



**BUSITEMA
UNIVERSITY**
Pursuing Excellence

**THE CONTRIBUTION OF FISH FARMING TO THE LIVELIHOODS OF
COMMUNITIES IN SERERE COUNTY**



OKIA RICHARD BU/UG/2010/193

(Dip. Educ., KYU)

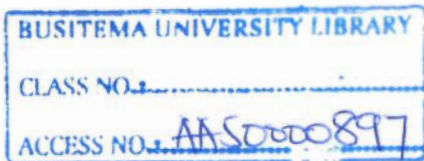
**A RESEARCH DISSERTATION SUBMITTED TO THE FACULTY OF
AGRICULTURE AND ANIMAL SCIENCES IN PARTIAL FULFILLMENT OF THE
REQUIREMENTS OF THE AWARD OF THE DEGREE OF BACHELOR OF ANIMAL
PRODUCTION AND MANAGEMENT OF BUSITEMA UNIVERSITY.**

MAY, 2013

DECLARATION

I, **Okia Richard** hereby declare that this is my authentic work and it has not been submitted or presented in any form to any University or any institute of higher learning for any award.

Sign: *Okia Richard* date: *6th/09/2013*





COPY RIGHT STATEMENT

© 2013, OKIA RICHARD

All rights reserved. Reproduction of this publication for Educational or for other commercial purposes electronically, use of any other means is not authorized without prior permission from the author who is also the copyright holder. Reproduction for commercial purposes requires permission in writing from the copyright holder **Richard Okia**, or richard.okia@yahoo.com
telephone: 0773024619 / 0755504379

APPROVAL

This research was carried out under my supervision and it is now ready for presentation to the academic board of Busitema University.

Sign.......... Date..........

MR. AMOSING JOSEPH, BAPTM – (MUK)

Teaching Assistant

Department of animal production and management

Faculty of agriculture and animal sciences

Busitema University

DEDICATION

I dedicate this work to the Almighty God for his faithfulness and mercies given to me during the time of study and writing of this report. I'm also indebted to the following: friends Agnes, Maureen, Martin, Joseph, Paul and my parents for their financial and moral support that they afforded to me. Their support has yielded success to the completion of this report. May the Almighty God bless you.

ACKNOWLEDGEMENT

I would like to register my sincere gratitude to my supervisor Mr. Amosing Joseph and Mr. Muyinda Robert for the Professional guidance they provided to me regarding the completion of this report. On a special note, I would like to extend my thanks to the service providers in various sub counties who really were able to sacrifice their time by moving with me in various villages obtaining information on the topic.

Ultimately, I would like to express my great appreciation to the Almighty God for enabling me go through the tough time of writing this report.

TABLE OF CONTENT

DECLARATION.....	i
APPROVAL.....	iii
DEDICATION.....	iv
ACKNOWLEDGEMENT.....	v
LIST OF ABBREVIATIONS AND ACRONYMS.....	ix
LIST OF FIGURES.....	x
LIST OF TABLES.....	xi
ABSTRACT.....	xii
CHAPTER ONE.....	1
1.0 BACKGROUND.....	1
1.1 PROBLEM STATEMENT.....	1
1.2 OVERALL OBJECTIVES.....	1
1.3 SPECIFIC OBJECTIVES.....	1
1.4 RESEARCH QUESTIONS.....	2
1.5 SIGNIFICANCE.....	2
1.6 JUSTIFICATION.....	2
1.7 SCOPE.....	2
CHAPTER TWO.....	3
LITERATURE REVIEW.....	3
2.0 Introduction.....	3
2.1 The state of fisheries resources in Uganda.....	3
2.2 Gender issues in the fish industry.....	3
2.3 Assessing the profitability of fish farming.....	3
2.4 Role of fish farming in the improvement of household income in the global perspective.....	4

2.5 Role of fish farming in the improvement of household income in East Africa.....	5
2.6 Role of fish farming in the improvement of household income in Uganda.....	5
2.7 The major economic activities carried out in Serere County.....	7
CHAPTER THREE.....	8
MATERIALS AND METHODS.....	8
3.0 RESEARCH APPROACH.....	8
3.1 SAMPLING DESIGNS.....	8
3.2 OPERATIONAL DESIGN.....	9
3.3 OBSERVATIONAL DESIGN.....	9
3.4 STATISTICAL DESIGN.....	9
3.5 DATA PRESENTATION.....	9
3.6 ETHICAL CONSIDERATION.....	9
3.7 ENVIRONMENTAL CONSIDERATIONS.....	9
3.8 LIMITATIONS/ ANTICIPATED PROBLEMS.....	9
CHAPTER FOUR.....	10
DATA PRESENTATION, ANALYSIS AND INTERPRETATION.....	10
4.0. The respondents' level of Education.....	10
4.1. Respondents' Occupation.....	11
4.2. The relationships between level of education and the number of ponds owned.....	11
4.3. Duration that have been taken in fish farming.....	12
4.4. Target of the fish enterprise.....	13
4.5 Frequency of consumption of fish from ponds at households of respondents.....	13
4.6. Income from the last production cycle.....	14
4.7. Production per Sub County for the last 12 months.....	15
4.8. Respondents' Sources of income.....	15

