THE IMPACT OF FISH FARMING ON PEOPLES' INCOME IN LUMINO SUB – COUNTY BUSIA DISTRICT

BY

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A RESEARCH REPORT SUBMITTED TO THE FACULTY OF EDUCATION IN PARTIAL FULFILLMENT OF THE REQUIREMENT FOR THE AWARD OF DEGREE OF BACHELOR OF ARTS WITH EDUCATION OF KAMPALA INTERNATIONAL UNIVERSITY

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DECLARATION

I **OKUMU JUSTUS, REG. NO: BAE/16748/71/DU,** hereby declare that this report is my original work and has never been submitted for any academic award elsewhere.

Name: **OKUMU JUSTUS**

Sign: .....

Date: 27/JULY/2010

APPROVAL

This report entitled "The Impact of Fish Farming upon People's Income in Lumino Sub-County Busia District" is under my supervision and I have approved it for submission to the Faculty of Education, Kampala International University.

Supervisor: **MR. TINDI SEJE**

Signature: .....

Date: 27th July 2020.

DEDICATIONS

I dedicate this work to my dear parents Mr. Wandera Julius Okumu and Mrs. Tabisa Nabwire Wandera, who have collectively struggled to educate me at all levels.

More dedication goes to my dear wife Musasizi Evelyn and my son Barasa Andrew.

Still, this work is dedicated to; Mrs. Mary Akuku Wandera, Mrs. Anne Nabwire Wandera and Mrs. Grace Ajiambo Wandera who are my step mothers.

ACKNOWLEDGEMENT

It may be difficult to appreciate the contribution of those who assisted me in compiling and writing this research report.

However, I wish to express my thanks to all lecturers in the *Department of Education,* Kampala International University for their mature scholarly comprehensive advice and guidance. Great thanks go to Mr. Tindi Seje, my research supervisor for accepting to be consulted frequently in the process of compiling this study. Without his guidance, it would have not featured.

I also acknowledge my child Barasa Andrew who bravely contained the loneliness of having no Dad at home for three years. This work is a clear testimony to deeming you of the cost of missing my love, warmth, care and protection while I was away for studies.

Finally, I wish to extend thanks to Brother Okumu Charles, Ouma Masinde, Sister Misanya Carolyn, and the copy typist who typeset this work.

May the Lord our father bless you all!

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LIST OF ABBREVIATIONS:

F.A.O	Food and Agricultural Organization
Sq.M	Square Miles
LC	Local Council
NAADS	National Agricultural Advisory Services
NARO	National Agricultural Research Organization
NGO's	Non Governmental Organizations
U.I.A	Uganda Investment Authority
LVFO	Lake Victoria Fisheries Organization
GDP	Gross Domestic Product

ABSTRACT

The study endeavored to investigate the "Impact of Fish Farming on People's Income in Lumino Sub County, Factors that hindered the proper growth and development, strategies designed to improve on the performance of maximum production, and the relationship between fish farming and economic development.

The study was conducted in Lumino Sub County in Busia district, eastern part of Uganda

Four research questions were designed as a guide to the study. These were;

1. What are the Impacts of fish farming on people's income in Lumino Sub County?
2. Which factors hinder the proper growth and development of fish farming in Lumino Sub County?
3. Which strategies have been designed to improve on the performance fish farming in Lumino Sub County?
4. What is the relationship between fish farming and economic development fish farming of Lumino Sub County?

The study had 20 respondents who were all men above 35 years comprising 1 Fishery Officers, 10 Fish Farmers and 9 Council Officials.

A study questionnaire was used to obtain information from Fisheries Officers. This was chosen as being favorable for the literates while two different forms of interview guides were used to collect data from Fish Farmers and Local Council Officials. The instrument enabled the researcher to gather data from both the illiterates and literate respondents. The researcher was additionally able to provide explanations to questions which looked not well understood.

The findings in accordance with, "What Has Been the Impact of Fish Farming on People's Income in Lumino Sub County."

CHAPTER ONE

1.0 INTRODUCTION

This chapter introduces the study, clearly stating the problems and background. It goes a head to give the objectives and the significance of the research pointing out the scope of the study

1.1 BACKGROUND OF THE STUDY:

In recent years (2003-2009) there has been a low income among the people of Lumino Sub-county in Busia District. The low level of income amongst the people has been attributed to lack of viable economic activities, poor yields from agricultural produce and poor breeds of animals reared. Despite the introduction of fish farming in the area, the problem of low income amongst some people still exists. (Gusino F., 2005)

Lumino Sub County is found in the southern part of Busia district, eastern province of Uganda. The natives in this area are Basamia who live with Bakenye and a few Basoga.

Growing of crops is done on subsistence level. Goats, sheep and mostly cattle are reared. Being along the shores of L. Victoria, majority of the occupants participate in fishing. The government having realized the use of poor fishing methods for instance under size gillnets, fish poisoning among others encouraged Basamia who are traditional fish eaters to sink fish ponds. According to the government, the project would subsequently alleviate them from depending on fish from lakes and rivers also supplement on their income.

