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Economic and environmental benefits from integrating Aquaculture and Agriculture (IAA) in Ghana - presentation of system setup

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A team of researchers of the Department of Fisheries and Watershed Management, Kwame Nkrumah University of Science and Technology (KNUST)¹, Ghana, has developed methods for integrating vegetable production with fish farmers' pond production cycle as test farming systems on the KNUST campus, Kumasi. Based on experiences from Asia and Africa, this article explains how the integrated aquaculture and agriculture system (IAA) maximizes the use of land, water, nutrients and labour with the aim of increasing farmer income and lower environmental impacts. Three different production scenarios have been defined for evaluation: (1) rainy season production, (2) dry season production, and (3) end of the fish cycle production. Fish and vegetable farmers participated in a field survey and a stakeholder workshop in order to provide feedback on the feasibility of the three scenarios. The system setup presented in this paper has been designed to optimize the economic and environmental performance of the IAA scenarios during a full one year fish and vegetable production cycle at the test site on KNUST campus. The subsequent data analysis will reveal to what extent this potential can be realized in each scenario.



This article concludes that IAA offers a better potential to improve the productivity of fish farmers in peri-urban areas with easy access to local markets, as compared to a simple expansion of an non-integrated pond area. However, the stakeholder discussions also revealed that collaborative arrangements between fish and vegetable farmers may be difficult due to mistrust. Rather, pond owners may offer their farmhands more work for a share in the harvested vegetables. In Ghana, aquaculture is run as a business, and less as a source of subsistence therefore, the entry barrier remains significant for smallholders.

Selected references

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