

# CHANGES IN LAKE VICTORIA BASIN'S HYDROLOGY, WATER QUALITY, AND LIVELIHOOD

EfD-Tanzania background paper



# Introduction

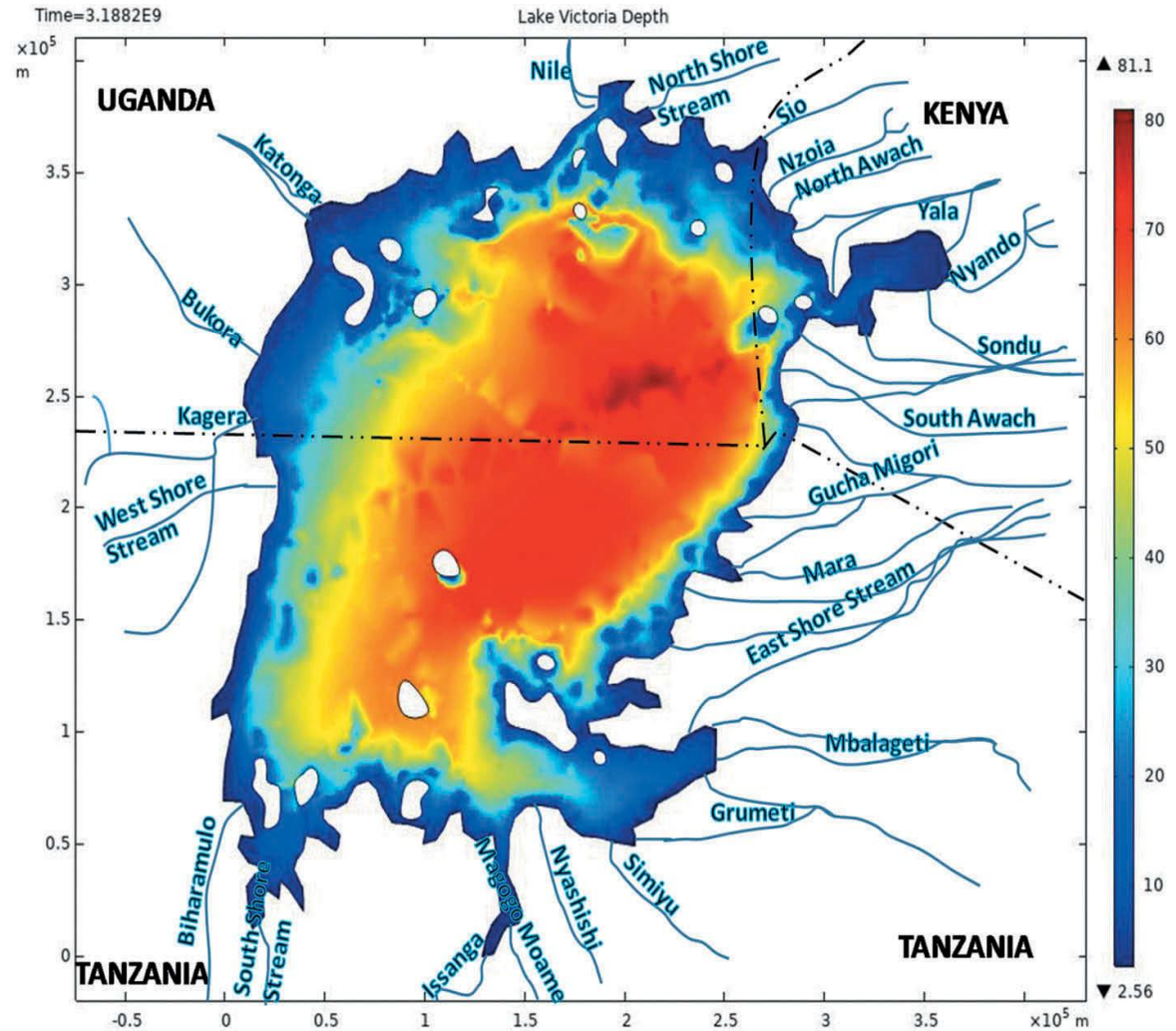
- Lake Victoria Basin (LVB) has a total area of 194,200 Km<sup>2</sup>
- The Basin has three shared water sources.
  - Lake Victoria
  - Mara River
  - Kagera River
- Tanzania has the most significant part of the Basin, over 50% (115,400 Km<sup>2</sup>).

# Introduction

- Lake Victoria Basin covers about 13% of the total area in Tanzania
- The basin hosts about 12.2 million people (LVB – WRMP I, 2014).
- It has eight administrative boundaries, Mwanza, Kagera, Mara, Geita, Simiyu, Arusha, Tabora, and Shinyanga.
- The Basin is known due to the presence of Lake Victoria;
- However, it has several other features like mountains and national parks, i.e., the Serengeti National Park.

