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Improving Community Health-Nutrition Linkages through Solar Energy Based Fish and Crop Integrated Value Chains

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Abstract

More than 2 billion people worldwide suffer from macro- and micronutrient deficiencies, specifically in developing countries. Fish is rich in essential fatty acids, contains healthy proteins and many other nutrients that do not occur in such quantity and diversity either in cereals, other crops or in meat. The project Ïch Liebe Fischfocuses on research and linking of several aspects along the value chain of sustainable aquaculture of the endemic fish species Oreochromis karongae ("Chambo"), a high quality protein source for improving human nutrition in Malawi.

Through the project, the wider implementation of integrated agriculture-aquaculture (IAA) systems will be promoted as an efficient, sustainable and ecological alternative for production of healthy and diversified foods. IAA systems combine fish farming with growing of crops in a synergistic approach. Surface areas in fish ponds or dykes will be used to grow crops, making use of the nutrients produced from the fish. Compared to land-based production of crops, this aquaponics-like approach saves water for irrigation and reduces the evaporation of the ponds. The major input of organic matter comes from fish feed, which is being assimilated into fish protein and, through the faeces of the fish, into highly bioavailable organic fertilisers. These systems will allow enhanced productivity and, eventually, improve nutritional and socio-economic benefits to smallholder fish farmers in the project areas.

Specifically, the project approach is to (a) enhance the production of endemic fish species through breeding and hybridisation, (b) establish a solar powered hatchery and optimise rearing protocols of O. karongae, in order to improve the sustainable supply of fingerlings for ongrowing farms, (c) integrate nutrient fluxes between animal and crop production, (d) train local communities and smallholder farmers, thus ensuring capacity development in

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IAA and its benefits, (e) monitor changes in health status and food habits of local families and especially children and elderly people after project implementation, (f) facilitate establishment of a community agriculture-nutrition-health linkage innovation platform and networking with relevant institutions to safeguard sustainability beyond the project life cycle.

Keywords: Capacity development, farmers, fish, health, integrated agriculture- aquaculture, solar-powered aquaculture, vegetables