FAO (2000) asserts that aquaculture started in Uganda in 1941 and was officially proposed by the colonial authorities at Kajjansi in 1947, by 1956, 1500 ponds had been constructed in central Buganda.

According to Busia District Development Programme (BDDP) (2009), the total area under fish ponds is 3800 square miles, Lumino Sub County with the largest percentage. It further reveals that about 50,000,000 (fifty million shillings) would be released to facilitate fish farmers in the year 2009 – 2010 and Lumino Sub County as a large beneficiary is targeted to get three quarters (3/4) of the money. The common species reared are Tilapia and Claria.
Following therefore the funding from different interested stakeholders like the district, NGOs and many others, a lot of benefits would accrue from fish farming. These include the immediate ones such as improvement on the household income coupled with good nutrition.

Despite the continuous funding and research carried out by other authors, there is still inadequate information on the impact of fish farming to the people's income in Lumino Sub County. Therefore it's upon this background that the researcher is interested in carrying out the study to provide detailed information to fill the missing gaps.

1.2 STATEMENT OF THE PROBLEM

In the process of alleviating poverty, some households in Lumino Sub County practice fish farming. However it is not clear whether the project has caused some socio-economic impacts to the people.
More fish ponds seem to be set up but the standard of living for the farmers is low. The majority of the ponds are small and narrow. Few farmers are able to educate their children in better performing schools. This has probably led to low literacy level in Lumino Sub County specifically in families practicing fish farming.

1.3 OBJECTIVES OF THE STUDY

GENERAL:

1. To assess the Impact of Fish Farming on People's Income in Lumino Sub County

1.4 SPECIFIC:

The specific objectives of the study were to;

2. To establish the factors hindering the proper performance of fish farming in Lumino Sub County
3. To examine the relationship between fish farming and economic development
4. To establish the strategies that can be implemented to improve on the performance of fish farming in Lumino Sub County.

1.5 RESEARCH QUESTIONS:

1. What has been the impact of fish farming on people's income in Lumino Sub County?
2. Which factors have hindered the proper growth and development of fish farming in Lumino Sub County?
3. Which strategies can be implemented to improve on the performance of fish farming in Lumino Sub County?
4. What is the relationship between fish farming and economic development?

1.6 SCOPE OF THE STUDY:

This study was conducted in Lumino Sub County Busia district. It was intended to examine the impact of fish farming on people's income in the selected areas of the sub county. The study was conducted within four (4) months and targeted the following population, 9 fish farmers, 1 fisheries officers, 9 LC officials and 50 fish ponds in four (4) parishes.

1.7 SIGNIFICANCE OF THE STUDY:

The study aimed at investigating the impact of fish farming on people's income in Lumino Sub County. The study was significant to both the researcher and the government plus the community because less had been researched on the impact of fish farming on people's income.

The finding of this research would help the government get solutions to improve on the performance of fish farming not only in Lumino Sub County but also in the rest of other Sub Counties country wide.

The research would help the government and the researcher to establish the relationship between fish farming and economic development in Lumino Sub County in Busia district. This would also help the government and the community to build strong fish ponds in future

1.8 DEFINITION OF KEY TERMS:

i. **Aquaculture:** according to the Macmillan Encyclopedia (2001), aquaculture means the system of rearing specific spices of fish domestically in a well constructed and maintained fish pond. It is the same as fish farming.

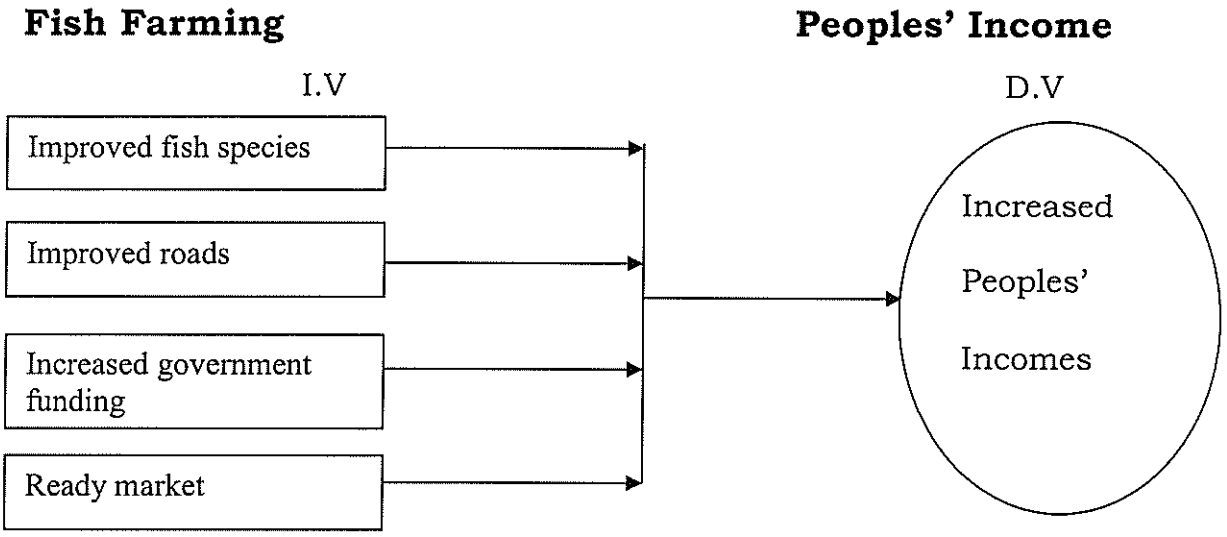
ii. **Fish pond:** according to the new international Webster's comprehensive dictionary (2000), a pond is a body of still water, smaller than a lake. A fish pond therefore is a well constructed body of still water used for rearing fish domestically.

