

BUSITEMA UNIVERSITY

**FACULTY OF NATURAL RESOURCES AND ENVIRONMENTAL
SCIENCES**

**COMMUNITY VALUATION OF FISHERY RESOURCES AND ITS
IMPLICATIONS TO FISH CONSERVATION**

CASE STUDY: KACHUNG LANDING SITE

By

Guto Collin

BU/UG/2010/231




**A RESEARCH PAPER SUBMITTED IN PARTIAL FULFILLMENT OF THE
REQUIREMENTS FOR THE AWARD OF
BACHELOR DEGREE IN NATURAL RESOURCE ECONOMICS OF BUSITEMA
UNIVERSITY**

JUNE 2013

Declaration

I GUTO COLLIN do hereby declare that this is my original work and has not been submitted for any degree award to any other university or institution of higher learning.

Signed..........

GUTO COLLIN

Date.....04th/07/2013.....

Approval

This is to certify that this research report by Guto Collin has been successfully completed under my supervision and recommend it for submission to the Faculty of Natural Resources and Environmental Sciences with my approval.

SUPERVISOR: MR. TAAKO EDEMA GEORGE

Signature.....



Date.....

12/07/2017

Dedication

This research report is dedicated to my dear parents Mr. Acol Tomson and Mrs. Acol Catherine in appreciation of the care and support they gave to me during this research.

Table of Contents

| | |
|-------------------------|------|
| Declaration | i |
| Approval..... | ii |
| Dedication..... | iii |
| Acknowledgement..... | iv |
| Table of Contents | v |
| List of figures | viii |
| List of tables | ix |
| Acronomy | x |
| Abstract..... | xi |

CHAPTER ONE

| | |
|---------------------------------------|---|
| 1.0 General Introduction..... | 1 |
| 1.1 Background to the study | 1 |
| 1.2 Statement of the problem | 2 |
| 1.3 Objectives of the study | 3 |
| 1.4 Research questions | 3 |
| 1.5 Conceptual framework..... | 3 |
| 1.6 Significance of the study..... | 4 |
| 1.7 The scope of the study | 5 |
| 1.7.1 Content scope | 5 |
| 1.7.2 Geographic and time scope | 5 |

CHAPTER TWO

| | |
|--|---|
| 2.0 Literature Review | 6 |
| 2.1 Theoretical literature reviews | 6 |
| 2.1.1 Fisheries economic theory;..... | 6 |
| 2.1.2 The production theory,..... | 6 |

| | |
|--|----|
| 2.1.3 The economic welfare theory; | 6 |
| 2.1.4 The theory of the regulated fishery; | 7 |
| 2.1.5 Dual theory; | 8 |
| 2.1.6 Game theory and fisheries; | 8 |
| 2.2 Empirical literature reviews | 9 |
| 2.2.1 Valuation methods of the resource | 9 |
| 2.2.2 Threat of extinction from community perception | 10 |
| 2.2.3 Community conservation of Natural resources. | 11 |
| 2.2.4 Best practices for fish conservation | 13 |

CHAPTER THREE

| | |
|---|----|
| 3.0 Research Methodology | 16 |
| 3.1 Research Design | 16 |
| 3.2 Population of the study | 16 |
| 3.3 Sample size and sampling techniques | 16 |
| 3.3.1 Sample size | 16 |
| 3.3.2 Sampling Techniques | 16 |
| 3.4 Data types and data collection methods | 16 |
| 3.4.1 Data types | 16 |
| 3.4.2 Data collection methods | 17 |
| 3.5 The method of valuation | 17 |
| 3.6 Validity and reliability of data collection instruments | 17 |
| 3.6.1 Validity of data collection instruments | 17 |
| 3.6.2 Reliability of data collection instruments | 18 |
| 3.7 Data processing and analysis | 18 |
| 3.7.1 Data processing | 18 |
| 3.7.2 Data analysis | 18 |
| 3.8 limitations and delimitations to the study | 18 |

