
Fishing Activities And Its Impact On The Socio- Economic Development Of Communities In Uganda. A Case Study Of Kibuku Fish Ponds

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Abstract

This study was to examine the contribution of fishing activities on the socio-economic development of communities in Uganda a case study of Kibuku fish ponds. To examine to the influence of the fisheries activities on the community economic development in Kibuku fish ponds. To investigate the influence of Fisheries as a safety net at the individual household level in Kibuku Fish Ponds. To examine the relationship between Fisheries and household consumption in Kibuku Fish Ponds. A total of 40 respondents and the study applied both qualitative and quantitative research designs where interviews, questionnaires and observation methods of data collection were used. Data was collected from both primary and secondary sources. Data were processed and analyzed using formal tables, pie charts, graphs, narrative text. It also included the data presentation, analysis and interpretation as well as summery of findings, recommendation and conclusion. According to findings respondents cited that gender discrimination refers to the unfair treatment between men and women, this was pointed out by 15% of study participants. On addition 26% pointed out that gender discrimination means segregation in terms of sex, this could be in employment or any other opportunities in life. More so 32% of the respondents mentioned that gender discrimination refers to prejudice among persons, where people are wrongly judge in relation to others. Further still, this study found the type of feed significant for CTFe among other fish type. This was in line with the fact that to be able to achieve high yields there is need to feed fish on better feeds. A well-fed fish grows fast and takes a short time in the pond.

Keywords: Fishing Activities, Socio- Economic, Development and Communities

Background to the Study

Small- and medium-scale fisheries are found worldwide, but predominate in tropical, less developed countries (Ashiraf et al., 2023). Although it varies by location, small-scale fisheries can generally be characterized as multi-purpose and multi-species, with almost all of the catch being used as food fish. These fisheries are of significant social and economic benefit to society at national, local and individual levels (Collins et al., 2023). Half of the world's food fish supply comes from small-scale fisheries, and it is estimated that 90% of fishers worldwide are small-scale fishers (Béné, 2016). With 95% of these fishers living in developing countries (Ramadhan et al., 2023), small-scale fisheries are critical to the livelihoods, well-being and food security of communities in some of the world's poorest countries.

In Uganda. According to the Fish Farming and Development Report (2017), fishing is the dominant economic sector in Uganda. It contributes about 32% to GDP and employs nearly 31% of the labor force, with another 8% of the conservation force dependent on it for employment (Frank et al., 2023). The country had a population of 25 million in 2000 and is growing rapidly at a rate of 3.2% (UBos, 2019). Fish farming is one of the priorities of the government, which pays close attention to this issue and provides support to the expansion of agriculture and rural development through the Uganda Development Bank, Naads and

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the current Wealth creation operation (Allan et al., 2023), especially in densely populated areas closer to water areas surfaces. Commercial fish farming in Uganda forms the backbone of sustainable agricultural development and dampens the agricultural sector as a source of employment for people in the area (Collins et al., 2023).

According to the Ministry of Agriculture, Livestock Industry (2020), it is also a means of increasing economic returns from fish farming. There are many fishing grounds in Uganda, although Lake Victoria is the largest of them all, accounting for about 15% of the country's total land area. More than 3,000 people are engaged in fishing as a source of income in Kalangala Island District (UBOS, 2018). This number has been steadily increasing since 2019 justifying the fact that the lake (fishing) is the main source of income for the people in the area, despite the lake there are also an abundance of ponds in Uganda as it estimates 20,000 ponds across the country. with 500 m² per pond, based on the Food and Agriculture Organization (FAO report (2020) states that production varies between 15,000 kg per hectare per year for subsistence farmers to 15,000 kg per hectare per year for beginning commercial fish farmers (Collins et al. , 2023. According to a report (FAO, 2014) The predominant method of fishing is the use of nets and boats which are commonly used by the majority of the largest percentage of fishermen in the area (98%) to retrieve fish from the lake and thus sell to a nearby limited market (William & Sarah, 2023). However, several studies by international organizations (Media for Excellence, World Bank, UNDP) have shown that the government's policy of generalizing modern fishing technologies can only be sustainable in the medium term and may not be remarkable (Amin, 2015, & Nsubuga, 2018). . This policy became general and could not be differentiated according to the watersheds that are most critical. Based on the same UNDP report) report Modern techniques and adequacy according to local conditions. Unfortunately, NGO projects to support the government's modernization policy, such as DFO/UEP 731, also appeared in general and did not achieve sufficient results in practice. For example, the DFO/UEP 731 project, while receiving encouraging initial results, did not fully deliver the intended output, and therefore an expansion phase was recommended.

