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## Tilapia Farming in Malawi Using Biofloc Supports Objectives of the 2030 Agenda and Sustainable Development Goals (SDGs)

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### Abstract

Aquaculture for rural development is particularly challenged by the limited availability of natural resources. Thus, the development of sustainable aquaculture should focus on high productivity and profitability and in the same time utilise fewer resources including water, space, energy and capital. The developing alternative to fishmeal and fish oil is a challenge and requires the utilisation of innovative approaches in fish nutrition. Our long term goals are to answer relevant questions on basic and applied research activities in aquaculture, while training the next generation of scientists through progressive, innovative, and cutting edge research. One of the strategies to improve aquaculture production and sustainability should focus on enhancing feed nutrient utilisation. This can be developed by two different approaches, i.e. (i) by increasing the feed quality and feeding strategy in a way that the nutrients can be efficiently delivered and finally utilised and (ii) by re-utilising the nutrient waste through modifications in the culture system. In an aquatic system, nutrients can be removed by various natural biogeochemical processes involving mostly microorganisms with various functions in nutrient cycles. The nutrient waste in an aquaculture system is mostly generated from unconsumed feed and the digestion and metabolic processes of feed. Nutrient waste in an aquaculture system may be re-utilised directly by other organisms at lower trophic levels, which utilise feed particles as their food source, or indirectly by the conversion of the nutrients into microbial biomass that may eventually be consumed by the cultured animal itself or other animal as their food source. Biofloc contribute to the achievement of sustainable development goals and offers benefits in improving aquaculture production in integration with other food production with fewer input. The research findings were communicated to farmers in Malawi as the implementation of biofloc technology requires upgrading their skills. The tilapia biofloc farming in Malawi supports sustainable development goals (SDG 1, SDG 2, SDG 8 and SDG 14) through sustainable aquaculture development and contributed to ending poverty, ending hunger, achieving food security, improved nutrition and sustainable economic growth.

**Keywords:** 2030 AGENDA, biofloc, hunger, jobs, malawi, malnutrition, poverty, rural, SDGs