning and compilation of complete lists of parts for the set-up of the hatchery and PV-facility in Malawi, to advance and survey the production of the hatchery parts and to prepare the stowing and shipping procedure of the container to get all materials to Malawi (main partner: GMA, EMB), b) the mass breeding of Chambo fingerlings for distribution to farmers in both project communities (main partner: AQF), c) the introduction of IAA technologies as well as trainings on fish management, fish harvesting and marketing strategies in these communities through training and a subsequent first integrated production cycle of fish and vegetables (main partners: AQF, IFFNT, QUALIVES), d) the establishment of technology platforms as a mechanism for sustainability and dissemination of the technologies (main partner IFFNT), e) the development of fish based products, especially for pregnant or lactating women and children under two years of age, followed by capacity development in both communities on basic principles of healthy nutrition, product development and sensory testing (main partners HNH and FST). Furthermore, f) the progress in the project evaluated, compiled in documents and used to update the website including the repositories for documentation (main partner: GMA). The overall project management was conducted by EMB. The German partners EMB and GMA visited the project for 3 weeks in November/December 2017 aiming at g) the consultation of participating communities in Nkhotakota and Mchinji and the evaluation of measures to improve fish and fry production which were implemented until the end of 2017.

- a) Beyond the compilation of the basic design of the hatchery and the features of the PV-unit, it was a major task of the partner GMA to survey the production process of the hatchery in collaboration with the manufacturer. End of October, these tasks were completed in collaboration between GMA and EMB and all equipment was stowed into a 40-foot container which was shipped at the beginning of November to Lilongwe/Malawi.
- b) A field visit was conducted by AQF to Mchinji and Nkhotakota districts in May to inspect ponds that were not stocked yet at this time in order to calculate the number of fingerlings required to stock the ponds. The trip was also used to consult farmers on different vegetable varieties they would like to integrate with fish farming. At the end of May, about 27,000 fingerlings with an average size of 10g were distributed to 7 Fish Clubs in Nkhotakota and 3 Fish Clubs and 2 individual farmers in Mchinji. Together with the fingerlings, feed for the fish and seedlings of four vegetable varieties (Amaranths, Chinese cabbage, Pumpkin leaf vegetables and Rape) were distributed to the farmers which allowed them to practice IAA.
- c) IAA training was conducted by AQF, IFFNT and QUALIVES before stocking the ponds, in May 2017 in Nkhotakota and Mchinji Districts (see also item d). The main objective of the training was to equip fish farmers with knowledge on intensive IAA technology and pond management. 145 fish farmers from 11 fish clubs and 5 non fish farmers (Nkhotakota pottery) were trained in Nkhotakota. 140 fish farmers from 4 fish clubs were trained in Mchinji. The training was well received and equipped fish farmers with attitude, skills and knowledge in general pond management.
- d) Most fish farmers in Malawi have low productivity from their ponds due to the lack of knowledge and appropriate technologies to increase their production. The project through its partner IFFNT established a platform for dissemination of applied technologies. The platform is going through three phases, first the formation stage, the training or capacity building and lastly the sharing or dissemination stage. The first stage has been successfully conducted, farmer have been organized within this structure and have been trained in various areas: training in IAA; entrepreneurship and marketing; fish grow out and management; fish product development.
- e) Other training sessions were conducted by partner HNH and FST in Nkhotakota and in Mchinji in November 2017 with the following objectives: to establish care groups in the project sites that meet on a regular, two-weekly basis to share knowledge and exchange experiences and lessons learned in the trainings; to train farmers in fish product development; to conduct sensory evaluation of the developed fish products; to equip communities with basic nutrition and complimentary feeding knowledge; to train fish farmers in fish harvesting and post harvesting handling; to train communities in marketing of fish and fish based products.
- f) A total of 72 women from the revamped and established care groups were trained in a wide number of nutrition topics, such as importance of dietary diversification, and principles of infant and child feeding. In addition to the women from care groups, the training also involved fish clubs chairpersons (16 Men) and primary and secondary



school students (3) and their patrons (3). The attendants were trained how to make maize–fish-vegetable porridge and Cassava–fish-vegetable porridge that are aimed to improve the nutrition status of infants and young children (under 2 years). They were also taught how to make fish sausages, fish balls and fish samosa that are aimed to improve the nutrition status of the whole family as well as their income.

- g) In order to keep all project participants informed about the present activities, achievements and related documentations and presentations from the project, it is important to gather those information and documents in a dedicated location which is accessible from any project member at any time; in this project, the Website with its resources is the "one-stop-shop" for the project and the partner GMA spend a reasonable effort to keep this site and the resources up-to-date.
- h) The German team (EMB and GMA) travelled to Malawi from in November/December 2017 to attend project activities in Malawi and to accomplish a couple of tasks together with the project partner from Malawi. Various meetings at the Bunda college were organized, plans of the coming activities in 2018 discussed, lectures given in classes of the Fisheries and Aquaculture Department and concepts for master theses developed with those students who are designated to come to Germany as well as with the students performing their work on IAA and Aquaponics in Malawi. Another important activity was the visit of the participating communities in Mchinji and Nkhotakota. The German team spend a couple of days in Nkhotakota at the Malawi lake and organized, with the help of the local district fisheries officers, meetings with key members of the local communities. Another trip went to the participating communities in Mchinji with the same program. In addition, some other meetings were organized, such as a talk with representatives from World Fish; areas of common interest in Malawi were identified where the project might cooperate with the World Fish activities.

Policy advice

While the lack of O.karongae offsprings and the knowledge deficiencies in fish production are being addressed in the present project "Ich liebe Fisch", the lack in a complete and at the same time affordable feed for juvenile and ongrowing fish is one of the remaining major obstacles that prevents the small scale fish farmers in taking the next step from subsistence farming to small scale commercial farming. Growth potential of farmed fish can be tremendously enhanced with proper feed. Thus, a future important task, which should be tackled in a follow-up project, would be the development of locally produced, affordable and complete feed for juvenile and ongrowing fish.



Photos (from top left): Evaluation the harvest from a pond which was stocked from the project; training in healthy nutrition for children; teaching how to produce products from fish filets; visit of fish farmer in Nkhotakota district; typical (healthy) dish: Nsima, vegetables and fish; children testing new products from fish.

