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Integrated agri-aquaculture systems for food security, poverty reduction and resilience in Eastern Africa

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Abstract

Smallholder farmers in sub-Saharan Africa are highly vulnerable to food and nutrition insecurity, poverty and environmental degradation due to low agricultural productivity, profitability and sustainability. Agricultural productivity can be increased through integration, intensification and diversification of agri-aquaculture, whereby waste from one part of the system becomes a crucial input in other components in the system. Agri-aquaculture provides a cyclic agriculture approach that focuses on recycling, enhanced productivity and climate change resilience. This paper highlights outputs of the AgriAqua Partnership Project between Kenya, Ethiopia, Uganda and Austria aimed at strengthening knowledge sharing for increased food production and poverty reduction by integrating resilient agri-aquaculture systems (AAS) and promoting triple wins of increasing food productivity, job creation and ensuring sustainable consumption (Zero wastes). Specific objectives of the project were to establish partnerships and networks for integrated agri-aquaculture systems (IAAS) knowledge exchange, identify priority IAAS prototypes in Eastern Africa, and facilitate knowledge and skills transfer to smallholder farmers, with gender and diversity inclusion of women and youths in IAAS technologies.

A review of the IAA status in Eastern Africa showed that despite its huge potential, there is minimal IAA among smallholder farmers in the region. However, farmers undertake different agri-aquaculture activities with little or no integration. The identified country-specific IAAS priority areas included: integrated fish farming with crops, livestock and agroforestry, aquaparks, cage farming, affordable and quality fish feed production in Kenya; land and water resource management in agri-aquaculture integration in Ethiopia; Green Community Model, fish-livestock integration, biogas, bio-slurry for fertiliser in Uganda. The challenges and knowledge gaps in IAAS include poor fish feeds and stocks, fish diseases, toxicity, pesticide residues, while the identified research needs and technology priorities

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include IAAS knowledge and skills transfer, gender and diversity-inclusive capacity building, community focus, value chain analysis, IAAS innovations, technological focus and up-scaling.

Keywords: agri-aquaculture systems, gender and diversity, integration, resilience, smallholder farmers