iii. **A strategy**: the new international Webster's comprehensive dictionary (2000) defines a strategy as a science and art of conducting a campaign by the combination and unemployment of means on abroad scales for gaining advantage.

iv. **Performance**: means to act in accordance with the requirements.

1.9 Conceptual Framework

The research was conceptualized basing on the argument that if there are improved species, improved government farming backed by ready market, fish farming will lead to improved people's income in Lumino Sub County, Busia District and this can be explained diagrammatically as shown in the conceptual diagram below



Source: Field Information

Where; I.V – Independent Variables

D.V – Dependent Variables

CHAPTER TWO

2.0 LITERATURE REVIEW

2.1 Introduction

According to Dr. Jeffress R. et al (2004), the idea of Fish Farming started in early 20th century with first fish ponds proposed in countries of Japan, Norway and Peru in 1904.

In Africa the idea of fish farming was first conceived in countries of Morocco and South Africa in 1921 and Egypt in 1922.

According to Dr. Jeffress R. etal (2004), Fish Farming contributes over 180 billion US dollars towards her Gross Domestic Product (GDP). They further assert that fishing and Fish Farming contributes over ¾ of Japan's and Norwegian Gross Domestic Product in the year 1980-1981 and this has also led to increased people's income and improved standards of living in both Japan and Norway.

Concerning Africa, Dr. Jeffress R. et al (2004), further assets that Africa as a continent are between 50-80 billion dollars annually with the most booming fishing and Fish Farming has created a great impact on people's income since its establishment in 1941 in the country. However greater impact has been felt in the recent years of 2000 – 2009 due to continuous sensitization by its government.

According to the Department of Fisheries Resources – www.ugasamak.com; (Under development), aquaculture was started in Uganda in 1941 after carp was improved into the country and was officially proposed by the colonial authorities and the Kajjansi Fish experimental station was established in 1947 and about 1500 Ponds were constructed by 1956 where most of them concentrated in Buganda.

According to the Uganda fish processors and exporters association web site w.w.wufpea.com, there are currently an estimated 12000 farmers involved or extension workers employed by local governments.

According to Lumino Sub County development plan (2009), there are about 20 fish ponds with only 9 better performing farmers.

2.2 IMPACT OF FISH FARMING AND ECONOMIC DEVELOPMENT:

According to Gusino F. (2005), fish farming has tried to improve on people's incomes in Lunyo Sub County as well as other Sub Counties in Busia district. This has been through the selling of fish by the farmers to the local markets including processors such as Majianji fish processing factory popularly known as Igloo food industry. He further argues that such increased income has been invested in other ventures such as paying school fees for children. This has tried to fight rampant illiteracy thereby improving on the skills of those people leading to economic development of the area.

2.3 FACTORS HINDERING PROPER GROWTH AND PERFORMANCE OF FISH FARMING:

According to Dr. Jeffress Ramsey etal (2004), natural disasters such as droughts, floods, storms and other natural disasters all combined have affected its proper performance of Fish Farming both in Africa and its globe.
They argued that the annual economic losses from fishing and Fish Farming related to natural disasters have been estimated are 30-50 billion US dollars globally.

The also further asserted that Africa alone in 2000 more than 1 million lives were lost in connection with natural disasters that struck four (4) countries of Egypt, Madagascar, Mozambique and Zimbabwe. This was associated with

economic losses in agriculture such as; animal rearing, poultry and Fish Farming.

According to Uganda Fish Processors and Exporters Association website w.w.eufpea.com, a number of factors have hindered the proper growth and performance of fish farming in Uganda for example the most serious among them being the poor government funding of the project and over taxation of the processors which make them lower the prices of fish hence discouraging fish farmers.

According to the Uganda investment authority website – www Uganda invest.com the undependable climate conditions have discouraged farmers hence hindering the proper growth and performance of fish farming in the country. (Alex Ocen 24th /Wed/June (2009) new vision.