Problem Statement

Globally, fish are important for their food security, income generation, employment and foreign exchange earnings (TSWFA, 2017). In sub-Saharan Africa, little information is available on precise production and consumption patterns (FAO, 2006). In Uganda, annual production is estimated at about 550,000 tonnes, with aquaculture contributing 90,000 tonnes (16.4%) (Allan et al., 2023). Of this annual production, 220,000 tonnes are exported and 330,000 tonnes remain for local consumption (NIPAP, 2012). This translates into fish consumption per capita of 8 kg, which is below the FAO recommendation of 17 kg per capita. To meet the FAO recommendation, the country would need to produce 580,234 tons annually. Thus, there is a consumption gap of 240,250 tonnes, resulting from the difference between the expected total country consumption recommended by FAO (580,234 tonnes) and the current consumption (330,000 tonnes) across the country. Of the recent extension workers in eastern Uganda promoted catfish to replace tilapia fish farming (Ntirandekura et al., 2022). In addition, the shortage in fish supply is having a negative impact on 17 fish processors who are currently operating at 30% of their annual capacity (DFR, 2011). In order for these companies to increase their operating capacity, supply must be increased. However, given that a traditional resource such as a lake. Victoria, that is, fishing, has been depleted, so aquaculture is a viable alternative. This is equally reinforced by the fact that

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growing populations grow after fish (Ronald & Kazaara, 2023).

Studies on fish farming in Uganda have focused mainly on the profitability of individual fish species, most recently Hyuha et al. (2011) and Mwesigwa (2008) in central Uganda. However, there is no recent study conducted in Uganda on the contribution of fish farming using unit cost ratio in the existing farming system and more specifically in Kibuku Fish Pond. McFetridge (1995) states that a competitive firm is one whose average cost is lower than the market price of the product offered. The opportunity cost (value of goods and services) used by the firm should be lower than the value of the goods and services offered by the firm (Christopher et al., 2022). This study seeks to investigate the community benefit of fishing activities in Kibuku ponds, the results of which will guide farmers in allocating their scarce resources in fish farming. This will eventually increase fish production and address the fish supply gap in the domestic market. This will in turn reduce the pressure on the supply of fish from fisheries and thus Uganda as a country will earn more foreign exchange by using more fish (catch and aquaculture) to fish processors for export.

Specific objectives

1. To examine to the influence of the fisheries activities on the community economic development in Kibuku fish ponds.
2. To investigate the influence of Fisheries as a safety net at the individual household level in Kibuku Fish Ponds.
3. To examine the relationship between Fisheries and household consumption in Kibuku Fish Ponds.

Methodology

The study was descriptive research design and this design helped in understanding the study on the contribution of fishing activities on the socio-economic development of communities in Uganda: a case study of Kibuku fish ponds. The design used both qualitative and quantitative methods. Qualitative shall include use of respondents' responses as themes that was developed based on the research questions. However, quantitative approaches involved the use of descriptive statistics generated with frequency tables, graphs, and Charts. The investigation was covered on contribution of fishing activities on the socio-economic development of communities in Kibuku fish ponds. The study focused on a total of forty (40) respondents, 10 of whom expected to be government official, 15 traders, and 15 farmers that are currently. To take note the government officials was from Ministry of agriculture animal industry and fisheries among others to represent the government. Other key interviews were conducted at agricultural strategic plan, food and agriculture organization among others departments. The study used questionnaires because of the nature of the data which seeks for feelings and perceptions of respondents given the time available and the objective of the study. Questionnaires was used to avoid subjectivity that results from close contact between the researcher and the respondents. The questionnaire was preferred because it collected a lot of information over a short time and less expensive. Self-administered questionnaire was used to collect primary data where by a set of predetermined questions was designed to collect data from community members who was used both children household members. Respondents allowed

