African Center for Aquatic Research and Education

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Lake Turkana Advisory Group:
Lake Overview

Strengthening Capacity in Research, Policy and Management through Development of a Network of African Great Lakes Basin Stakeholders

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The African Great Lakes Stakeholders Network Workshop

Presentation Outline

- **Lake Overview River Omo-Lake Turkana Basin**

- **Importance of Lake resources**

- **Critical players**

- **Biggest and prominent issues of the lake**

- **Challenges to addressing positive change**

- **Current collaborative efforts**

- **Solutions to protect the lake**
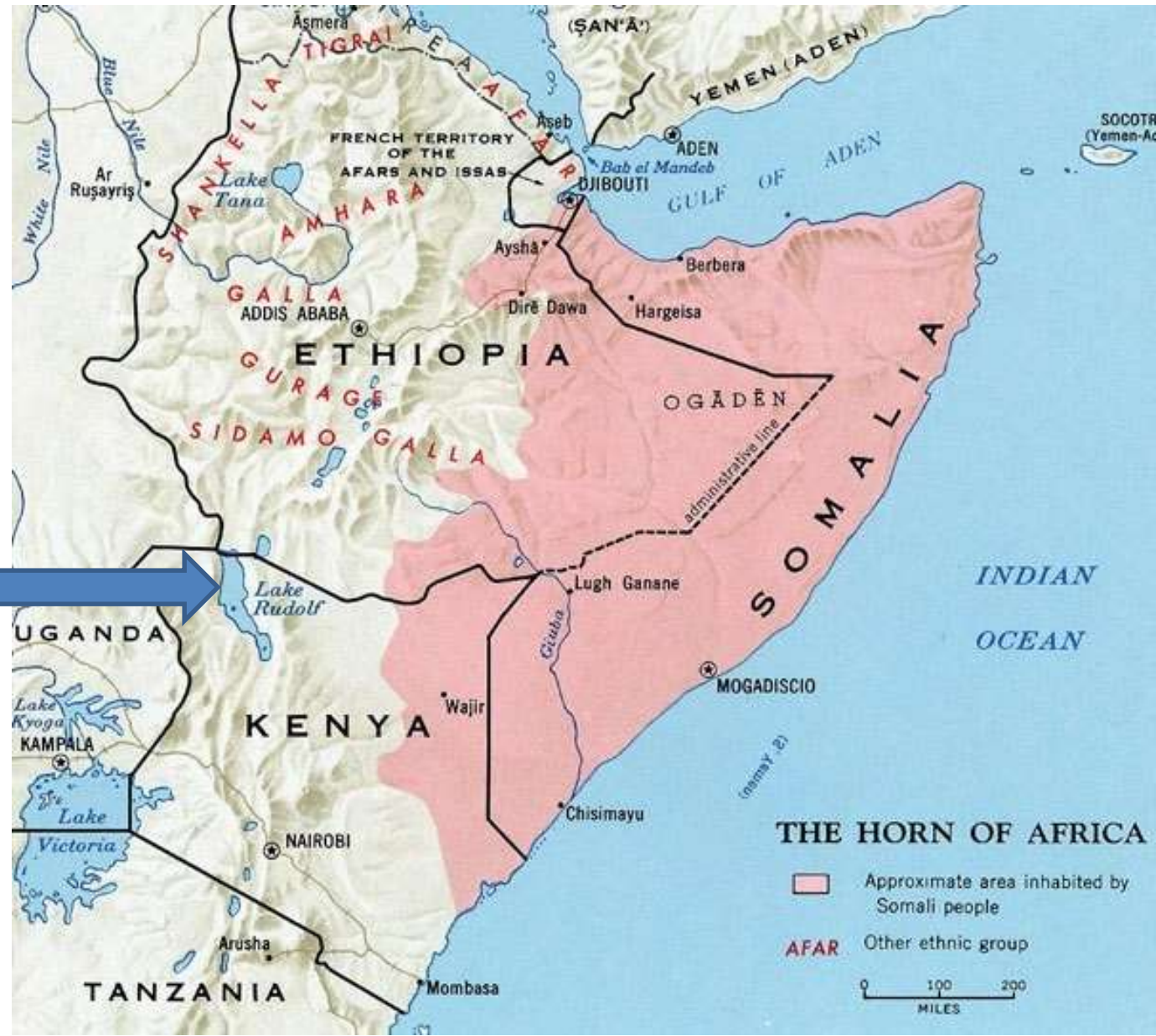
Lake Overview