4.9. Utilization of income from fish as indicated by respondents.....	16
4.10. Factors hindering fish farming	17
4.11. Solutions to the challenges of fish farming as suggested by respondents.....	17
CHAPTER FIVE	19
DISCUSSION OF RESULTS	19
5.1.1 Review of the findings	19
5.1.2. Background information of respondents.....	19
5.1.3. Enterprise size and use	19
5.1.4. Fish production and income levels	20
5.1.5 Contribution of fish farming to food security.....	20
5.1.6 Factors that hinder fish farming.....	21
5.1.7 Solutions to the farmers challenges	22
CHAPTER SIX.....	23
6.0 CONCLUSION.....	23
6.1. RECOMMENDATIONS.....	23
LIST OF REFERENCES	24
APPENDICES	28
APPENDIX 1. QUESTIONNAIRE FOR FARMERS	28
APPENDIX 2: FISH AS IT IS HARVESTED IN THE PONDS	34
APPENDIX 3: INTRODUCTORY LETTER	35
APPENDIX: 4 MAP OF SERERE DISTRICT SHOWING SUB COUNTIES WHERE THE STUDY WAS DONE.....	36

LIST OF ABBREVIATIONS AND ACRONYMS

DAD	Director of Aquaculture Development
FAO	Food and Agriculture organization
H H H	House Hold heads
LIDCs	Low Income Deficit Countries
MAAIF	Ministry of Agriculture Animal Industry and Fisheries
NAADS	National Agricultural Advisory Services
NADS	National Aquaculture Development Strategy
NEMA	National Environment Authority
NFP	National Fisheries Policy
SACCOs	Savings and credit cooperatives
UIA	Uganda Investment Authority

LIST OF FIGURES

Figure: 4.0 Respondents' level of Education	10
Figure 4.1 shows the occupation of various respondents	11
Figure:4.2 Average number of ponds owned by respondents	12
Figure 4.3 Duration in fish farming.....	122
Figure: 4.4 The target of the fish enterprise by practicing fish farmers.	13
Figure: 4.5 Shows Income from farmers for the last one year.....	144
Figure: 4.6.Production per Sub County.....	15
Figure: 4.7 Farmers sources of income for boosting fish farming	166
Figure: 4.8 Illustrates the utilization of income got from fish farming.....	16
Figure: 4.9.Shows factors affecting farming.....	17
Figure: 4.10 showing solutions given by respondents to address the existing challenges	188

LIST OF TABLES

Table: 4.1 shows the frequencies of consumption of fish from ponds at households of respondents

ABSTRACT

The study was carried out in Serere County in Serere district located in the eastern part of the district bordering Soroti district in the south west, it targeted fish farming communities. Fish farming is one of the economic activities done by farmers in different communities in the world, and Uganda as well. It is also a means of fighting poverty and food insecurity. Serere farmers too are engaged in fish farming. However, there is no documented information regarding how fish farming has helped communities to alleviate cases of poverty and food insecurity among fish farmers in Serere County.

The study aimed at establishing the contribution of fish farming to improved livelihoods as well as playing a part in ensuring food security is guaranteed in the county. Besides, it also targeted establishing the factors that affects fish farming in the County.

A survey was conducted and purposive sampling was employed and structured questionnaires were used as a tool for collecting data and the data was analyzed using SPSS 16.0 version and Microsoft excel.

The research findings indicated that farmers had benefited from fish farming and it had contributed to their improved welfare, food security, and healthcare among other benefits. It was also evident that despite the contribution fish farming had brought in to the communities, it had some hindrances such as no credit facilities, inadequate capital, inadequate extension services, and theft among others.

Basing on the findings it was evident that there was a positive relationship between fish farming and farmers' welfare as reflected in their standards of living. However, the study recommends that, the local authorities need to support farmers by providing extension workers at each sub county to be able to provide adequate technical advice to farmers, loans with subsidized interest should be provided to farmers to favor agro based enterprises.