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filling the questionnaire and where possible the researcher shall help them in filling the responses in case of those who would provide vital study information but with no formal education. Data analysis was done after collecting the raw data from the field, editing and checking for accuracy of information, consistency and uniformity. The collected data was analyzed by use of both quantitative and qualitative research methodologies as follows; Quantitative data was grouped and statistical description such as tables showing frequencies and percentages and pie- charts as well as graphs was used for better interpretation. Qualitative data was analyzed in a way of identifying the responses from respondents that was relevant to the research problem. Data was analyzed inform of tables, frequencies and percentages using SPSS & STATA (Nelson et al., 2022)

RESULTS

Table 1: Selected Socioeconomic Characteristics of tilapia and catfish Farmers

	Mean	SD	Mean	SD		
Experience (years)	8.80	6.53	7.55	6.79	1.03	0.31
Age household head (yrs)	51.90	13.11	51.57	14.41	0.13	0.90
Level of education(years)	10.05	4.46	10.08	5.60	0.038	0.97
House hold size(persons)	10.10	4.83	11.55	5.60	1.52	0.13
	Tilapia Farmers		Catfish Farmers			Chi square value
Credit access (%)	26.70		31.70			0.55
Fertilizer use	88.3		85.0			0.288
Lime use (%)	15.00		16.70			0.80
Sex of household head (%)	98.30		95.00			0.31
Practiced sampling (%)	58.30		65.00			0.45
Kept records %	41.70		51.70			0.27

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(Source: Survey data 2017/ 2019)

The usage of lime by farmers was discouraging. Lime kills all living organisms in a rehabilitated pond before a new set of fish fry are brought in. A percentage of 16% for TLFs and 17% for CTFs were reported to have utilized it. This level of use was low and could result in catfish and other organisms from previous season passing on to the next fish cycle and hence cannibalizing the newly stocked fry/fingerlings. This is not surprising as reported elsewhere for use in other agricultural enterprises. Though not all lime imported is utilized for aquaculture production, according to MAAIF (2010), only 0.5 and 2 metric tons of lime out of 46 and 108 metric tons of the total fertilizer imports for Uganda were imported for the year 2006 and 2007 respectively.

Overall, the majority of the fish farmers were males (98.5% and 95%) for TLFs and for CTFs respectively. There was no significant difference between the two enterprises. The high number of males can be due to the fact that pond establishment needs more manual labour and most women don't own the land resource which is vital in fish farming. Findings reveal that 58.3% of tilapia farmers practiced sampling. This was practiced in 65.00% of catfish farmer enterprises. The percentage difference between TLFs and CTFs was not significant. It is noted with concern that more than 40% of the farmers do not practice sampling which is vital in monitoring the wellbeing of fish. Through this, farmers can establish the number of fish present, their growth rate and will be able to take corrective measures. There was no significant difference between TLFs and CTFs in percentage of farmers keeping records (41.7% for TLFs and 51.7% for CTFs).

Table 2: The influence of the fisheries activities on the community economic development in Kibuku fish ponds

Response	Total Frequency	Total Percentage%	Accumulative percent%
Increase household income	20	50	50
Stabilizing & increasing domestic food production	10	25	75
Create employment opportunities	5	12.5	87.5
Support forwards education	5	12.5	100
Total	40	100	

Source: Field Data, 2023

According to findings respondents cited that gender discrimination refers to the unfair treatment between men and women, this was pointed out by 15% of study participants. On addition 26% pointed out that gender discrimination means segregation in terms of sex, this could be in employment or any other opportunities in life. More so 32% of the respondents mentioned that gender discrimination refers to prejudice among persons, where people are wrongly judge in relation to others. The study revealed that 25% of the respondents believed that gender discrimination is all about favoritism in various ways.

Table 3: The relationship between Fisheries and household consumption in Kibuku Fish Ponds.