Brief Geography

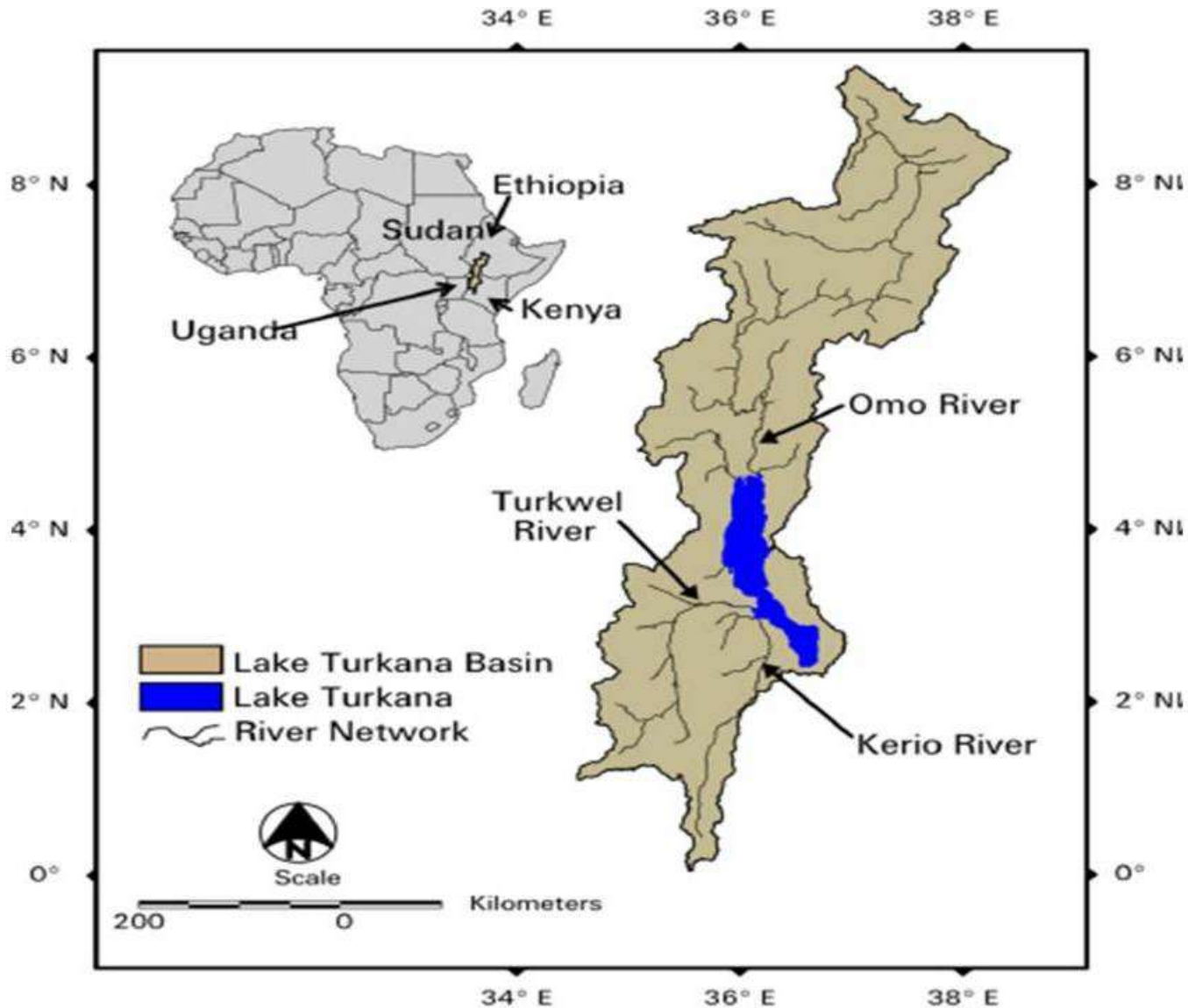## Importance of the Lake resources

Critical Players

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Geographical Location

Lake Turkana Basin

Source: Velpuri *et al.* 2012

Lake Turkana (Key Statistics/Characteristics)