2.4 CONDITIONS OF FISH PONDS:

According to the Uganda Fish Processors Association (UFPA), the conditions of fish ponds both in Uganda and Africa in general are still small that they can not accommodate a bigger number of fish. This has left fish farmers with a hand cap of fish in their ponds.

According to Dr. Jeffresss Ramsey etal (2004), most of the fish ponds in Africa are sunk near the ware streams whereby majorly depending on water from those streams. For example a fish pond at Kibimba Bugiri district, the second largest in Uganda entirely depends on the after from Lake Victoria. (Uganda Investment Authority website, www.ugandainvest.com)

According to Lumino Sub County Development Plan (2009), the fish ponds across the sub county are still in a critical condition. They were still too narrow and shallow because of the poor funding by the government.

The plan shows the longest and widest pond being Okunade fish pond of Mr. Julius Wandera that stretches 190 by 80 metres, followed by Nathanile Nakeri's of 120 by 50 metres. This is still a small size.

2.5 PROPOSED STRATEGIES TO IMPROVE ON THE GROWTH AND PERFORMANCE OR FISH FARMING IN LUMINO SUB COUNTY:

Dr. Jeffresss Ramsey etal (2004), looking at natural disasters as being one of the major problems/factors hindering proper performance of Fish Farming proposed that there is a very big need for African governments to strengthen and empower them financially so that they are above to contain such natural disasters s they occur. This may probably save the lives of people who may later engage themselves in Fish Farming.

According to Lumino Sub County Development Plans (2009), among the proposals, the government should increase on its funding towards the project so as to promote fish farming.

According to the Uganda Fish Processors Association, the government should also reduce its taxes on fish process so as to encourage them buy fish from fish farmers at a relatively higher price that can encourage these farmers to engage in the business.

CHAPTER THREE

3.0 RESEARCH METHODOLOGY

3.1 Introduction:

In this chapter, the methodology used to carry out the study included; Research Design, Population of study, Location of the study, Sample selection, Instruments of Data Collection, Research Procedure, Validity and Reliability, Data Management Presentation and analysis, and Limitations of the study.

3.2 RESEARCH DESIGN:

The study was conducted on selected fish ponds like Okunade fish pond, Nathanile Nakeri's fish pond, Budimo community fish pond, by simple random sampling.

Lumino Sub County was selected for the study because it is an area well known to the researcher (home area). The fish farmers were identified on variable interest.

The study was essentially descriptive and analytical which adopted qualitative methods of data collection. The study used two different questionnaires and an observation guide.

More primary data was generated through structured interviews where a questionnaire was used to gather information about the impact of fish farming on people's income, factors that have hindered proper growth and performance of fish farming, the relationship between fish farming and economic development as well as the proposed strategies to improve on the performance of fish farming in Lumino sub county.

Information researched from the internet was also useful in supplementing the study findings as well as providing information of case studies done in other

countries such as Norway, Japan, Morocco, South Africa and other countries that have practiced fish farming.

3.3 POPULATION OF STUDY:

The study was conducted in Lumino sub county Busia district. It mainly consisted of fish farmers, fisheries officers, LC officials and local people from Majanji, Dadira and Hashule parishes. The researcher intends to have 100 questionnaires.

3.4 LOCATION OF THE STUDY:

The study was conducted in Lumino Sub County in Busia district. The target villages were Sitengo, Munadwa B, Bunyore and Budimo. They were selected because of relatively having larger fish ponds and the farmers themselves had interest in the project.

3.5 SAMPLE SELECTION:

The samples were got from the sub county Fish Farming register, fisheries officers and the local council leaders of Lumino Sub County. Their total sample comprised of 20 respondents out o which eleven (11) were fish farmer out of 20, nine (9/25) LC officials and one (1/3) fisheries officers.

This can be tabulated as below;

Respondents	Total Number	Sample Selected	Percentage (%)
Fish farmers	20	11	55
LC officials	25	9	44
Fisheries officers	3	1	1
Total	48	20	100

Source: Researcher made

3.6 INSTRUMENTS OF DATA COLLECTION:

During the search, the collection of data was done using various methods and instruments. A combination of instruments was indeed appropriate due to their different strength in capturing the relevant information. The major instruments used included:-

3.6.1 Questionnaire- This was the major instrument used in data collection. Before data collection, a pilot study done in which the questionnaire was pre-tested to check the validity of the information that would be collected. This was done to ensure that the aspects of the study objectives were covered. The questions were both structured and open –end. Two sets of a questionnaire for the fisheries officer and the fish farmers (refer to questionnaire Appendix A and B)

3.6.2 Interview Guide–This was specifically designed to collect data from LC on grounds that the majority were illiterates. Still it was an instrument of data collection which gave an opportunity to the researcher to interact with the respondents and collect a lot of relevant information.