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Response	Total Frequency	Total Percentage%	Accumulative percent%
Increase household income	20	50	50
Stabilizing & increasing domestic food production	10	25	75
Create employment opportunities	5	12.5	87.5
Support forwards education	5	12.5	100
Total	40	100	

source: **Primary Data**, 2023

From the findings it was found that, there is 50% respondents who agreed that fisheries activities have impacted on the household income in Kibuku Fish ponds, based on the findings it clear that

20(50%) revealed that there is likely to be an increase in household income which help them obtain the necessities while 10(25%) also revealed that fishing contribute on the stabilizing and increasing domestic food production for both sell and home consumptions, therefore, this implies that in Kibuku fish ponds there is likely to of more food secured compared to other areas with such activities, there is also 5(12.5%) respondents who revealed that fisheries activities have created more employment opportunities to both elders and young people and finally, it's been identified fisheries also support the community in terms of accessing education where people get money from fish sold to get money to support their children to access education.

Table 4: The influence of Fisheries as a safety net at the individual household level in Kibuku Fish Ponds

Fisheries as a safety net at the individual household level	Total Frequency	Total Percentage%	Accumulative percent%
Yes	40	100	100
No	0	0	100
Total	40	100	

source: **Primary Data**, 2023

Basing on the findings it was found that there is an influence of fisheries as a safety net on individual household level since the majority of respondent agreed with the matter. it was found that 40(100%) respondents supported the view that fisheries are as safety net to the people in Kibuku Fish pond surrounding areas. however, none of respondent responded that there is no influence of fisheries as safety net at the individual household in Kibuku Fish pond.

Table 5: Is fish farming profitable

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Response	Total Frequency	Total Percentage%	Accumulative percent%
Yes	40	40	40
No	0	0	100
Total	40	100	

Source: **Primary Data**, 2023

Based on the literature review revealed that one of most popular agribusinesses in Uganda is fish farming as for good reasons. Therefore, according to the finding it was revealed there is profit in fish farming when proper planning is implemented, as well as implying good management skills applied in doing the projects. This implies that, 40% respondents agreed that fish farming are profitable in Kibuku fish pond.

Conclusion

Based on the results of this study, there is need to increase the competitiveness of the two enterprises in the study area. As such a number of recommendations can be advanced. First, given the significance of the number of extension visits in fish profitability and competitiveness.

There is need to improve staffing in the fisheries sector in the districts. More extension staff trained in aquaculture should be employed by government and deployed at sub county level to bring services nearer to the people. This is to increase on regularity of extension visits made to farmers. Routine monitoring and advisory farm visits will enable extension staff to evaluate the farmer's performance and give timely corrective measures to avoid farmers incurring losses.

Extension staff will be able to interpret research recommended technologies to farmers. This is reinforced by Kibuku local fisheries officer, who remarked that *"Eighty percent of the farmers who start fish farming without extension advice usually fail given the fact that pond siting and construction is key to fish farming success"*. Secondly pond size was found to be significant. Given that the average pond size of 0.05ha and 0.07ha for TLFs and CTFs were small, farmers are advised to widen or construct bigger sized fish ponds. The optimum fish pond size is one acre (4000square metres)

Recommendation

To address constraint(s), Farmers should be trained on how to raise quality tilapia fry. Quick maturing tilapia breeds would save on time and earn the farmer more income. Farmers should also be advised to purchase fish seed from reputable sources like government research centers among others. Predator control strategies like use of nets, lime use, slashing around fish pond, effective record keeping, use of more than one pond in raising specifically catfish and grading of catfish at least once after one month should be vigorously promoted. This will avoid mistaking cannibalism for predation. Once effective; the number of catfish harvested will be high thereby reducing unit production costs.

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Further still, this study found the type of feed significant for CTFe among other fish type. This was in line with the fact that to be able to achieve high yields there is need to feed fish on better feeds. A well fed fish grows fast and takes a short time in the pond. This reduces the production costs and a farmer is thus able to achieve two cycles per year. At the same time Uganda produces a lot of grains including maize, sorghum, rice and soya bean. If the feasibility studies being carried out by Kibuku on different fish feeds in Uganda bear fruit, then Investors / Government and other concerned stakeholders, should consider setting up feed mills to supply quality feeds to fish farmers

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