CHAPTER FOUR

| | |
|--|----|
| 4.0 Analysis, presentation and discussion of findings | 19 |
| 4.1.0 The demographic characteristics of the respondents | 19 |

| | |
|---|-----------|
| 4.1.1 Sex of the respondents | 19 |
| 4.1.2 The age of the respondents..... | 20 |
| 4.1.3 The level of education of the respondents..... | 20 |
| 4.1.4 Marital status of the respondents | 20 |
| 4.2 community valuation of fishery resources | 21 |
| 4.2.1 The value community attaches to fishery resources | 21 |
| 4.2.2 Activity at the landing site | 22 |
| 4.3 community perception on the stock of fish..... | 24 |
| 4.3.1 The stock of fish in the lake | 24 |
| 4.3.2 The common fish species in the lake | 24 |
| 4.4 Assessment of knowledge and participation in fish conservation | 25 |
| 4.4.1 The level of knowledge and experience on conservation practice | 25 |
| 4.5 Best practices for fish conservation by the community | 26 |
| 4.5.1 Community involvement in conservation practice..... | 26 |
| 4.5.2 Willingness for to accept conservation compensation..... | 28 |
| 4.6 The relationships between variables..... | 29 |
| 4.6.1 The relationship between community valuation of fishery resource and purpose for fishing..... | 29 |
| 4.6.2 The relationship between the value of fish and limitations from conservation adaption..... | 30 |
| 4.6.3 The relationship between education level and willingness to adapt conservation..... | 31 |
| CHAPTER FIVE | |
| 5.0 Summary, Conclusion and Recommendations..... | 32 |
| 5.1. Summary of findings..... | 32 |
| 5.2. Conclusion..... | 33 |
| 5.3. Recommendations..... | 34 |
| 5.4. Areas for further research..... | 35 |
| REFERENCES..... | 36 |
| APPENDICES..... | 38 |

List of figures

| | |
|---|----|
| Figure 1conceptual framework on community valuation of fishery resource | 4 |
| Figure 2 sex of respondent..... | 19 |
| Figure 3.shows how best the community can be involved in conservation methods:..... | 27 |
| Figure 4 shows willingness for conservation compensation | 28 |
| Figure 5 A bar chart showing relationship between value of fish and limitation from conservation adaption | 30 |

List of tables

| | |
|---|----|
| Table 1 shows demographic characteristics of the respondents | 21 |
| Table 2 shows value of fish | 23 |
| Table 3 common fish species..... | 24 |
| Table 4 shows community knowledge and participation in conservation practice..... | 26 |
| Table 5 Cross tabulation; purpose for fishing * community valuation of fishery resource | 29 |
| Table 6 cross tabulation between level of education * willingness to adopt conservation | 31 |

Acronomy

| | |
|--------------|--|
| LC | local committees |
| LVFO | Lake Victoria fisheries organization |
| MAAIF | ministry of agriculture, animal industry and fisheries |
| NARO | National Agricultural research organization |
| NDP | National Development plan |
| NEMA | National Environmental Management Authority |
| NFP | National Fisheries policy |
| NGO | Non Governmental Organization |
| NRE | Natural Resource Economics |
| SPSS | statistical packages for social sciences |
| UFCU | Uganda fishing co-operative union |
| UFFCA | Uganda fisheries and fish conservation association |
| WTP | willingness to pay |

Abstract

This study was carried out on community valuation of fishery resource and its implication to fish conservation undertaken in Kachung landing site on Lake Kyoga. There has not been attempt taken to find out how community attached value to the fishery resource. This is assumed to have implications to conservation.

The objectives of the study were to find out how communities around Kachung landing site value fishery resources, to identify whether or not Lake Kyoga fish stock is under threat of extinction from community perception, to assess knowledge and participation in fish conservation and to identify best practices for fish conservation by community.

Across sectional survey was carried out which involve use of questionnaires covering 40 respondents. The data collected was then analyzed using SPSS which facilitated the formation of frequency tables, pie charts, bar graph and cross tabulations.

The research major findings with respect to the objectives were that estimated value by the community does not reflect the true value of the resource because the study considered only tangible use benefits, community has alternative preferred economic activities and the low levels of education. Findings also indicate that community is limited to conservation method, because of limited knowledge which is not an effective conservation method because it is expensive to monitor these gears, the resource are under threat of extinction and most of the respondent had positive perception on the willingness to adapt the available conservation methods.

The study concludes that community valuation of the fishery resource is low due to the low levels of education and preference alternative activities this reduces chances of resource conservation for future benefits increasing government's expenditure in ensuring good resource conservation techniques. The researcher recommends that all stakeholders should ensure proper utilization of the resource through sensitization, patrolling, and valuation of non market benefits of the fishery resource which increase the value the community attaches to the resource thus conservation

CHAPTER ONE

1.0 General Introduction

This chapter includes the background to the study, the problem statement, objectives, research questions, conceptual framework, significance of the study and the scope of the study.