3.7 RESEARCH PROCEDURE.

The researcher obtained a letter of introduction from the University which introduced him to the Sub-County and local authorities in Lumino Sub County. This was to enable the researcher to explain the purpose of the study and gain access to the fish farmers' records register which was needed for sample design.

3.8 DATA MANAGEMENT, ANALYSIS AND PRESENTATION:

Editing of data was always done at the end of each working day after gathering questionnaires and data of the interview guide from the field, and analyzed for

accuracy, consistence and compilation of information which data was organized and the analyzed using content analysis. Comparison of the findings and hypothesis was made in order to arrive at appropriate conclusion.

Data presentation was discussed according to research questions presented inform of notes, statements as indicated in chapter four.

3.8.1 VALIDITY AND RELIABILITY

The instruments of data collection were designed and given to colleagues and the supervisor for relevant advice and later pre- tested.

3.9 LIMITATION OF STUDY

Some problems were experienced during data collection. These included;
There was difficulty in accessing respondents as most fish farmers were busy with some other work and this involved making repeated visits and even rescheduling interviews until evening.

Some of the fish farmers remained doubtful and scared about the reasons for carrying out the research. Some respondents seemed to misconceive the aims of the research. This was overcome by the researchers continued assurance that the information gathered would be purely for academic purpose.

The funds for conducting this research were limited. A lot of money was spent sport on photocopying the questionnaires, transport to different places coupled with repeated visits and other maintenance expenses. Occasional delays were experienced in trying to mobilize the necessary funds from friends and relatively.

CHAPTER FOUR

PRESENTATION, INTERPRETATION AND ANALYSIS OF FINDINGS

4.1 INTRODUCTIONS

The chapter endeavored to probe into the "Impacts of Fish Farming on People's Income in Lumino Sub County". The presentation, interpretation and analysis of findings is done in accordance with research questions.

4.2 RESEARCH QUESTION 1

This was "what has been the impact of fish farming on peoples' income in Lumino sub county?" it covered the number of fish ponds in specific selected areas and the various contributions of fish farming to people's income. The previous findings by Uganda Fish Processors and Exporter's website ww.wufpea.com, there were estimated 12,000 fish farmers. According to Lumino Sub County Development Plan (2009), stated that were about 20 fish ponds.

From the research findings, 100% of the respondents revealed that many people were getting encouraged into fish farming. The research captured from 80% of the respondents not being sure of the number of fish ponds in the selected areas. They went on to assert that many more were being sunk every year leading to the difficulty in telling their exact number. In a related development 20% of the selected respondents could approximate the existing fish ponds to be less than 50. They further pointed out that most of these well developed fish ponds belonged to farmers with very strong attachment to the Sub-county officials. Still from the research findings, 100% of the respondents ascertained that the biggest fish ponds were in Budimo village.

Concerning the contribution of fish farming to people's income, the research findings captured 100% of the respondents proudly enumerated several economic transformation gained by fish farmers. Among those mentioned

include the project being source of money. They went on to suggest that heavy earning from fish enabled the farmers to meet the basics in life.

Still, 100% of the selected respondents asserted that all the ponds were owned by the Samias who are well known fish eaters. They proceeded to state that regularly, fish is harvested as a source of food to supplement on their diet.

Additionally, 100% the respondents selected for the study agreed by observing that fish farming has offered employment opportunity to most redundant youth. That would happen during the sinking processes. Some youth acquired the skills of digging fish ponds which continuously enabled them to earn a living. The youth who own fish ponds have become wealthy, 100% the respondent's added.

30% of the respondents pointed out that heavy earnings were depends on the size of the ponds. They continued to state that the size would also determine the number of fingerlings to stock.

However, 60% instead suggested that a farmer needed to properly feed the fish in order to receive high returns. He added that while stocking, a fish farmer would be required to have species that were on high demand for purchase. 20% of the respondents disputed the suggestions of 30% and 60% stating that species that fatten and multiply faster are better. Claria was most preferred to Tilapia because of their high returns.

4.3 RESEARCH QUESTIONS 11

The research also continued to answer "which factors that have hindered the proper growth and development of Fish Farming in Lumino Sub County"

According to the Uganda investment authority web site, ***www.ugandainvest.com***, undependable climate discourage a Fish Farming. 80% of the respondents stated that most Fish Farmers relied on water

naturally flowing from several streams. They went on to observe that wherever it shines so hot, the water level and quantity would reduce hence affected the project still the 80% revealed that Okunade whose water flows from undergrounds faces serious challenges. During dry species the water level lowers drastically affecting the oxygen circulations, they added

Referring to Lumino Sub County Development Plan (2009) the majority of the fish pond was in critical conditions. They were still narrow apart from Budima community pond owned by a group of Fish Farmers who were initially supported by an NGO, 70% of the respondents revealed. 20% pointed out that the individual's farmers who had large ponds had strong attachment with sub county officials. 10% instead associated the poor conditions of ponds with shortage of capital without giving any details.