# Introduction

- The most significant part of the Lake, 51%, is in Tanzania, occupying 35,088 Km<sup>2</sup>. Uganda has 43% of the Lake, while Kenya has 6%.



Map of Lake Victoria with catchment areas showing lake depth, inflows, outflow, and surrounding countries. Source; Glaser, S., Krach, N., Lembo, A.J., and Kayanda, R. (2020))

# Introduction

- Lake Victoria borders three regions: Kagera, Mwanza, Mara, Simiyu, and Geita.
- In 2014, the Lake contributed 72.3% of the total Maximum Sustainable Yield (MSY) (URT, 2015).
- Employed 197,763 fishers in 2023 in Tanzania (Budget speech MLF).
- More than 4 million people earn their livelihood from fisheries sector-related activities (URT, 2014).
- The fishery sector contributed 2.43% of the total export earnings 2021.
- The sector grew at a rate of 3% on average for six years from 2016 to 2021, contributing to GDP an average of 1.7% in the same period (URT, 2021).

# LVB's hydrology, water quality, and livelihood changes

- Rainfall
- Temperature

- Lake Victoria receives most of its water from direct rainfall (80%) (Awange et al., 2008).
- It has an equatorial climate with two main rainy seasons.
- Assessment shows no significant changes in mean annual rainfall between 1985 and 2005 in the study area.
- However, it was found to be seasonal with one month lag.
- Temperature varies across the bordering regions. i.e., lower mean maximum temperatures in Bukoba-Kagera than in Mwanza and Musoma-Mara (Kimirei, 2017).
- Similarly, the mean minimum and maximum anomaly trends show a significant positive trend in Bukoba.

# LVB's hydrology, water quality, and livelihood changes

- Water levels
  - Declining water levels since the 1960s.
  - Kimirei et al., 2017, report declining water levels by about 1.4m in 25 years.
  - According to the authors, this is attributed to evapotranspiration, given the Lake's shallowness, poor land use practices due to agricultural and industrial development, and water withdrawal for consumption.

# LVB's hydrology, water quality, and livelihood changes

- Water quality and livelihood
- Eutrophication, poor water visibility, dramatic changes in nutrients, and hypoxia have been the defining features of the Lake's water.
- As a result, there has been a massive loss of biodiversity.
- Sources of deteriorating water quality include the discharge of untreated municipal waste, industrial effluents, urban surface contaminated runoff, organic and inorganic waste for intensive agricultural activities, and municipality sewage.



# Measures by the GoT to promote sustainable use of LVB

- LVB is a crucial source of livelihood for millions of people in the country
- The Government has adopted various measures to promote the sustainable use of the basin
- These measures include
  - Signing of various protocols and treaties with other partner countries
  - Actively participating in regional organizations such as LVFO
  - Formulation of the national legal and regulatory framework

# Measures by the GoT to promote sustainable use of LVB

- Establishment of national agencies to facilitate the sustainability of the Basin, such as the LVBWB
- Collaboration with development partners in promoting sustainable use of the Basin
- Local community awareness creation and engagements through BMUs and WUAs
- Increase women's participation in managing the basin's resources.

# Persisting challenges

- i. Illegal fishing → declining fish stocks



*fish nets for dagaa targeting big fishes, the nets are famously known as Kokoro*

# Persisting challenges

ii. Water pollution → loss of biodiversity



*Dirty water and other waste material from industries and plastic materials are drained into the lake*

# Why?

- Some of the questions for debate include;
  - How effective are the existing legal and regulatory frameworks?
  - What institutional and policy gaps exist concerning the responsiveness of regional and national policies that address ENRM in the LVB?
  - What measures should be taken to reduce overdependency on the basin's resources?
  - How to promote gender inclusiveness in managing the basin's resources?

# Key findings from the national policy dialogue

- Unharmonized policies e.g., Diverse policies and strategies about various sectors, such as agriculture, fisheries, water, and tourism, may have conflicting objectives.
- Inadequate implementation and loopholes of the existing legal and regulatory frameworks
- Lack of a common objective and vision among the key players
- Growing poverty among the locals and limited alternative sources of living among local people
- Open access nature of the fishing activities
- limited awareness

# Key policy recommendations from the national policy dialogue

- Harmonizing regional and national Policies, Laws, and Regulations can help establish consistent frameworks for sustainable management.
- Enhance economic empowerment of local communities
- Enhancing stakeholder engagement (academia, private sector, etc.) and involving local communities in decision-making can enhance awareness creation and a sense of ownership of the basin's resources
- Use carrots instead of sticks or both



Thank you