
FACTORS INFLUENCING FISH PRODUCTION. A CASE STUDY OF KATOSI LANDING SITE, MUKONO DISTRICT

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ABSTRACT

The study investigated the causes of low production of fish at katosi fish landing site. The study was guided by two study objectives; to find out the physical causes of low production of fish, to find out the Scio economic factors that have led to low production of fish at katosi. The study used a cross-sectional research design whereby da sample of 40 respondents was involved in the study and data was collected using questionnaires and interview guides. The results of the study showed that the linear combination of the indicator variables used in the model had an explanatory power on the outcome variable (fish production). The research shown that among the human factors, heavy taxes greatly affect fish production. The higher taxes imposed on fisher men and their crews by the government through Uganda revenues authority greatly affect the production of fish due to the fact that most people quite the fishery sector due to the unfavorable working conditions at the site. Therefore, this discouraged fish production at katosi because of the low profits gained from the activities they do. The study recommended that the government should provide subsidies to fisher men and their crews to keep people in the fishing sector

Key words: fish production and katosi landing site

Background of the study

Fish has always been an important source of protein in the human diet and on a global scale, fish and fish products are the most important source of protein and it is estimated that more than 30% of fish for human consumption comes from Agriculture (Kazaara & Christopher, 2023). Over the past three decades, Agriculture has developed to become the fastest growing food-producing sector in the world. A large proportion of fish products come from small-scale producers in developing countries. More than 80% of global Agriculture products are produced in fresh water. From its early development in Asia, Agriculture has undergone huge development and is today highly diversified (Allan et al., 2023).

Asia – including South Asia, South-East Asia, China and Japan – is projected to make up 70 percent of global fish consumption by 2030. Sub-Saharan Africa, on the other hand, is expected to see a per capita fish consumption decline of 1 percent per year from 2010 to 2030 but, due to rapid population growth of 2.3 percent in the same period, the region ‘s total fish consumption will grow by 30 percent overall by (Collins et al., 2023).

Fishing is widely practiced all over the world. About 70% of the earth’s surface is covered with oceans, seas, lakes and inland waters. And this therefore makes it possible for fishing to take place in many countries. The Lake Victoria is a treasured natural resource in larger Eastern African region as it supports the livelihoods of about 30 million people directly or indirectly (World Bank, 1996; Odada el al., 2006). The region has experienced rapid urbanization over the

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recent past with the towns concentrated along the lake's edge growing at rates far in excess of the regional average of 3% per year (Jackline et al., 2023). The fishing industry is very important to the Ugandan economy and it is the most non-traditional agriculture export commodity. Fishery contributes 12% to the agriculture gross development product and about 3.0% to the national gross development. The global increase in population including Uganda's population has led to more exertion of pressure on water bodies. Lake Victoria has many fish landing sites like; Kasenyi and Kigungu in Wakiso district, Masese in Jinja. Ssenyi and Katosi in Mukono (Rashid et al., 2023).

Traditionally Katosi was a fishing village and landing site for water craft transporting people and merchandise between Koome island in Mukono and the Buvuma island in neighboring Buvuma district and the main land, it later become a major fishing center with the majority of fish exported to Europe and middle east (ABDALLAH, 2019). As of now the village has increased in economic importance leading to increased population around the lake that leads to increased competition among fisher men and their crews causing low production of fish at katosi landing site.

Statement of the problem

Access to adequate fish or consumption at household level is essential to meet the dietary requirements for children (Oromo et al., 2023). During the last decades of the 20th century and in the first decades of the 21st century, katosi become a major fishing center with the majority of catch exported to Europe and Middle East (ABDALLAH, 2019) though it has grown into a commercial landing site handing fish for export. Fish production over the years has been declining in katosi, and the recently concluded baseline study by Katosi Women Development Trust in fishing communities revealed that even fishermen cannot get fish for selling or for eating. Though the reason for the decline of fishing activities was not stated. it is important to understand the underlying causes for decline in fish quantities at katosi landing site because it is a great social and economic contribution to the population (Ntirandekura & Christopher, 2022). This motivated the researcher to study, observe, and analyze the factors leading to low production of fish in Katosi landing site.