100% of the selected responded stated that mot Fish Farmers could not get the bet feed. They went on to observe that the majority farmers feed their fish with maize brand mixed with Dagaa fish remains which were expensive to acquire. The recommended way to mixing as still a challenge they add.

65% of the respondents argued that most fish farmers desired to stock the traditional species of claria harvested from the area around. The findings also captured 35% respondents stating that some farmers stock Kajjasi variety whose maturity is faster although they heavily die.

100% revealed that the ponds being concentrated in villages hot a long way from Lake Victoria and River Sio, the community prefer fish from natural water bodies to those from ponds. They went on to observe that most people neglected buying their fish hence low demand.

According to Lumino Sub county Development Plan (2009), poultry, live stock and growing of crops under were priority areas in agriculture. Fewer farmers were being facilitated to drill fish ponds 80% of the respondents revealed whereas 20% could not give any opinion

100% of the respondents gave other challenges hindering the proper growth and development of fishing industry. Among them were monitor lizards, snakes, thieves and some birds.

4.4 RESEARCH QUESTIONS 111

This was, "Which strategies can be implemented to improve on the performance of fish farming in Lumino sub county?" relating to Lumino Sub County Development Plan (2009) it was argued that government needed to increase the funding to promote Fish Farming. 70% of the respondents stated the digging of few existing larger ponds was funded by the government. They proceeded to observe that more of the same size of ponds would only be dug if funding could be done by then governments of NGOs.

30% of the selected respondents disagreed with 70% on shortage for funds released by government to dig ponds. To them, the planners usually considered poultry and growing of crops as NAADs sponsored activities other than fish farming activities. The instead suggested that fish should be given priority to settle many fish pond

100% of the respondents suggested that existing and intending fish farmers access soft loans from finance institutions. For farmers who already own ponds would use the loans to expand on their size and also purchase the required quantity and quality of feeds, the respondents added. Relatively, they argued that with soft loans, the fish farmers would afford to procure pumps for supplying water to the ponds whenever deemed necessary. That would stop the burden of relying on natural; water the respondents added

Regarding the purchase of fish feeds and species for stocking, 60% of the respondents observed that government would set up coordination centers at parish level. They went on to mention that each fish farmer would collect a much as he wished and records re taken. During harvesting, the coordination would be in charge of marketing, selling and deduct the amount for the supplies made. The respondents further argued that the established coordination would be used to bargain high prices to benefit fish farmers. Better returns therefore would encourage more investment in the project. 30&% suggested that the government needed to supply free feeds and fish species to fish farmers. That would persuade more people to invest in acquire culture.

10% of the respondents instead argued that individuals or groups needed to purchase feeds and fish species by their won money. They went on to say that the government would recruit special acquire culture extension workers. It would be allocated each to particular fish farmers to regularly supervise and advise on the proper farming

The research findings captured 100% of the respondent's state that fish farmers needed to recruit day and night guards. Thieves would be reduced while dangerous and animals would be scared off, the respondents added

4.4 RESEARCH QUESTION 1V

The research findings are presented with regard to the research question, "What is the relationship between fish farming and economic development?"
In the earlier findings, Gusino F (2005) ascertained that increased income from fish farming was being invested in other ventures for instance paying school dues. He further observed that the illiteracy rate was being fought. 100% of the selected respondents argued in a similar way with Gusino (2005) that mot successful fish were educating their children in expensive schools. Some farmers were able to extend facilitation t other distant relatives. however, they

were unable to mention specific fish farmers whose children were in expensive education institutions except70% of the respondents answered that accumulated money from selling fish was being invested in setting up shops and agro foresting, Mr. Nathanael was among these owning a big shamba o eucalyptus which are cut for use on his furniture workshop. 30% mentioned that Mzee Makoha Ayoyi has used surplus capital to trade in cattle, Poultry farming and growing of ground nuts

From the research findings, 100% of the respondents stated that most youth around fish farmers had accessed jobs, Budima community pond employed over 30%, Mzee Ayoyi, 5 and Okuwade3, the respondents confirmed to assert.

Most household participating in fish farming constructed permanent houses. 100% o the respondents revealed. They added that it's evident with Mzee Makoha Ayoyi, Mr. Nathanael and Mzee Wandera Julius

CHAPTER FIVE

DISCUSSION CONCLUSION AND RECOMMENDATIONS

5.1 INTRODUCTION

The purpose of the study was to establish the "impacts of fish farming on people's income, factors hindering proper growth and performance of fish farming, strategies to improve on the growth and performance and how fish farming enhance economic development

5.2 DISCUSSION OF RESULTS

The findings were discussed under their respective research questions

5.2.1 RESEARCH QUESTION 1

Concerning, "What have been the impacts of fish farming on peoples' income in Lumino Sub County?"

