

BUSITEMA UNIVERSITY

FACULTY OF NATURAL RESOURCE AND ENVIRONMENTAL SCIENCES

**THE MONETARY VALUE OF WATER TO THE LOCAL COMMUNITY AROUND
LAKE NABUGABO, MASAKA DISTRICT**

BY

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**A RESEARCH REPORT SUBMITTED TO THE FACULTY OF NATURAL
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FOR THE AWARD OF THE BACHELOR OF SCIENCE DEGREE IN NATURAL
RESOURCE ECONOMICS OF BUSITEMA UNIVERSITY**

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DECLARATION

I Bwebale Julius, declare that this is my own work and has never been submitted to any institution of higher learning or university for any award.

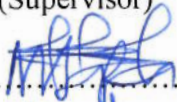
Signature of student:.....

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APPROVAL

I hereby certify that this research report Titled “Economic *Value of water to the local community around Lake Nabugabo*” by Bwebale Julius has been done under my supervision.

Mr. Masaba Sowedi (Supervisor)

Signature:.....

Date

DEDICATION

I dedicate this research report to my father, Mr. Ssensiko Joseph, my brothers; William Mulema, Innocent Ssesaazi, Paul Mulungi, and my sisters; Cossy Nakyanzi and Josephine Nabasumba who have always been there for me during my education both morally and financially.

May God bless you.

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LIST OF ACRONYMS

CBA	Cost Benefit Analysis
CBOs	Community Based Organizations
DWD	Directorate of Water Development
EIA	Environment Impact Assessment
ESD	Ecologically Sustainable Development
ICWE	International conference on Water and the environment
IWRM	Integrated Water Resource Management.
NEMA	National Environment Management Authority
NGOs	Non Government Organisations
NWP	National Water Policy
NWSC	National Water and Sewerage Corporation
PEAP	Poverty Eradication Action Plan
TEV	Total economic value
UBOS	Uganda Bureau of statistics
UN	United Nations
UNCED	United Nations Conference on environment and Development
UWASNET	Uganda Water and Sanitation Network.
WAP	Water Action Plan
WHO	World Health Organisation
WTA	Willingness to accept
WTP	Willingness to pay

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ABSTRACT

The study aimed at examining the economic value of water to the local community around Lake Nabugabo. The researcher used cross sectional design. This is because data was collected from the respondents at one point in time, thus giving a reflection of a state of a problem at hand. The researcher also used both qualitative and quantitative methods of data collection.

The Primary data was collected through household interviews and observation while Secondary was collected from documentaries and literature from public libraries. The market valuation technique was used in the research where market prices of water were mainly considered.

The data collected was entered into EXCEL and SPSS (version 20) where the findings from the questionnaires were analysed.

The findings indicate that on average every household uses 54.4 litres of water for domestic purposes valued at 762 Ug.shs. The average amount of water used for irrigation and other cultivation activities was found out to be 50.4 litres valued at 742 Ug.shs per household. For livestock, it was observed that the average amount of water used daily is 49.8 litres valued at 690 Ug.shs averagely per household.

The monetary value of water to the local community around Lake Nabugabo is estimated at 4,016,667,870 Ug.Shs indicating that water is of a very high economic value. The government should therefore lay all strategies to protect water resources. The researcher also recommends that government should encourage private investments in the water resources for example the investment in recreation activities like beaches, engine boats and water rafting. This will increase the level of tourism activities in the area. The researcher also recommends co-management of the water resource, stake holder involvement and participation in decision making and policy implementation concerning the management of the resource.

CHAPTER ONE

INTRODUCTION

1.1 Introduction

This chapter presents the back ground of the study, problem statement, purpose of the study, research objectives, research questions and significance of the study.

1.2 Background of the study

Water can be deemed an essential environmental resource. From an anthropogenic perspective, its most important role lies in human sustenance. Humans utilise water directly for many purposes; municipal water supply, sanitation, irrigation, transportation, industrial water supply, hydro electric power generation and recreation. In recent years, with the rise of environmental ethics, the value of water has been given a broader definition with a more systematic and integrated approach. The idea that the value of water is determined solely through the interest of humans is increasingly questioned. Water plays an absolutely necessary and irreplaceable role in many ecosystem services, such as habitat creation, nutrient cycling, the hydrological cycle, and climactic regulation.

Globally, as human populations and economies grow, the amount of freshwater in the world remains roughly the same as it has been throughout history. The total quantity of water in the world is immense, but most is either saltwater (97.5%) or locked in ice caps (1.75%). The amount economically available for human use is only 0.007% of the total, or about 13,500 km³, which is about 2300 m³ per a person – a 37% drop since 1970 (United Nations, 1997). This increasing scarcity is made more complex because almost half the globe's land surface lies within international watersheds – that is, that land which contributes to the world's 263 trans-boundary waterways.

Both water quantity and water quality have been neglected to the point of catastrophe. More than a billion people lack access to safe water supplies, almost three billion do not have access to adequate sanitation, five to ten million people die each year from water-related diseases or inadequate sanitation, twenty percent of the world's irrigated lands are salt-laden, affecting crop production.

REFERENCES

De wall, 1997-8; 15 Sampling procedure.

Pearce et al., 1989; Pearce and Turner, 1990; Perrings, 1995a, 1995b "*Total Economic Valuation methodology*"

Adamowicz 2004, "*Trends and future directions in environmental valuation*".

Barbier E, (2007) "*Valuing ecosystem services as productive inputs, Economic policy, v22, pp 177-229*".