CHAPTER ONE

1.0 BACKGROUND

According to the report by food and agriculture Organization of the United Nations on the state of world fisheries and aquaculture states that the fish sector is a source of livelihoods of the rural poor (FAO, 2008). In relation to the above statement, fish farming is one of the measures to reduce the burden of poverty among households in many of the developing countries. Amiengheme, (2005), asserts that fish is important in the human nutrition as an excellent source of protein amino acids and omega 3 – fatty acids. Fish farming also is seen as an opportunity for rural development as it provides basic needs of the rural poor and as a potential solution to meeting increasing global demand for proteins, improvement of household income and food security. (Merino & Barange, 2012). In Serere county fish farming is being practiced and a number of farmers as an alternative source of household income, animal protein in order to improve their livelihoods, nutrition and health. Despite the farmers' involvement in fish farming, little is known about their benefits as far as improvement of livelihoods is concern.

1.1 PROBLEM STATEMENT

Fish farming in Serere is being practiced by some farmers as an alternative source of household income and to provide a source of food to their families to improve health and nutrition. Despite the farmers' involvement in fish farming, there has been no available data regarding the profitability of fish production to communities that are engaged in it. Therefore, providing a need to assess the contribution of fish production to farmers' household income

1.2 OVERALL OBJECTIVES

To assess the contribution of fish farming towards improved livelihoods of communities in Serere County.

1.3 SPECIFIC OBJECTIVES

- i. To determine the contribution of fish farming towards food security.
- ii. To establish the benefits of fish farming to the farmers in Serere.
- iii. To determine the factors that affect fish farming.

LIST OF REFERENCES

- Adewuyi, B., Ayindeand, D. Akerele. (2010) Analysis of Profitability of Fish Farming. Department of Agric Economics & Farm Management, University of Agriculture, Aquaculture Proceedings 14, Rome, Italy aquaculture: an assessment. FAO Fisheries and Aquaculture Technical Paper. No. 534.
- Avault, James. W. (1991). "Marketing in aquaculture—product, price, promotion and place." *Aquaculture Magazine*, Ashville. NC. May/June: pp. 68-75.
- Carballo, E., Van Eer, A., Schie, T. and Hilbrand A. (2008.)Small scale fresh water fish farming, Agromisa Foundation and CTA, Wageningen.
- Charles, C., Ngugi, James R., Bowman., Bethuel, O. Omolo. (2007). A New Guide to Fish Farming in Kenya. ISBN 978-0-9798658-0-0 Oregon State University, USA. Contribution of small-scale aquaculture: an assessment. FAO Fisheries and Aquaculture Coordination Act No. 8, 1999. Development: is it a sufficient requirement?, pp. 87-94. In M.G. Bondad-Reantaso and M. Dimensions of an Emerging Industry. Westview Press, A division of Harper Collins Director
- Duc, N.M. (2008). Economic contribution of fish culture to farm income in south east Vietnam. *Journal of international ecological economics* 525-531.
- Edwards, P. (2002.) Aquaculture for poverty alleviation and food security. *Aquaculture Asia* 7 (2):53-56. Egypt.[www.fao.org/fishery/countrysector/naso_egypt]
- FAO. (2006). The State of World Fisheries and Aquaculture Sustainable Growth and Expansion of Aquaculture: An Ecosystem Approach Food and Agriculture Organization of the United Nations.
- FAO. (2010). World Review of Fisheries and Aquaculture. FAO, Rome . Italy.

FAO. (2006). State of World Aquaculture, FAO Fisheries Technical Paper 500: 134 p. Food and Agriculture Organization, Rome.

FAO-NASO.(2009). National aquaculture sector overview fisheries and aquaculture production. Rome Italy.

Hishamunda, N. (2008). Summary of the FAO Expert Consultation on Socio-economic impacts of aquaculture: identification and assessment methods. Abstract of paper presented during the FAO Expert Workshop on Methods and Indicators for Assessing the Contribution of Small Scale Aquaculture to Sustainable Rural Livelihood Development, 24 to 28 November 2008, Nha-Trang University, Nha Trang, Viet Nam.

Jolly, C., Umali-Maccina, G., and Hishamunda, N. (2009). Small -scale aquaculture: a fantasy or economic opportunity, pp. 73-86

Kawarazuka, N. (2010). Food security and household nutrition. Food and Nutrition Bulletin 21 (4), 472–481.

Kawarazuka, N. (2010). The contribution of fish intake, Aquaculture, and small scale Fisheries improving nutrition: A literature review, The World Fish Centre working paper 2106. The World Fish Centre, Penang, Malaysia.