Location	**N 02º27´- 04º40´ and E 35º50´- 36º60´**
Catchment Area (Km^2)	**131,000 – 145,500**
Length (Km)	**265**
Mean depth (m)	**31.4**
Altitude (m.) a.s.l.	**365 $\pm$ 5**
Surface Area (Km^2)	**7,560**
Lake Volume (Km^3)	**237.4**
Conductivity (µScm^{-1})	**3,700**
Maximum Depth (m)	**114**
Evaporation rate (myr^{-1})	**2.3**

Overview of Lake Turkana

- Formed in a depression at the lowest point of the Kenya Rift system

- It is a transboundary resource – shared between Kenya and

- Ethiopia

- It has an internal drainage system and no visible outlet.

- River Omo supplies over 90% of water flowing into the lake.

- Lake water is semi saline – Class II (Talling and Talling Classification- 1965)

- Jade colour due to dominant blue green algae

- High salinity responsible for lack of macrophytes except in isolated areas (Omo River delta, Sibiloi, midwestern shores & near the Ferguson's Gulf)

- Supports rich fish and bird diversity as compared to other Kenyan rift Valley lakes.

Importance of Lake Resources

- Water provision for domestic, livestock, energy (hydroelectric power) and agricultural uses.

- Habitat for over 60 species of fish and supports a thriving fishery

- Fringing vegetation act as forage for livestock and wild animals, fuel, building materials and natural food products

- Omo delta wetlands traps sediments and provides nutrients into the lake

- Home to World Heritage Sites and offers cross border tourism opportunities

- Preservation of cultural values

- Fishing is an alternative livelihood source (a "safety net")

- High potential to support **blue economic growth**

Central Island National Park and three crater lakes in it -World heritage site

Tilapia Lake

Flamingo Lake

Crocodile Lake

OMO RIVER DELTA PROTECTS LAKE FROM SILTATION AND NUTRIENTS ENRICHMENT

Critical Players

- Kenya and Ethiopia governments through policy and management directions
- County governments in Kenya and Regional States in Ethiopia
- Government Ministries, research institutes, universities, development partners, Non governmental organizations and community based organizations. From Kenya, these include:-

State Department of Fisheries and Blue Economy, Kenya Fisheries Service, Kenya Marine and Fisheries Research Institute, Beach Management Units, Kenya Wildlife Service, National Museums of Kenya, Universities (University of Eldoret and Turkana University College), World Food Program, UNEP, United States Africa Development Foundation (USADF), Diocese of Lodwar, Mercy Corps, GIZ, Friends of Lake Turkana, Turkana Basin Institute, etc.

Biggest and Prominent Issues on Lake Turkana

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The Critical Issues

1. Unsustainability (water and fish resource exploitation)
2. Loss of Biodiversity
3. Information and data gaps on status of resources-(critical baseline information).
4. Lack of Omo- Turkana Basin Management Plan
5. Developing Extractive (oil) industry close to the lake
6. Population increase around the lake and catchment area
7. Invasive species (Prosopis)
8. Habitat change
9. Siltation as a result of upstream human activities
10. Resource use conflicts amongst riparian communities

Challenges to addressing positive Change in Lake Turkana

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Challenges to Addressing the Issues

- Weak transboundary partnership or institutional linkages/coordination

- Lack of funding

- Low research capacity

- Inadequate research infrastructure

- Cross border insecurity

- Poor access to information/database on past/ongoing research

- Remote location of the lake

Current Collaborative Effort in Lake Turkana

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Current level of collaboration is low

Multilateral

1. **EU supported DAFNE Project- A Decision Analytic Frame-work to explore the water-energy-food NExus in complex and transboundary water resources systems of fast-growing developing countries.** Focuses on **Zambezi** and **Omo-Turkana** Basins. Started in 2016. . Has 14 project partners. Kenya represented by the African Collaborative Center for Earth System Science (ACCESS) and Ethiopia by the Water and Land Resource Centre (WLRC).

