The impact of agricultural activities on the livelihood of riparian communities of Nalwekomba wetland ecosystem along River Nile, Namasagali, Kamuli District Uganda

Nakiyemba, A.[1], Musobya, M.[1] and Dayoub, M.[22*]

[1]Department of Natural Resource Economics, Faculty of Natural Resources and Environmental Sciences, Busitema University P.O.Box 236 Tororo Uganda; [2]Faculty of Technology, University of Turku. FI-20014 Turun yliopisto, Finland.

Abstract

Land degradation in Uganda is becoming a major constraint to growth and development of rural livelihoods. The socioeconomic impacts of agricultural land use to the degraded Nalwekomba wetland ecosystem were investigated in three riparian parishes that highly depended on the wetland for a livelihood. These parishes were purposely selected and a sample of 130 households were randomly selected. Results showed wetlands are under threat of over-exploitation due to agriculture land uses. Majority of the respondents were willing to leave the wetland. There is a need to design strategies for alternative livelihood options for wetland dependent communities to achieve Sustainable Development Goals.
Keywords: Land Degradation; Livelihood; Wetland system

General introduction

Wetlands resource degradation continues to be one of the most pressing issues globally. Wetlands are among the most important ecosystems on the earth‘s surface (Muhimbo, 2022; Fois, *et al*, 2022; Mugumya, 2018), though have witnessed a drastic loss in their acreage. The drastic loss of wetlands is due to anthropogenic activities in many parts of the world (Adeeyo, *et al.*, 2022).
However, in East Africa, wetlands are steadily converted to agriculture for food security reasons (Ondiek, *et al*., 2020). Major weaknesses identified for wetland degradation are the ignorance of people about the benefits of wetlands and the weak implementation of frameworks and policies that currently exist (Adeeyo, *et al.*,

[1]

[2*] **Corresponding Author**: Dayoub, M.; **Email**: moammar.dayoub@utu.fi

It is concluded that the benefits accrued to cultivation of Nalwekomba wetland ecosystem and its catchment has left it vulnerable to agents of soil erosion and flooding (figures 3 & 4) due to low levels of water infiltration which has made it become seasonal in nature. This has greatly impacted on River Nile, a trans-boundary river and source of livelihood to ten countries in the Nile Basin in Africa.

References

Adeeyo, A.O.; Ndlovu, S.S.; Ngwagwe, L.M.; Mudau, M.; Alabi, M.A.; Edokpayi, J.N., 2022, Wetland Resources in South Africa: Threatsand Metadata Study. Resources. https://doi.org/10.3390/ resources11060054

Adhya T. and Banerjee S, 2022, Impact of Wetland Development and Degradation on the

Asmare E, Bekele K, Fentaw S, 2022, Households' willingness to pay for the rehabilitation of wetlands: evidence from Gudera Wetland, Northwest Ethiopia, Heliyon 8

Businge, Z, 2017, Drivers of wetland degradation in Western Uganda and Iceland, and how they are addressed in current policies and legal frameworks. United Nations University Land Restoration Training Programme [final project] IGO.

FAO and ITPS, 2015, Status of the World's Soil Resources (SWSR) – Main Report. Food and Agriculture Organization of the United Nations and Intergovernmental Technical Panel on Soils, Rome, Italy

FAO, 2019a, FAO: Challenges and Opportunities in a Global World. Rome. Licence: CC BY-NC-SA 3.0 IGO

FAO, 2019b, The State of the World's Biodiversity for Food and Agriculture, J. Bélanger & D. Pilling (eds.). FAO Commission on Genetic Resources for Food and Agriculture Assessments. Rome. 572 pp.

Floodplains, Research square. https://doi.org/10.21203/rs.3.rs-1204186/v1

Fois, M., Cuena-Lombraña, A. & Bacchetta, G., 2022, Knowledge gaps and challenges for conservation of Mediterranean wetlands: Evidence from a comprehensive inventory and literature analysis for Sardinia. Aquatic Conservation: Marine and Freshwater Ecosystems, 31(9), 2621–2631. https://doi.org/10.1002/aqc.3659

Gumm E, 2011, "The Use and Misuse of Wetlands in Kampala", Independent Study Project (ISP) Collection. 1022.