Specific objectives

1. To find out the physical causes of low production of fish at katosi landing site
2. To find out the Socio economic factors that has led to low production of fish at katosi data

Research question

To what extent do physical factors influence fish production among small scale farmers at katosi landing site

To what extent do social economic characteristics influence fish production among small scale farmers at katosi landing site

Methodology

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Research design

Quantitative and qualitative research design was used in this study. The option of the design was associated with the research questions. This is in accordance with the recommended design for impact and result studies suggested by (Creswell, 2014)

The quantitative design was to enable the researcher to gain depth of understanding by studying the feelings and the behavior of the respondents in the situations and analyze the data appropriately

Population of Study

The study population comprised of women and men found at Katosi which comprised of fishermen, local authorities, fish consumers, fish traders, because they were the people targeted with the required information. The inclusion of both male and female respondents was done in order to capture the differences in the levels of fishing as an activity carried out at Katosi landing site.

Sample Size Determination

The sample size was determined using Yamane (1967) formula presented in equation. Katosi landing has a population of 1000 people (UBOS, 2022) and out of these 35% are fish traders, 40% are fishermen and 25% is local administration. Considering this population, respondents were computed to be 40 in number.

$$n = \frac{N}{1 + N(e)^2} \dots\dots\dots (i)$$

Where, n = Sample size

N = the population size taking it to be 1000

e = The level of precision taking it to be 10% given a 90 % confidence interval Hence, value for n can be computed as follows

Sampling Techniques**Purposive sampling Technique**

Purposive sampling, also known as judgmental, selective, or subjective sampling, is a form of non-probability sampling in which researchers rely on their own judgment when choosing members of the population to participate in their surveys. According to (Colin Robson, 1996) purposive sampling is where a researcher uses his judgment to select participant of his study, this is basically done basing on previous knowledge of the population and specific purpose of the study. This method was administered in the selection of local council one chairpersons were selected using purposive sampling because of their role in their respective community.

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Simple Random Sampling Technique

Simple random sampling is the technique whereby every member of the population has an equal and independent chance of being selected to participate in the study, asserting that if the population is too large the Simple Random Sampling technique is the best method to obtain the representative (Lokesh Koul, 2007). Random sampling technique was therefore employed in selecting community members who were involved in the study. This method was chosen because it eliminates biases in one way or the other. This sampling helped to get a manageable size of the population and ensures the generalization of the findings. According to (Amin, 2005), sampling refers to the process of selecting members of the study from a defined population usually with the intention that the sample accurately represents that population. Therefore, sampling is the act of selecting members from a population in such a way that sample elements represent the population. This was expected to provide a reliable and representative sample required for the study and this was used to select the community members

Data Collection Methods

The survey to identify factors responsible for the fish declaim was conducted through questionnaire administration and personal interviews. An initial literature search guided the development of survey materials. A structured questionnaire aimed at respondents involved in the fisheries sector was developed, and relevant extracts from this questionnaire were directed at specialist informants (District fisheries officer). Interview guidelines were developed for meetings with fish traders and processors (Katosi Women fish processors Association and Women of Hope, Katosi). All in all 40 fishermen were interviewed individually, focused group meetings were held with 40 fishermen in 4 groups, and primary data was collected from 40 fishermen. In addition, 10 buyers and 14 key informant interviews were conducted (Appendix 1). Questionnaire used to guide interviews was translated in the local language best understood by the respondents.

Data analysis

The study generated both qualitative and quantitative data. Quantitative methods were used to analyze data whereby data was tabulated and presented into percentages as well as graphs. During tabulation, numerical figures, frequencies and percentages were calculated by use of SPSS and Stata, and then presented in tables to explain and make a visual impression of the findings and also enable the researcher to come up with logical and specific conclusions (Nelson et al., 2022). On the other hand, qualitative methods were used whereby categorical findings were coded and then copied and pasted in Stata for data labeling.

RESULTS

Human factors that lead to a decline of fish production

The survey results showed that higher taxes imposed on fisher men and their crews by the government through Uganda revenues authority greatly affect the production of fish. Over 90% of the respondents indicated that the unfavorable working conditions created by government discouraged fishing at katosi as result of the low profits gained from the activities. Whereas there has been continuous supply of fish from the landing site, only 14.3% of the fishermen do fishing as the only activity (Wegulo et al., 2023).

The fishermen interviewed identified deforestation as another factor contributing to the decline in the fish production at Katosi landing site. The results show that 85.7% of the respondents had cut trees to make boats which are used fishing. This act has significantly reduced the amount of liter that fall in water to provide food for fish (Faith et al., 2023).

According to the research carried out at katosi landing site, both physical and human factors affect fish production. Human factors greatly influence fish production more than physical factors.