2. Ethiopia-Kenya Omo Delta Cross-border Project.

Funded by the EU Trust Fund for Africa. Started in 2018 and is being implemented by Veterinarians Without Borders Germany and five partner NGOs working in Ethiopia and Kenya (Mercy Corps Europe, VITA, EPaRDA, CIFA and TUPADO). The general objective is to increase stability in the area and promote economic development and greater resilience, particularly among youth, women and displaced people. More specifically, the project has the overall goal of increasing the income of 45,000 families in the project area by EUR 600 by 2020. KMFRI supports Mercy corps with aspects of post harvest fish handling

3. UNEP/IGAD Lake Turkana Project **Consultations at advanced stage** KMFRI expected to participate

4. Christensen Fund Project.

Based at Jimma and Addis Ababa Universities

National

1. **County Government County government collaboration minimal**

2. **Institutional Collaborarion exist but very minimal too**

- **Past collaborations**

  Has taken place and include

  – **KMFRI/Stony brook University and KMFRI/Syracuse University**

  – **Czech Academy of Sciences/KMFRI**

Strengthening Collaborative Efforts in Lake Turkana Basin

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Strengthening Collaborative Efforts

1. Formation and enhancing of network of researchers working on the lake basin

2. Developing and implementing multilateral and disciplinary research

3. Holding of frequent joint meetings

4. Creating and managing a centralized database with shared access privileges.

5. Capacity building institutions that work on Lake Turkana through infrastructure development and trainings

6. Capacity build the institutions through equipment purchase or transfer

Challenges to the Collaborative Efforts in Lake Turkana Basin

Overall Solutions to Protect the Lake Basin

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Solutions to protect the lake

1. Creation of Lake Turkana commission or authority for coordination of efforts

2. Rehabilitation of catchment areas to reduce silt discharge

3. Strengthening research capacity in the riparian institutions

4. Development of lake-wide and basin management plan

5. Control of resource exploitation

6. Sustainable management of invasives

7. Involving all stakeholders in conservation efforts through education and activities that exert less pressure on the resources

Summary and Conclusions

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In Summary and Conclusions

To address these challenges we need to:

1. Bolster formation and **enhancement of network** of researchers working on the lake to **seek for funding** that foster collaboration through **appropriate programs** that **encourage frequent interaction amongst themselves** and other stakeholders

2. Address the key research challenges of the lake to provide information for policy formulation and resource management.

3. Enhance membership of the Advisory Group to include various experts in various fields.

4. Capacity build institutions that work on Lake Turkana through infrastructure development and training.

Some unique Features about the Lake Basin

1. Lake Turkana lies in an arid and semi arid area characterized by low rainfall and extreme aridity.

2. Supports more than 300,000 indigenous people who rely directly as a livelihood source

3. Alternative source of livelihood for pastoral communities who loose their livestock due to severe drought and famine

Some unique Features about the Lake

➢ The catchment areas receive an annual precipitation of up to 2,000 mm (UNEP 2010) although the mean annual rainfall could be as low as 350 mm in the lower Omo River Valley near the lake (EEPCO 2009)

➢ the Omo River discharges over 90% of all its water into the Lake Turkana, controlling the water and chemical balance of the lake

  ➢ Stimulates aquatic productivity, making Lake Turkana a biodiversity centre for both fish and other aquatic flora and fauna

Some unique Features about the Lake

➢ Lake Turkana's catchment area forms a unique environment containing a mosaic of habitats including wetlands, rivers and river mouths, sandy bottoms, rocky shores and stony pebbles that provide intrinsic services such as

➢ Biodiversity reservoirs, fish breeding and nursery areas and water quality regulation.

➢ Rich diversity of Nilotic fresh water fishes (Currently, about **60 species belonging to 20 families** are known from Lake Turkana region).

There is therefore need for the scientific community to pay more attention to it than hitherto/ before.

THANK YOU VERY MUCH FOR YOUR ATTENTION