

# CONSTRAINTS TO THE ADOPTION OF AQUACULTURE IN BIISO SUB-COUNTY, BULIISA DISTRICT, UGANDA



BY

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

# TABLE OF CONTENT

e,

2

5

1.1

Dedication	iv
Acknowledgement	v
Declaration	vi
List of abbreviations	vii
List of tables and figures	viii
Abstract	ix
1.0 CHAPTER ONE: INTRODUCTION	10
1.1 Background of the study	10
1.2 The problem statement	11
1.3 General objective of the study	11
1.4 Specific objectives of the study	11
1.5 Research questions	11
1.6 Significance of the study	11
1.7 Justification of the study	12
1.8 Scope of the study	13
2.0 CHAPTER TWO: LITERATURE REVIEW	14
Introduction	14
2.1 Aquaculture	14
2.2 Aquaculture Production Systems	14
2.3 Aquaculture trends	14
2.3.1 Aquaculture around the world	14
2.3.2 Aquaculture in Uganda	15
2.4 Why aquaculture	16
2.5 Overview of challenges and constraints for aquaculture	16
2.6 Socio-economic constraints to fish farming adoption	
2.6.1 Labour and aquaculture development	
2.6.2 Literacy, education level and extension in aquaculture	19
2.6.3 Existing farming activities and aquaculture	21
2.6.4 Gender and aquaculture development	21

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	5a
	2,6.5 Land tenure, access to land and aquaculture
	2.6.6 Control of management and aquaculture
	2.6.7 Culture and aquaculture development
	2.6.8 Inputs and aquaculture
3.0	CHAPTER THREE: METHODOLOGY AND MATERIALS
3	1 Introduction
.3	2 Study area
3	3 Population and sampling
	3.3.1 Target population
	3.3.2 Study design
	3.3.3 Sample size determination
	3.3.3 Sampling techniques
3	4 Data collection method / tools
3	.5 Data management, analysis and presentation
3	6 Validity and reliability of instruments
I	ndependent variables
3	.8 Ethical consideration
4.00	CHAPTER FOUR: PRESENTATION OF RESULTS
	1 Respondents biography
4	.2 Labor and aquaculture
4	.3 Extension services and aquaculture
Ν	1embership to association
E	xperience in fish farming
4	.4 Inputs and aquaculture
4	.5 Land and aquaculture
4	.6 Gender and aquaculture
4	.7 Culture and aquaculture
5.0	CHAPTER FIVE: DISCUSSION OF THE RESULTS42
6.0	CHAPTER SIX: CONCLUSION AND RECOMMENDATIONS
6	.1. Conclusion
6	.2 Recommendations
RE	ERENCES

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÷

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# Dedication

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1

I am exceedingly humbled and profoundly honored to dedicate this piece of work to my mother Mrs. Namutebi Mbiihya, Uncle Kagooro Seremosi, my wife Atugonza Isabella and daughters Abitekaniza Daniela and Kembabazi Cynthia not forgetting the entire family of Mr. Mbiihya Wilson relatives and friends

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May the Almighty God bless their hands Amen.

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### Declaration

I ISINGOMA DIDAN declare that this research dissertation has not been submitted to any University or any other higher institution of learning for the award of any degree or related qualification

Signature. Acoma Date. 12/08/2015

This dissertation has been submitted with supervision and approval of;

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\_\_\_\_\_Date. 12/08/ 2015 Signature.

AIDS:	List of abbreviations Acquired Immune Deficiency Syndrome
BNP:	Big Numbers Project
DFID:	Department for International Development
FAO:	Food and Agriculture Organization
FARMESA:	Farmers in East and South Africa
FRI:	Fisheries Research Institute
HIV:	Human immune Virus
IAA:	Integrated Aquaculture Agriculture
IFAD:	International Funds for Agriculture Development
MAAIF:	Ministry of Agriculture Animal Industry and Fisheries
MGLSD:	Ministry of Gender Labor and Social Development
MFPED:	Ministry of Finance Planning and Economic Development
NAADS:	National Agricultural Advisory Services
NARO:	National Agricultural Research Organization
NGO:	Non Governmental Organization
PEAP:	Poverty Eradication Action Plan
UFFCA:	Uganda Fisheries and Fish Conservation Association
WB:	WorldBank
	,

vii

# List of tables and figures

: •: •.