The findings revealed that fish farming was being practiced as a source of money to the families involved and most ponds owned by Samias. A single harvest would lead to high returns of approximately 8 million depending on the stocking and feeding. As a source of income, successful fish farmers become examples to other members in the Sub- County. Digging of more fish pond features today in the area. Most people could therefore be assured that investing in fish farming is the only best way to alleviate poverty. That was arguably true when it become difficult to tell the number of fish ponds in Lumino Sub County. However, the most well developed fish ponds are owned by farmers who have very strong attachment to Sub-County official who allocate funds to facilitate the project. The research also captured Budimo village as having the largest fish ponds owned by few organized people from the community.

Examing earnings it depends on the size of the ponds and also determining the number of fingerlings to stock. Still a farmer needed to properly feed the fish. A fish farmer would again be required to have species that fatten, multiply

faster and were on high demand for purchase. Claria was most preferred to Tilapia because of their high returns as most of them would weigh approximately 6 kilos when mature being the latter.

Concerning the contribution of fish farming to people's income, the research revealed that there were already several economic transformations for fish farmers. Among those mentioned include the project being source of money enabling them to meet the basic needs in life. Samias being fish eaters traditionally, the project supplies fish regularly as a source of food to supplement on their diet.

Additionally, the research found that fish farming has offered employment opportunity to most redundant youth. That would happen during the sinking processes. Some youth acquired the skills of digging fish ponds which continuously enabled them to earn a living. The youth who own fish ponds have become wealthy as evident in opening up of shops.

5.2.2 Research Question 11

The research also continued to discuss "which factors have hindered the proper growth and development of Fish Farming in Lumino Sub County"
Undependable climate discourage a Fish Farming as most them relied on water naturally flowing from several streams. Wherever it shines too hot, the water level and quantity reduces hence affecting the project. Athough Budimo ponds have generators, still maintaining the required water is a challenge. This relatively differs from Mokunade whose water flows from undergrounds again facing serious challenges. During dry spell the water level lowers drastically affecting the oxygen circulations, they added

Majority of the fish pond are in critical conditions. They are still narrow apart from Budima community pond owned by a group of Fish Farmer.

100% of the selected responded stated that mot Fish Farmers could not get the bet feed. They went on to observe that the majority farmers feed their fish with maize brand mixed with Dagaa fish remains which were expensive to acquire. The recommended way to mixing as still a challenge they add.

Most of the fish farmers desired to stock the traditional species of claria harvested from the area around. The findings also captured respondents stating that some farmers stock Kajjasi variety whose maturity is faster.

The ponds are concentrated in villages a long way from Lake Victoria and River Sio, the community prefer fish from natural water bodies to those from ponds hence causing low demand.

According to Lumino Sub county Development Plan (2009), poultry, live stock and growing of crops were considered as the priority areas in agriculture. Fewer farmers were being facilitated to drill fish ponds.

Other challenges hindering the proper growth and development of fishing industry enumerated were monitor lizards, snakes, thieves and some birds.

5.2.3 Research question 111

This was, "Which strategies can be implemented to improve on the performance of fish farming in Lumino sub county?" relating to Lumino Sub County Development Plan (2009) it was argued that government needed to increase the funds to promote Fish Farming. The digging of few existing larger ponds was funded by the Non-governmental Organisation. More of the same size of ponds would only be dug if funding could be done by the governments and attracting more NGOs.

Planners should never consider poultry and growing of crops on the expense of fish farming as NAADs sponsored activities.

Existing and intending fish farmers needed to access soft loans from finance institutions. For farmers who already own ponds would use the loans to expand on their size and also purchase the required quantity and quality of feeds. With soft loans, the fish farmers would afford to procure pumps for supplying water to the ponds whenever deemed necessary. That would stop the burden of relying on natural weather.

Regarding the purchase of fish feeds and species for stocking government would set up coordination centers at parish level. Athough this process would have challenges fish farmer would collect a much as they wish and records are taken for a follow up. During harvesting, the coordination centres would be in charge of marketing, selling and deduct the amount for the supplies made. This centres would also be used to bargain high prices to benefit fish farmers. Better returns therefore would encourage more investment in the project.

The government needed also to supply free feeds and fish species to fish farmers. That would persuade more people to invest in aquaculture. Despite the fact that it was disputed by some respondent but would be the best approach to facilitate fish farmers and increase on productivity.

Additionally, the government would recruit special aquiculture extension worker each allocated to particular number of fish farmers to regularly supervise and advise on the proper farming

The fish farmers themselves needed to recruit day and night guards. Theft would be reduced while dangerous wild animals would be scared off also.

5.3.4 Research Question 1V

This was "What is the relationship between fish farming and economic development?"

Increased income from fish farming was being invested in other ventures Gusino F (2005) for instance paying school dues which gradually reduces illiteracy levels. Most successful fish farmers were educating their children in expensive schools. Other fish farmers are able to extend facilitation to other distant relatives.

