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Research Application Summary

# Prospects of aquaculture as a rural development intervention in eastern Uganda

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**Abstract**

This study being conducted in eastern Uganda, is examining the potential of aquaculture as an alternative enterprise to the previously vibrant but now collapsed coffee farming. The study site is highly populated with no lakes. The study is employing both qualitative and quantitative methods to collect information, and also monitoring water quality. The study has just began.

Key words: Aquaculture, Mbale, Uganda

**Résumé**

Cette étude menée dans l'est de l'Ouganda, se penche sur la potentialité de l'aquaculture comme une entreprise alternative à la dynamique, jadis florissant, mais actuellement effondré, la culture du café. Le site d'étude est très peuplé mais il n'y a pas de lacs. L'étude utilise des méthodes qualitatives et quantitatives pour collecter des informations et aussi contrôler la qualité de l'eau. L'étude vient juste de commencer.

Mots clés: Aquaculture, Mbale, Ouganda

## Background

The existing and potential contribution of aquaculture to economic growth and food security has received increasing recognition in recent years (FAO, 2002; 2004; Bahiigwa *et al*., 2003). However, the sector is still at its early stage of development in Uganda ( Isyagi, 2007) and therefore it still has untapped potential (Jagger and Pender, 2001). The sub sector faces a number of constraints such as lack of feeds, fish fry and technical know how for farmers. The successful adoption and integration of this technology into smallholder farming systems will not easily be achieved unless the constraints pertaining to both production and marketing are addressed. Moreover, the contribution and value of fisheries resources in Uganda is not well established due to inadequate baseline data (Bahigwa *et al.*, 2003).

Uganda's main sources of fish supply are lakes and rivers. However, there are indications that the lakes may have reached their maximum yield potential due to over fishing yet the demand is increasing (Jagger and Pender, 2001). Thus, there is an urgent need to promote aquaculture. This would help to boost the supply and hence annual per capita consumption of fish which stands currently at 10 kg per annum. Indeed, to meet the increased demand food security fish supply must increase. Currently, however, the traditional sources are threatened by over fishing. Thus there is need to find alternative sources and aquaculture presents such an alternative.

Promotion of aquaculture technology has been lopsided by looking at the biological side of the sub-sector and capture fish to the exclusion of the socioeconomic aspects of it. More specifically, studies on profitability of the sub sector in Uganda are very few and in some cases apply only gross margin analysis (Isyagi, 2007; Mwesigwa, 2008). There is a need for more rigorous studies and hence the need of the study.

## Literature Summary

The Uganda's fisheries policy overall goal is to ensure increased and sustainable fish production and utilization by properly managing capture fisheries, promoting aquaculture and reducing post harvest losses (MAAIF, 2004). The annual per capita consumption of fish is 10kg per annum which accounts for more than 50% of the animal protein intake of an average Ugandan diet whereas the recommended intake by FAO is 15 kg per capita (Balarin, 1985). At the same time, fishing industry is an important source of employment along the value chain (Bahiigwa *et al.*, 2003). To meet these roles, supply must increase. But the main sources of fish which are lakes and rivers are facing serious degradation problems yet the demand for fish both within and outside the country is increasing due to change in consumption patterns. Thus the future of the industry is very bright, and capture fish must capture this opportunity.

The industry is facing constraints such as lack of feeds, fish fry and technical know how. This makes it difficult for farmers to engage in fish farming as a business. Some qualitative studies on profit analysis have shown that a farmer's main objective of engaging in fish farming is to earn profit ( Aganyira, 2005; Isyagi, 2007). It would be interesting to examine in detail and using rigorous methods to validate these studies. It would also be interesting to establish the quality of water in these ponds since it is sometimes used for other farming activities.

**Study Description**

This study is being conducted in the eastern Uganda specifically in the former Mbale sub region (Sironko, Mbale, and Manafwa) districts. The Mbale sub-region was purposively selected on the basis of the fact that it has limited fisheries resources in form of lakes and big rivers and yet it is one of the densely populated regions in Uganda. The region's economic activity was in the past based on coffee industry, but due to coffee berry diseases and leaf rust which decimated the industry, the inhabitants lost their major source of livelihood. Thus the region is in desperate need of alternative income generating activities.

The study is employing both qualitative and quantitative methods to collect the required data. The qualitative techniques such as focus group discussion, wealth ranking and sustainable livelihoods approaches (SLA) are being used to supplement the quantitative techniques. As pointed out by a number of studies qualitative techniques capture variables such as cultural and perceptions of individuals which are not captured in quantitative techniques (Aganyira, 2005; Beraho, 2007). These methods take a farmer as an active partner in identifying and addressing their livelihood priorities while outsiders listen and respond. It also recognizes that there are different actors whose actions affect the farmer such as government policies, externalities such as natural disasters and other institutions. The approach analyses wider policies, institutions and processes as they affect local livelihoods. This study is examining how vulnerability context (seasonality, trends in prices) interact with livelihood assets influence livelihood strategies and livelihood outcomes. For quantitative techniques, a total of 240 farmers (120 fish farmers and 120 non fish farmers) have been selected. One third of these are female farmers. The input output data are being collected using a structured questionnaire from the 240 farmers. The costs of the inputs such as labour, fry and feed are being collected. On the output side, production figures and prices of fish sold will include marketing and transport cost. The water quality is being monitored using two approaches that is, measuring physical and biological parameters. The physical parameters are being measured using portable meters to monitor physical temperature, transparency and dissolved oxygen. For biological monitoring macro invertebrates are being identified using a mud grabber and identifying them to family level.

**Research Application**

This study is expected to equip farmers with farm records keeping knowledge which they can use in their other enterprises. The data base will guide setting-up aquaculture farm enterprises

in the sub region. Establishing the quality of water in ponds and level of pollutants will assist the biological scientists to generate appropriate recommendations to improve the water quality in the ponds which would contribute to attaining higher yields and better human health.

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