1.1 Background to the study

Uganda is endowed with considerable fresh water resources covering 43800sq km of lakes, rivers, swamps, dams, valley and tanks constituting 18% of the country's surface area. There are about 165 lakes in the country of which the largest and most productive are Lake Victoria, Lake Kyoga, Lake Albert, Lake George and Edward. The water bodies contain an impressive array of fish species and the resource base consist of over3000 endemic fish species several of which are targeted for commercial and subsistence exploitation. However, fish per capita consumption is estimated at 12.8kgper person per annum (MPED 1991). Areas of highest rates of fish consumption in the country coincide with the areas of highest population density which are in the vicinity of the lakes. The liberalized economy has stimulated investment in the capture of fisheries resulting in increased foreign exchange remittances as well as household earnings; therefore the contribution of fisheries to food security in Uganda cannot be over emphasized. The fisheries sector in Uganda provides a vital source of food, recreation trade and socio economic wellbeing for the people of this country and for the global community. There are now currently 23 commercial species of fish in our water bodies. The fishes which are the objects of most commercial and subsistence exploitation include: *Lates niloticus* (Nile perch), *Oreochromis niloticus* (Nile tilapia), *Alestes* sp, *Clarias* sp *Bagrus* sp (catfish), *Hydrocynus* (tiger fish), *Protopterus* (lung fish) to mention but a few. As a result of the recent introduction of Nile perch in lake Victoria and lake kyoga, the multi species fishery has been transformed into a three species fishery exploitation in which Nile perch features dominantly in the daily fish catch followed by tilapiines and *Rastrineobola*. Data on recent production in Uganda's catch rates of most importance and desirable fish species in most of the lakes have decreased with increased fishing pressure. The recent

REFERENCES

- Agriculture in Uganda volume iv, livestock and fisheries(2001), by NARO
- Amin. M. E., 2005. Social Science Research: conception, methodology and analysis. Kampala: Makerere University printer.
- An Introduction to Statistical Methods and Data Analysis. 5th Edition. Wadsworth Group, USA. Micheal Senior (1989).
- Balarin,J.D,1985.national reviews for aquaculture development in Africa;10.Uganda.FAO fisheries circular No 770.10
- Clark, C, 2006. The Worldwide crisis in Fisheries Economics Models and Human Behavior. Cambridge University Press.
- DFR (2008) DFR fact booklet. Dept of Fisheries Resource, Ministry of Agriculture, Animal Industry and Fisheries.
- F.L. Orach-Meza, (Dr.) 1991. Existing Fishery Legislation and Mechanism for Surveillances and Control on Lake Victoria. A paper presented at the national seminar on the management of the fisheries of the Uganda sector of lake Victoria at Crested Crane Hotel Jinja: 6-8 august 1991
- FAO (2006) Uganda Aquastat FAO Information System or Water and Agriculture. Food and Agriculture Organization of United Nations.(FAO)
- GOU 2010 National Development Plan 2010/11-2014/15 Government of Uganda
- Isabirye m. (2005) Land Evaluation around Lake Victoria. Environmental Implications of Land Use Change PHD thesis, Department Land Beheer, Katholieke Universiteit Leuren, Leuven
- JohnA. Dixon, 2008, ECONOMICS and conservation in the tropics, strategic dialogue

LVFO (2005) The state of the fisheries resource of lake Victoria and their management :
MAAIF (2004) The national fisheries policy, ministry of agriculture, animal industry and
fisheries (MAAIF) Entebbe.

NaFIRRI (2007) The socio economics of fishing communities of lake Victoria national
fisheries resources research organization (NaFIRRI) Jinja

National agriculture research organization (2001) agriculture in Uganda volume 4
livestock and fisheries .published by fountain publishers limited.

National environment management authority (1998) state of environment report for
Uganda.Published by national environmental management authority.

National environment management authority (2008) state of environment report for
Uganda.Published by national environmental management authority.

NEMA (2009) Uganda Atlas of our Changing Environment National Environment
Management Authority.

Robin Naidoo (2008) the role of economic valuation in the conservation of tropical
nature.

Ssebisubi Maurice, (2011) analysis of small-scale fisheries' value-chains in Uganda draft
report, Aquaculture Management Consultants Ltd.

Ssebisubi, Maurice, (2011). The value chain of farmed African catfish in
Uganda.University of Akreyri.

UBOS (2010) statistical abstract, Uganda bureau of statistics, Kampala

Wandera,S.B,1992, the effects of Nile perch predation and human exploitation on the
population structure of *Rastrineobola argentea* in Lake Victoria,Kyoga and Nabugabo
FAO fish.Rep.475.

Worthington,E.B,1929, A report of the fishing survey of lakes Albert and Kyoga, march-
july 1929. Crown agents for colonies, London.