Khonder, M., and Benoy, K. (2009). Aquaculture options for Alternative livelihoods, World Fish Centre Fact sheet.

MAAIF, (2011). statistical abstract .[http:// www.agriculture.go.ug](http://www.agriculture.go.ug)

Mahfazuddin. A. & Mylene, H. (2002) improving developing country food security through aquaculture.

Melba, G., Bondad-Reantaso., & Mark Prein. (2009). Measuring the contribution of small-scale aquaculture FAO, fisheries and aquaculture technical paper 534

Merino,G., Barange., & Blanchard. J.L..(2012). The science for Environmental policy, Issue 2012, European Commission

- Morales, A. (2009). Special evaluation study of small-scale freshwater aquaculture development for poverty reduction. Abstract of paper presented during the FAO Expert Workshop on Methods and Indicators for Assessing the Contribution of Small Scale Aquaculture.
- Nabbika, W.R., Akol, A., Muyodi, F., Hyuha, T.S., & Gidongo, H. (2012). The effect of fish farming systems on water quality and community livelihoods in Mbale: A socio-economic and biophysical assessment of fish.
- Naylor, R.L., Goldberg, R.J., Primavera, J.H., Kautsky, N. (2000). Effects and New. Aquaculture and the capture fisheries ; balancing the scales. *World Aquaculture* 30 (2).
- NEPAD. (2005). The NEPAD Action Plan for the Development of African Fisheries and Aquaculture. NEPAD-Fish for All Summit Abuja, Nigeria, 22-25 August 2005, 29pp.
- Nguyen, Minh Duc: (2007). Farmers' satisfaction with Aquaculture – logistic model in Vietnam . Faculty of fisheries Nong Lam University ,Thu Duc Hochiminh city Vietnam.
- Nwachukwu, J., and Onuegbu, R. (2008). Adoption of aquaculture technology by fish farmers in Imo state of Nigeria. *The Journal of Technology Studies* 33(1):57-63
- Olaoye, O.J., Asheley, Ikwene, N. B. (2012). Limitations to adoption of recommended aquaculture production technology by small scale fish farmers in Oyo state Nigeria. *Global Journal of sciences research Agriculture & veterinary sciences*. Volume 12, issue 7
- Pinstrup-andersen, P.(1999). *Food Policy Research for Developing Countries: Emerging Issues*.
- Prein, M., Ahmed, M. (2000). Integration of aquaculture into smallholder farming system for improved fish farming.
- Rønnbackthilsted, S.H., Hassan, N. (1997). The role of small indigenous fish species in food and nutrition Security in Bangladesh. *NAGA Supplement (Jul-Dec)*, 13–15.

- Rutaisirel, H., Charo-karisa, A. (2009). Aquaculture for increased fish production in East Africa. African Journal of Tropical Hydrobiology and Fisheries 12: 74-77 (2009) Kajjansi Aquaculture Research and Development Centre, P.O. Box 530, Kampala, Uganda.
- Tacon, A.G.J., M. Halwart, eds. (2007). Cage aquaculture: a global overview. FAO Fisheries Technical Paper 498: 241 pp.
- Thompson, P., Nuruzzaman, M., Khan, F. (2000). Impacts of aquaculture extension on pond improving nutrition .The WorldFish Center Working Paper No.2106.aquaculture development- lessons from Asia. Journal of food policy volume-27, pg 125-141.
- Waidbacher, H., (2009). Sustainable high-protein food through low-scale aquaculture. Bokuinsight, Wattage, P. (2009). Millenium Development Goals and aquaculture: Indicators to evaluate the conservation of the resource base for poverty reduction. pp: 59-72. FAO Fisheries and Aquaculture Technical Paper. No. 534. Rome, Italy. FAO. 180pp,
- Wattage, P. (2009). MDGs and aquaculture: indicators to evaluate the conservation of resource base for poverty reduction. pp. 59-72. In M.G. Bondad-Reantaso and M.Prein (eds), Measuring the contribution of small-scale aquaculture: an assessment. FAO Fisheries and Aquaculture Technical Paper. No. 534. Rome, FAO. 180p.
- Williams, M.J. (1996). The transition in the contribution of living aquatic resources to food security, Food, World Bank 1986. Poverty and hunger. In A World Bank Policy Study. World Bank, Washington, DC
- World Fish Center. (2009). Aquaculture options for alternative livelihoods: The experience of the Asians
- Yohannes, Y. (2009). Global hunger index: the challenge of hunger: focus on financial crisis. International food policy research institute. Washington D.C.