Table 1: Age of the farmers
Table 3: Reasons for not accessing extension services
Table 4 Attendance of the trainings
Table 5: Experience in fish farming
Table 6: Cost of the aqua feed
Table 7: Accessibility of the financial assistances 38
Table 8: Accessibility of the financial assistances
Table 9: Acquisition of land
Table 10: Ownership of land
Table 11: Management decision of the ponds
Table 12: Inheriting of property

Figure 1: Conceptual frame of the study	32
Figure 2: Activities for which labor is hired	35
Figure 3: Who markets fish?	39
Figure 4: Fish species most preferred by the respondents	41
Figure 5: Ranking of the constraints as indicated by the farmers	41
Figure 6: Map of Buliisa district showing Bilso Sub County	60

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#### Abstract

The survey aimed at coming up with socio-cultural, economic constraints to adoption of fish farming in Biiso sub county Buliisa district. Buliisa district is found in mid western part of Uganda bordering Lake Albert. The survey was carried out in the four parishes of the sub county whereby 100 household were interviewed using both open ended and closed questionnaires, the results of the research showed that men were the leading house hold heads (85%) and most of the respondents also were men (56%), it also found out that the sub county had largest percentage of Christians (93%) and most of them completed primary level of education (53%). The research also found out that the religion had no problem with the consumption of fish, it was also found out the men were mostly responsible of all activities in fish farming and making of decisions in the household. There was also high level of labor migration, conflict and thus shortage within the household. The prices of both feeds and fingerlings were very high. There was very many cases of land conflicts and most of the land had been inherited which favored mostly males and tenured through customary. The respondents were within the proximity of the water sources. There were also high cases of human death within the sub county. The district had a lot of financial institutions including village saving and loan associations however men had upper hand in securing loans compared to women and the loan secured would be invested in education as school fees. Fish was a delicacy within the sub county and mostly they preferred nileperch however there was market for all extension services farmer fish species. There limited access to by was

## **1.0 CHAPTER ONE: INTRODUCTION**

### 1.1 Background of the study

Aquaculture, also known as aqua farming, is the farming of aquatic organisms such as <u>fish</u>, <u>crustaceans</u>, <u>molluses</u> and <u>aquatic plants</u>. In 2004, the total world production of fisheries was 140 million <u>tonnes</u> of which aquaculture contributed 45 million tonnes, about one third. The growth rate of worldwide aquaculture has been sustained and rapid, averaging about 8 percent per annum for over thirty years, while the take from <u>wild fisheries</u> has been essentially flat for the last decade. The aquaculture market reached \$86 billion in 2009. In 2012, aquaculture production globally reached a record high of more than 90 million tons. A <u>United Nations</u> report titled *The State of the World Fisheries and Aquaculture* released in May 2014 maintained fisheries and aquaculture support the livelihoods of some 60 million people in <u>Asia</u> and <u>Africa</u>.

Aquaculture in Uganda is recorded to have started in 1941 after carp was imported into the country. Fish farming was officially proposed by the colonial authorities and the Kajjansi Fish Experimental Station established in 1947. In 2005, a projected 15,000 tons of fish were harvested from about 20,000 ponds. It has not been smooth sailing however, and over the last few years, fish stocks have been dwindling. The decline has been attributed to indiscriminate fishing and increased cost of production. The fishing industry employs an estimated six million people whose livelihood is at stake. Aquaculture is very important in many ways such as having economic and environmental benefits. Aquaculture can also convert nonproductive land into economic assets; Commercial aquaculture can reduce the cost of public waters as well as serve as a source of food. Coche (1998) further stresses that aquaculture can potentially contribute to the livelihoods of the rural poor because it generates food of high value, especially for the vulnerable groups such as pregnant and lactating women, infants and pre-school children. Therefore the future looks bright for anyone considering aquaculture as a new enterprise. According to Dan (2001), In Bullisa district aquaculture adoption has been very sluggish especially in Bilso Sub County whose environment provides ideal conditions for fish farming

