



Federal Ministry
of Food
and Agriculture

Final meeting „Ich liebe Fisch“
September 25th 2019



 **Fraunhofer**
EMB



"Ich liebe Fisch" – *Improving Community Health-Nutrition Linkages through Solar Energy Based Fish and Crop Integrated Value Chains*

Dr. Sebastian Rakers
Fraunhofer EMB



Project in brief

Call: Research cooperation for global food security and diversified agriculture for a balanced nutrition in Sub-Saharan Africa

Title: *Improving Community Health-Nutrition Linkages through Solar Energy Based Fish and Crop Integrated Value Chains*
- "ICH LIEBE FISCH" -

Partners:

1. Fraunhofer Research Institution for Marine Biotechnology and Cell Technology (EMB) (Coordinator)
2. Gesellschaft für marine Aquakultur 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: 01.03.2016 – 30.09.2019, extended to 31.12.2020

Budget: 1.6 Mio €, funded by Ministry of Food and Agriculture

Fish production and supply in Malawi

Traditional food in Malawi is fish!

>100 years aquaculture is used in Malawi, with currently around 6000 small farms

2016: ~150.000 t of fish harvested by fisheries and aquaculture, but just 7500 t belongs to aquaculture (whereof 50% produced by Maldeco & Chambo Fisheries Malawi)

Production capacity is not sufficiently used because of low-grade feed (maize bran)

Today *O. karongae*, „Chambo“ is not affordable for most people in Malawi

Malawi lake: until 1990ies 70% Chambo (big ones), today they make less than 5%, 70% of sold fish belongs to Usipa (*Engraulicypris sardella*)





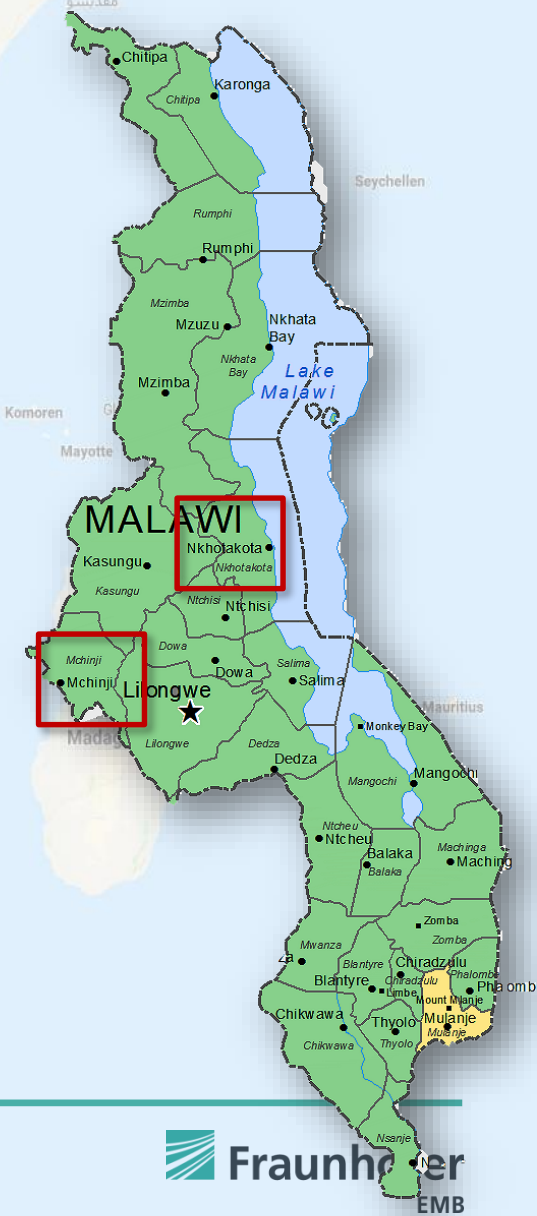
Project aims

The following project aims are in focus

1. Establishment of a solar energy based hatchery to improve the supply of *O. karongae* fingerlings
2. Broodstock selection and production of "all-male"-fingerlings
3. Practical trainings for application of Integrated Aqua-Agriculture (IAA) and simple Aquaponics systems (Barrelponics)
4. Research on health status, nutrition habilities and economic status of families in rural areas before and after the project measures
5. Realisation of training courses to communicate expert knowledge and capacity building in rural areas
6. Support of network establishment as well as a knowledge platform to foster exchange between the participating communities/farmers