The higher taxes imposed on fisher men and their crews by the government through Uganda revenues authority greatly affect the production of fish due to the fact that most people quite the fishery sector due to the unfavorable working conditions at the site. Therefore, this has discouraged fish production at katosi because of the low profits gained from the activities they do. Deforestation is reducing the amount of leaf falling in the lake (Annet et al., 2023). People cut trees in order to make boats that are used in transportation of people, their properties and fish. This act reduces the amount of liter that fall in water to provide food for fish.it also lead to dry seasons due to the change in climate that brings about the dry season hence reducing the water table on the lake.

Author Andrew Tanentzap from University of Cambridge's department of plant ascertained that that fish had almost 70% of their biomass made from trees and leaves instead of aquatic food chain sources and this leads to reduction of food for fish hence affecting production (Kazaara & Christopher, 2023)

There is rampant theft and robbery of gears and engines on the lake. For example, some people steal fishing nets from other fellows, and this problem affects both, fishermen and their crews. Once their gears are stolen, they have to start afresh and incur other costs of replacing the stolen equipment's. Other effects include risk in losing their lives, this is because some people are killed when robbers attack them or they lose some parts of their body. Gear theft has also been noted as a problem affecting fishermen.

Poor preservation method is one of the human factors that have influenced fish production at katosi. Preservation method like sun drying where fish is dried on the ground contaminant fish hence reducing its quality.

Preservation methods needed to keep fish in a better condition are not enough and are not at the standard level, they use smoking as a method of fish preservation, which is not the best method of preservation. In this case, fish is not dried properly and may cause rotting of some reasonable amount if fish. Also, most of them dry their fish on the ground, especially silver fish which lead to production of fish of poor quality in the market. This shows that there's still a problem of preservation, this has led to a decline of fish production at katosi landing site. Due to the fact that they lack

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good storage equipment and in addition to poor transport facilities, they are forced to sell their fish at low prices in order to avoid spoilage. This has also been noted by (Ivan & Kazaara, 2023).

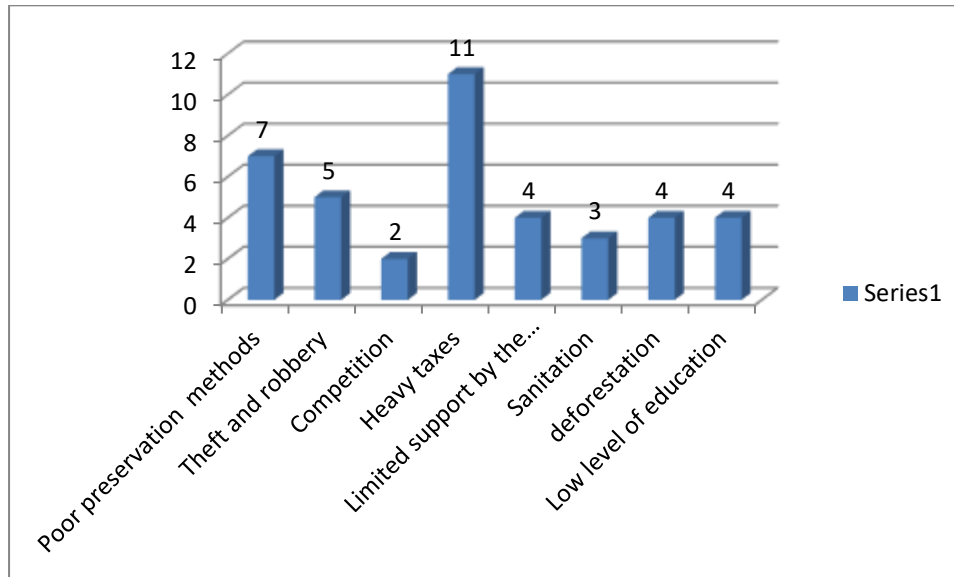


Figure 1 Showing human factors that affect fish production at Katosi landing site

Natural factors that lead to a decline of fish production

The researcher found out the following natural factors to be affecting fish production at Katosi landing site. Climate is one of the natural factors that the researcher found out to be affecting fish production. This is because of the farming activities done around katosi and other human activities like road construction leading to climatic changes which affect fish multiplication and breeding hence reducing the number of fish catch. Industrial revolution has also led to change in temperatures. Hot climate does not favor the growth of planktons on which fish feed on hence affecting the production of fish at katosi. Due to the hot conditions experienced seasonally, water in the lake has reduced hence lowering fishing activities and reducing the fish catch. This was further explained more by the one of the fishing officers, where he said that fish reduces seasonally and also increases seasonally. He noted that, during favorable climate characterized by medium and enough rainfall, 10-14 tons of fish are caught while in dry seasons 4-7 tons of fish are caught at katosi daily. Therefore, climate also influences the production of fish at katosi landing site.