Accumulated money from selling fish was also being invested in setting up shops and agro forestry for instance Mr. Nathanael was among those owning a big shamba of eucalyptus which are cut for use on his furniture workshop while Mzee Makoha Ayoyi has used surplus capital to trade in cattle, Poultry farming and growing of ground nuts

Like other projects that provide employment, most youth around fish farmers have accessed jobs, Budima community pond employed over 30% of the local population, Mzee Ayoyi, 5 and Okuwade3.

Most households participating in fish farming constructed permanent houses. They added that it's evident with Mzee Makoha Ayoyi, Mr. Nathanael and Mzee Wandera Julius.

5.4 Recommendations

Fish farming is an area of study that still requires the following;

I) More research on the proper fish species suitable in particular areas of Uganda.
II) More research on the proper methods of managing fish ponds.
III) Other challenges affecting the fishing industry and their suggested appropriate remedies.
IV) Better ways of sinking fish ponds.

5.5 Conclusion

Fish farming has led to tremendous transformations in Lumino Sub-County. Money from fish farming has been invested in education, opening up of shops, provision of basic needs among others. The project itself supplies the Samia with fish as a source of food. Due to many benefits accruing from fish farming, more ponds are being sunk. Although there are challenges like dry spells affecting the water supply, shortage of capital among others, the government and many NGO are funding fish farmers to promote the project.

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APPENDICES

APPENDIX A

STUDY QUESTIONNAIRE (FOR FISHERIES OFFICERS)

I am **Okumu Justus, REG. NO: BAE/16748/71/DU**, a student of Kampala International University pursuing a degree Arts in Education carrying out research on the topic, "***The Impact of fish farming of peoples' income in Lumino Sub-County Busia district***".

Dear fisheries office/ NAADS co-ordination

You are kindly requested to read the questions below and answer them honestly. The information got will be treated wit high confidentiality.

1. Where are most fish ponds found?

.....

2. Why are people investing in fish farming?

.....

3. How much do you think each fish farmer earns per year.

A) 1,000, 000/= (b) Less than 1,000,000/= (c) Not sure (d) Specify

2. Is fish farming related to economic development?

a) Yes (b) No

If yes explain your answer

.....

3. What do you think has been the factors that have hindered proper growth and performance of fish farming in Lumino Sub-County?

.....

6. What strategies can be implemented to improve the growth and performance of fish farming in Lumino Sub-County?

.....

.....

Thank you for your co-operation

APPENDIX B

STUDY QUESTIONNAIRE (FISH FARMER)

Am **Okumu Justus**, Reg No BAE/16748/71/DU, a student of Kampala International University pursuing a Degree of Arts in Education carrying out research on the topic, "***The Impact of fish farming of peoples' income in Lumino Sub-County Busia district***".

You are kindly requested to read the questions below and answer them honestly. The information got will be treated wit high confidentiality.

1. Do you think fish farming has an impact on the economic growth and development in Lumino Sub-County?

a) Yes (b) No

If yes in which way?

.....

2. How much do you think each fish farmer earns per year.

A) 1,000, 000/= (b) Over 1,000,000/= (c) Not sure (d) Specify

3. How many fish ponds are there in Lumino Sub-County?

a) 5 (b) less than 5 (c) Not sure (d) Specify

4. Mention the conditions of the fish ponds in the Sub-County

.....

6. In your own thinking what factors have hindered the proper growth and performance of fishing farming in Lumino Sub-county?

.....

8. What strategies can be implemented to improve the growth of fish farming in Lumino Sub-county?

.....

Thank you for your co-operation

APPENDIX C

INTERVIEW GUIDE FOR LOCAL COUNCIL MEMBERS

I am **Okumu Justus**, **Reg No BAE/16748/71/DU,** a student of Kampala International University pursuing a Degree of Arts in Education carrying out research on the topic, "***The Impact of fish farming of peoples' income in Lumino Sub-County Busia district***".

You are most welcome to this interview whose aim is to get information to be used to improve on fish farming. Kindly be honest when answering the questions and whatever given shall be treated with high confidentiality.

1. What reasons do people in your village have for practicing fish farming?

.....

2. What changes are in your village from fish farmers?

.....

3. What do you think has been the factors that have hindered proper growth and performance of fish farming in your village?

.....

4. What are some of the ways to improve on the growth and performance of fish farming in your village?

.....

.....

Thank you for your co-operation

APPENDIX E

WORK PLAN

year	Month	Activity
2010	January	Research proposal development, approval seeking funds for Implementation
2010	-Do-	-do-
2010	March	Pre-testing the questionnaire and making necessary modifications
2010	May	Issuing of questionnaires Respondents, data collection Including collecting of questionnaires, conducting in-depth Interviews and observation. Data processing including editing , Coding ,classification and data analysis and Presenting The draft dissertation to the supervisor for corrections.
2010	June-July	Printing Binding and final submission of the Report/ dissertation.