- Communities from two different regions have been selected (one at Lake Malawi, Nkhotakota and one inland, Mchinji)
- Substantial support for communities by the project, e.g. through fish and seedlings, feed, fertilizer, etc..as well as by intensive mentoring and trainings
- Scientific supervision of the measures within the project is performed by german (EMB & GMA) and malawian partners (LUANAR, Qualives, IFFNT)
- Hatchery was constructed as "Template" to „train“, a central facility for training courses





Project work packages

The following project work packages were conducted

WP1 Project Management

Results presented by Sebastian

WP2 Assessment and conservation of genetic resources from the endangered species *O. karongae*

Aim Broodstock selection and production of "all-male"-fingerlings

Results presented by Apatza & Sebastian

WP3 Working towards a continuous supply of *O. karongae* fingerlings for Aquaculture production

Aim Establishment of a solar energy based hatchery to improve the supply of *O. karongae* fingerlings

Results presented by Hassib & Bernd



Project work packages

The following project work packages were conducted

WP4 Improving nutritional condition in rural areas through value added products from aquaponic and conventional IAA systems

Aim Practical trainings for application of Integrated Aqua-Agriculture (IAA) and simple Aquaponics systems (Barrelponics)

Aim Research on health status, nutrition habits and economic status of families in rural areas before and after the project measures

Results presented by Peace, Martha and Zione

WP5 Technology and Product Documentation and Dissemination

Aim Realisation of training courses to communicate expert knowledge and capacity building in rural areas

Aim Support of network establishment as well as a knowledge platform to foster exchange between the participating communities/farmers

Results presented by Daud & Dennis

Project management

■ Activities since last meeting

- Installation of aquaponics unit at Benga Parish with support of master student Peace
- Arrival of Container containing material from Germany for the project
- Monthly monitoring trips to project sites and delivery of fingerlings
- Training community members in entrepreneurship and group work dynamics
- Motivational visit by farmers in Nkhotakota to the farm of Mr. Msyali of the same district

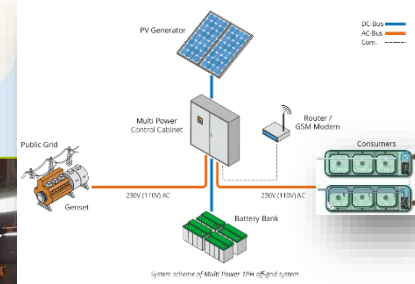
■ MAT

- Negotiations started with begin of the project
- 2018 a version already existed which was signed by Fraunhofer and GMA and sent to Malawi, but which was not countersigned
- After more long-lasting negotiations with Department of Fisheries with no common result, the german partners in accordance with co-project lead at Luanar decided on August 30th to abandon negotiations.

This has some negative implications: the planned construction of a Broodstock in Germany and the storage of genetic resources of *O. karongae* such as cells or sperm in the Cryobank Cryo-Brehm is no longer possible



Results



Solar assisted hatchery constructed and in operation



IAA + Aquaponics implemented, plant seedlings distributed and bred



Courses held to establish cryopreservation and molecularbiol. methods



Monitoring of health and nutrition status conducted, especially for children and women (100 households)



First discussions performed on measures for dissemination and cooperation

Public relation

Workshops on e.g. nutrition, fish harvest, product development, marketing, molecular biology, reports on project activities in different journals and newspapers, video documentation for german television, preparation of wall calendar....