Climate change has serious implications for global fisheries and aquaculture. Besides the physical and financial drivers, climate is a major driver that enhances the aquaculture sector growth and sustainability (Journal et al., 2023). The variability of temperature, air humidity and total rainfall shows negative signs to aquaculture production in ponds system. These problems have contributed to major loss of production and increase in socio-economic and income

vulnerability among farmers. The small scale or individual farmers are among the highest vulnerable to climate change (Tan, 1998).

Floods which result due to many rains may affect people's property and business, bringing fish production at a standstill. Flood cause much destruction of people's property and business around the landing site. Most people say that floods affect them dangerously during heavy rain seasons, their property is destroyed and people can no longer do fishing because of fear of drowning, this reduces fish catch during rainy season hence affecting fish production at katosi (Nicholas et al., 2023)

Predators were another factor the researcher found out as one of the natural factors influencing fish. Birds where one of the predators that feed on silver fish in the lake. This has reduced the quantity of fish caught at katosi grounds. Crocodile and Nile perch also feed on tilapia and other smaller fish in the waters; this has also reduced fish catch at katosi landing site (Nicholas et al., 2023)

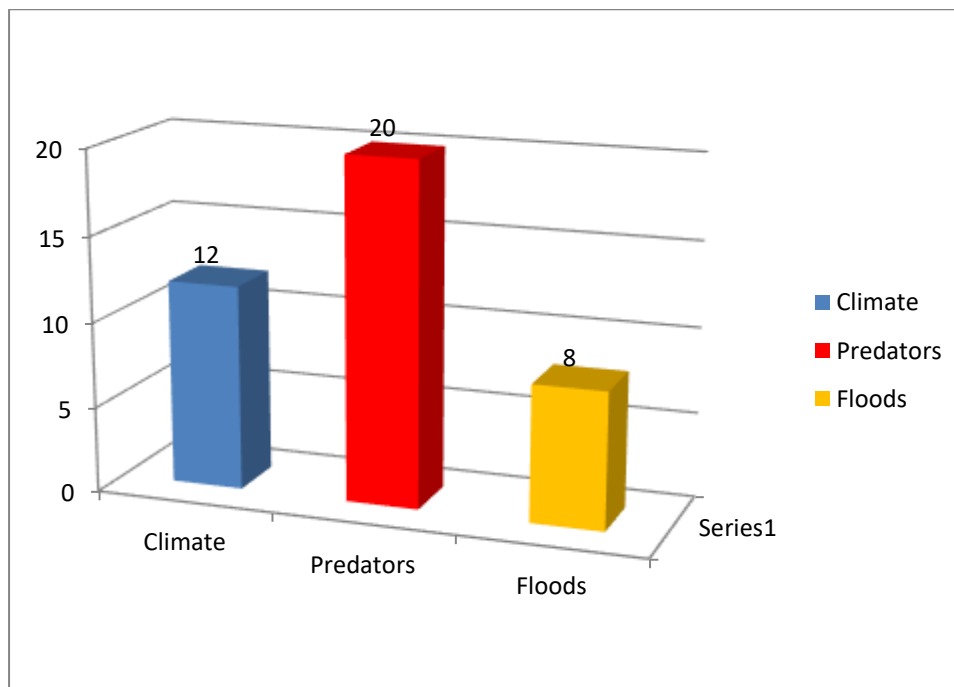


Figure 2: Showing factors affecting fish production
Conclusion

Based on the results, the study concluded that various factors influence fish production at Katosi landing site. And more so, the heavy taxes imposed on fishermen and their crews reduce their profit margins and hinder entry of other people from joining the fishing industry. Therefore, great care and support through tax reductions and subsidies need to be

emphasized to ensure that people who participate in the fishing activities keep in the fishing industry, this ensures steady continuous supply of fish to the market.

Recommendations

The government should provide subsidies to fisher men and their crews to keep people in the fishing sector

Ensures that tax examiners, tax investigators and tax auditors have the relevant skills and knowledge to detect and combat the tax crime in the fisheries sector

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