Berrens, R. P. and A. K. Bohara, 2000. "*Contingent values for New Mexico instream flows: With tests of scope, group-size reminder and temporal reliability*". *Journal of Environmental Management* 58(1): 73-89".

Blamey R, Rolfe J, Bennett J & Morrison M (2000) "*Valuing remnant vegetation in Central Queensland using choice modeling*". *The Australian Journal of Agricultural and Resource Economics*, 44, 439-456.

Connelly, N.A, Brown TL, Brow JW, 2007. "*Measuring The Net Economic Value of Recreational Boating As Water Level Fluctuate*", *Journal of The American Water Resources Association*, American Water Resources Association, August 2007.

Costanza, R., R. d'Arge, R. de Groot, S. Farber, M. Grasso, B. Hannon, K. Limburg, S. Naeem, R.V. O'Neill, J. Paruelo, R. G. Raskin, P. Sutton, and M. van den Belt. 1997. "*The value of the world's ecosystem services and natural capital*". *Nature* 387: 253-260.

<http://en.wikipedia.org> "*The location of Lake Nabugabo*".

ICWE (1992). "*The Dublin Statement and report of the conference. International conference on water and the environment*": development issues for the 21st century. 26-31 January. Dublin.

Jones, L. L. and A. Tanyeri-Abur. 2001. "*Impacts of recreational and commercial fishing and coastal resource-based tourism on regional and state economies*". TR-184. College Station, TX: Texas Water Resources Institute.

Kosenius A (2010), "*Heterogeneous preferences for water quality attributes: the case of eutrophication in the Gulf of Finland, the Baltic Sea*, *Ecological Economics*, v69, pp 528-538"

Loomis, J. 1987. "*Balancing public trust resources of Mono Lake and Los Angeles' water right: an economic approach*". *Water Resources Research* 23 (8): 1449-1456.

Loomis, J. B. 1998. "*Estimating the public values for instream flow: economic techniques and dollar values*". *Journal of the American Water Resources Association* 34(5): 1007-1014.

Loomis, J., P. Kent, L. Strange, K. Fausch, and A. Covich, 2000. "*Measuring the total economic value of restoring ecosystem services in an impaired river basin: results from a contingent valuation survey*". *Ecological Economics* 33: 103-117.

Lyla Mehta, 2006 "*Water and human development: capabilities, entitlements and power*"

Mattinson BC & Morrison DA (1985) "*A cost-benefit study of alternative strategies for reducing the algae nuisance in the Peel-Harvey estuary*". IN NSW EPA (Ed.) *Envalue study database*, study 71. Sydney, New South Wales Environment Protection Authority

McNeill, D. (1998). "*Water as an economic good*". *Natural Resources Forum* 22(4): 253-261.

National Environment Management Authority, 2009 - Uganda

NEMA, State of the Environment report 2010

NEMA, State of the Environment report 2008

Niamir Fuller, 1990 "*Decision making in natural resources management in arid and semi arid Africa*"

Rolfe J & Prayaga P, (2007) "*Estimating values for recreational fishing at freshwater dams in Queensland*". *The Australian Journal of Agricultural and Resource Economics*, 51, 157-174.

Rolfe J, Alam K, Windle J & Whitten S (2004) *Designing the Choice Modelling Survey Instrument for Establishing Riparian Buffers in the Fitzroy Basin. Establishing the potential for offset trading in the lower Fitzroy River*, Research Report No.3. Emerald, Central Queensland University.

Sinden JA (1990), Valuation of the Recreational Benefits of River Management: A Case Study in the Ovens and King Basin. IN NSW EPA (Ed.) Envalue study database, study 224. Sydney, New South Wales Environment Protection Authority

SODCON (East Anglian Regional survey of Domestic water consumption)

Thomas JF (1982) Recreational Value. IN NSW EPA (Ed.) En value study database, study 185. Sydney, New South Wales Environment Protection Authority.

TWDB. (Texas Water Development Board). 2005. Bays and estuaries/freshwater inflow needs. Austin, TX: Texas Water Development Board. Retrieved August 28, 2005,

UBOS May 2009, Profiles of the Higher local governments

UBOS, May 2009 "Profiles of the Higher Local Government".

UNCED 1992, Dublin water principles

United Nations 1997 – "Convention on the law of non navigation uses of water"

Van der Zaag, (2006) "The value of water research report"

Van der Zaag, P. (2005). Water's vulnerable value in Africa. Invited paper presented at the UNESCO-IHP regional workshop on "The value of water". Koblenz, 10 and 11 March.

Van der Zaag, P., & H.H.G. Savenije (2000). Towards improved management of shared river basins: lessons from the Maseru Conference. *Water Policy* 2(1-2): 47-63.

Walpole SC (1991) The Recreational and Environmental Benefits of the Ovens-King River Systems. IN NSW EPA (Ed.) Envalue study database, study 187. Sydney, New South Wales Environment Protection Authority.

Water Services Association, UK

Whitten SM & Bennett JW (2001b) Non-market values of wet- lands: A choice modelling study of wetlands in the Upper South East of South Australia and the Murrumbidgee River floodplain in New South Wales. Private and Social Values of Wetlands Research Reports, Report No.8.

Canberra, School of Economics and Management, University College, The University of New South Wales.

Wolf et al. 1999 "Conflict and cooperation among international water ways"

Young M. (2005). Economic impacts of water resources management in the Murray Darling Basin, Australia. Paper presented to the XII World Water Congress "Water for Sustainable Development - Towards Innovative Solutions" 22-25 November 2005, New Delhi, India.