Socio-economic research approaches to aquaculture need to be given high priority and focus on techniques that allow the full participation of communities in the identification, analysis and evaluation of projects.

#### REFERENCES.

Acharya, M. and Bennett, O. (1982). Women and the subsistence sector: Economic and house hold decision making in Nepal. World Bank staff working paper, No: 525."Aquaculture brings smile to poor women". The Statesman 3 June, 2011 English ed.: 15. Print.

Aguilar-Manjarrez, J. and S.S. Nath. 1998. A strategic reassessment of fish farming potential in Africa. CIFA Technical Paper 32, FAO, Rome. 172 p.

Ahmad Faiz, A. N., Khairuddin, I., Jegak, U., Shaffril, H. A. M., & D'Silva, J. L. (2010). Aquaculture industry potential and issues: A case from cage culture system entrepreneurs: suggestions for intensification of aquaculture industry. *Journal of Social Science*, 6(2), 206-211.

Ahmed M, Lorica MH. 2002. Improving developing country food security through aquaculture development – lessons from Asia. Food Policy 27:125-141.

Allison, E.H. (2011) Aquaculture, fisheries, poverty and food security, World Fish Centre Working Paper 2011-65, available http://www.worldfishcenter.org/resource\_centre/WF\_2971.pdf [last checked 08/08/2012]

Amin, E. M. (2005). Social Science Research: conception, methodology and analysis. Kampala: Makerere University Printery

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Balarin, J.D., National review for aquaculture development in Africa; Uganda, Mombassa: Kenya Baobab Farm Ltd., 1985.

Bardach, J.E (1997). sustainable aquaculture (pp1-14). Wiley and sons, new York.

Bhujel, C. R., Shrestha, M. and Devkota, H. R. (2010). AwF – Nepal: Empowering women through Small-scale aquaculture, Final Report. Tribhuvan University, Department of Aquaculture.

Bossche, P.J., 1990: source book for inland fishery resources of Africa vol.1 CIFA

Brummett R.E and K. Rana (2010), Funding Aquaculture Research For Africa, SARNISSA, http://www.sarnissa.org

Burns, B. R. (2000). Introduction to research methods. London: Sage Publications.

Catherine Ragasa, International Food Policy Research Institute Postdoctoral Fellow, Development Strategy and Governance Division <u>C.Ragasa@cgiar.org</u>

Daniel Jamu and Randall Brummet 2000. Opportunities and Challenges for African aquaculture

51

De, H. K., & Saha, G. S. (2007). Community-based aquaculture - An evaluation. Journal of Rural Development, 26(1), 137-146.

Debashish, K. S., Shirin, M., Zaman, F.M., Ireland, G. Chapman and Nandeesha, M. C. (1999). Strategies for Addressing Gender Issues through Aquaculture Programmes:

Department of fisheries resources.2004. MIAAF Entebbe Uganda

Food and Agriculture Organization of the United Nations (FAO), *Review of the state of the world aquaculture*, FAO Fisheries Department, FAO Fisheries Circular No. 866 FIRI/C886, Rome: Food and Agriculture Organization of the United Nations, 1997.

Frankic, A.J and Hershner, C. (2003). Sustainable aquaculture: developing the promise of aquaculture.