Hardlife Z, Chikodzi D, Mutowo G, Ndlovu S, Mazambara P, 2014, The Implications for Loss and Degradation of Wetland Ecosystems on Sustainable Rural Livelihoods: Case of Chingombe Community, Zimbabwe; Greener Journal of Environmental Management and Public Safety, 3 (2): 043- 052.

Kinaro, 2008, Wetland Conversion to large-scale agricultural production; implications on the livelihoods of rural communities, Yala Swamp, Lake Victoria basin, Kenya.

Livelihoods of Wetland-Dependent Communities: A Case Study from the Lower Gangetic

Marambanyika T, 2015, An analysis of the impacts of human activities and management strategies on wetland processes in southern Zimbabwe (Doctor Thesis) University of KwaZulu-Natal

Mugumya J, 2018, Impact of human activities on wetlands: A case study of Katehe wetland in Ibanda District. (Bachelor thesis) Makerere University

Nabahungu N.L, 2012, Problems and opportunities of wetland management in Rwanda (Doctor Thesis) Wageningen University

Nakiyemba, A.W., Isabirye, M., Poesen, J., Deckers, J. and Mathijs, E, 2020, Stakeholders' Perceptions of the Problem of Wetland Degradation in the Ugandan Lake Victoria Basin Uganda. Natural Resources, 11, 218-241.

Namaalwa S, van Dam A A, Gettel G M, Kaggwa RC, Zsuffa I and Irvine K, 2020, The Impact of Wastewater Discharge and Agriculture on Water Quality and Nutrient Retention of Namatala Wetland, Eastern Uganda. Front. Environ. Sci. 8:148.

National Population and Housing Census 2014. Kampala: Uganda Bureau of Statistics.

NEMA, 2016, State of the Environment Report for Uganda 2014. National Environment Management Authority (NEMA), Kampala

NEMA, 2016/17, State of the Environment Report for Uganda 2016/17. National Environment Management Authority (NEMA), Kampala

Omolo, D., Langat, P. K., Koech, R., & Jiang, Y., 2018, Living Off Wetlands: A Case Study of Mara Bay and Masirori Wetlands, Tanzania. Journal of Geoscience and Environment Protection, 6, 43-60. https://doi.org/10.4236/gep.2018.612003

Ondiek RA, Vuolo F, Kipkemboi J, Kitaka N, Lautsch E, Hein T and Schmid E, 2020, Socio-Economic Determinants of Land Use/Cover Change in Wetlands in East Africa: A Case Study Analysis of the Anyiko Wetland, Kenya. Front. Environ. Sci., doi: 10.3389/fenvs.2019.00207

Pramod L, Kishor A, Krishna P. P & Lalit K, 2015, An analysis of willingness to pay for community-based conservation activities at the Ghodaghodi Lake Complex, Nepal, International Journal of Biodiversity Science, Ecosystem Services & Management, 341-348, DOI: 10.1080/21513732.2015.1055338

Safari, M. L, 2016. Influence of Human Activities on Wetlands on the Physical Environment in Nairobi County, Kenya: A Case of Westlands Sub-County. (Masters Thesis) University Of Nairobi, Kenya.

Sinthumule, N.I.; Netshisaulu, K.H., 2022, Wetland Resource Use and Conservation Attitudes of Rural vs. Urban Dwellers: A Comparative Analysis

in Thohoyandou, Limpopo Province, South Africa. Water, https://doi.org/10.3390/w14081290

Tebeje L, 2017, Households' Willingness to Pay for Soil Conservation Practices on Cultivated Land in South Achefer District, Amhara National Regional State of Ethiopia: A Contingent Valuation Approach. Haramaya University, Haramaya (MSc Thesis).

Truong DD, 2021, Villagers' Perception and Attitude toward Wetland Values and Conservation in Vietnam: A Case Study of Xuan Thuy Ramsar National Park.Front. Sociol. 6:763743. doi: 10.3389/fsoc.2021.763743

Tumuheire 2017, Impact of Land Use Changes and Wetland Degradation on Water Case of Upper Kinawataka Wetland, Kampala Uganda

Turyahabwe N, D Mwesigye Tumusiime, Willy Kakuru & Bernard Barasa, 2013 Wetland Use/Cover Changes and Local Perceptions in Uganda. Sustainable Agriculture Research; Canadian Center of Science and Education

Violet N K, 2010, Wetland Degradation in Jinja District; A Case Study of Lake Victoria, Uganda (Bachelor Dissertation) School of Engineering and Applied Sciences