G. Katurole and J. Wadanya fisheries resources department p.o box 4, Entebbe Uganda

Harrison E .Stewart J.A, Stirrat, R.L. and Muirr.J(1994). Fish farming in Africa

Himanshu K. De, Dileep. K. Pandy. Constraints to women's involvement in small aquaculture

Hishamunda, N., C. Jolly and C. Engle, Evaluation of small-scale aquaculture with intra-rural household trade as an alternative enterprise for limited resource farmers: the case of Rwanda, *Food Policy*, 23(2):143-154, 1998.

http//www.escijournals.net/JAE

http://www.fao.org/English/newsroom/focus/2003/aquculture.htm

http://www.pertanika.upm.edu.my/

# http://0regonstate.edu/dept/iiFET/2000/papers/jagger.pdf

Hudson. J, & Vinson, C. (2006). Local Revenue Sources. Institute of Government, University of Georgia

Ibrahim H.Y and Yahana H.(2011). Women participation in homestead fish farming in north central Nigeria. Livestock research for rural development.

John Ulimwengu, International Food Policy Research Institute Research Fellow II, West and Central Africa Office J.Ulimwengu@cgiar.org

Kenneth Nyombi and Simon Bolwig. Aquaculture evaluation of alternative development strategies for Uganda fisheries

Kigeya, Josua Kamya, Problems and prospects of fish culture among small-scale farmers in Uganda: An analysis of technical, social and educational dimensions, Ph.D. diss., Madison, WI: University of Wisconsin – Madison, 1995.

Lutaya, N.G., & West, N. S. (2009). Citizen Engagement and Local Government Revenue Generation in Uganda. Robert F. London: Wagner Graduate School of Public Service.

Malcom Beveridge, Micheal Phillips, Patrick Dugan and Randy Brummett. 12-16 April 2010. Barriers to aquaculture development as a pathway to poverty alleviation and food security. OECD workshop Paris

Ministry of agriculture, animal industries and fisheries (MIAAF) and department for international development (DFID). Small scale fish farming for food security and income generation, Kampala .MIAAF/DFID,1998

National Agriculture Research Organization/ Fisheries Research Institute (NARO/FRI), Pond Distribution and Fry Requirement Statistics by Region, Kajansi: Fisheries Research Institute, 2000. Olufayo, M.O. The gender roles of women in aquaculture and food security in Nigeria. Department of Fisheries and Aquaculture technology Federal university of technology, Akure, Nigeria Pemala Jagger and John pender, international food policy research institute Washington D.C.

Phuna, M. 2008. "Information and Communication Strategies to Fight Gender Inequalities in Access to Land in Africa: The Case of the Democratic Republic of Congo." In Land Access in Rural Africa: Strategies to Fight Gender Inequality. Brussels, Belgium: FAO Dimitra Project.

Reamer B. 1986. Women as farm labor. Rural sociology 51(2): 143-155

Reimer B. 1986. Women as farm labor. Rural Sociology 51(2): 143-155.

Ssewakiryanga, R. (retrieved April 25, 2010). Revenue Realities: Citizen Engagement and Local tech.paper 18/1 rome

The state of world fisheries and aquaculture 2006

Theodora S. Hyuha, James O.Bukenya, Julius Twinamisiko and Joseph Molnar. Profitability analysis of small scale aquaculture enterprise in central Uganda

Thorsen L. E. 1986. Work and Gender. The Sexual Division of Labor and Farmers' Attitudes to Labor in Central Norway, 1920-1980. Ethnologia Europaea Vol. 16 (2): 137-148.

Westermann, Olaf, Jacqueline Ashby, and Jules Pretty. 2005. "Gender and Social Capital: The Importance of Gender Differences for the Maturity and Effectiveness of Natural Resource Management Groups." *World Development* 33 (11): 1783–99.

Wikipedia, the free encyclopedia. (2010). Optimal Tax Theory. (Retrieved April 25, 2010)

WorldFish. 2007. "Innovative Fish Farming Project for HIV-Affected African Families Doubles Incomes and Boosts Household Nutrition in Malawi." Press release, August.

www.fao.org/fisheries/countysector/naso\_uganda/en