AU Centre of Excellence for Research in Aquaculture (fish feeds, nutrition, genetics), inland capture fisheries and also impact of climate change on fisheries

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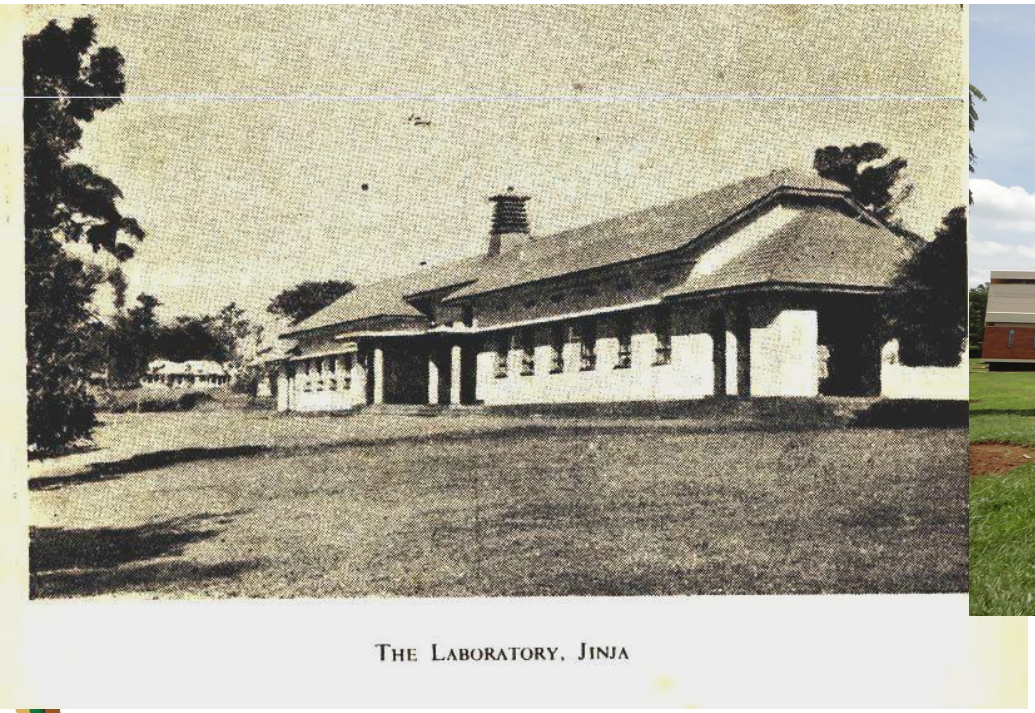
National Fisheries Resources Research Institute (NaFIRRI)
www.firi.go.ug

Brief about NaFIRRI

1. Birthplace of fisheries research in East Africa (has roots from the East African Fisheries Organisation (EAFO) established in 1947 under the first East African Community.



THE LABORATORY, JINJA

Then…

Now…

Former Directors

Kitaka George 1976-1978

John .Y okedi 1968- 1976

WaTs

Jackson Peter- 1964-1967

V.D Van Someren, 1960-1962

R.S.A Beau-champ 1947-1960

Kudoganya Aggrey William Akiki -1978-1991

Dr.Bugenyi 1992-1998

Dr.Ogutu Ohwayo 1999-2002

Dr.John Balirwa 2003-2015

Dr. Taabu Munyaho 2015- 2019

Brief about NaFIRRI

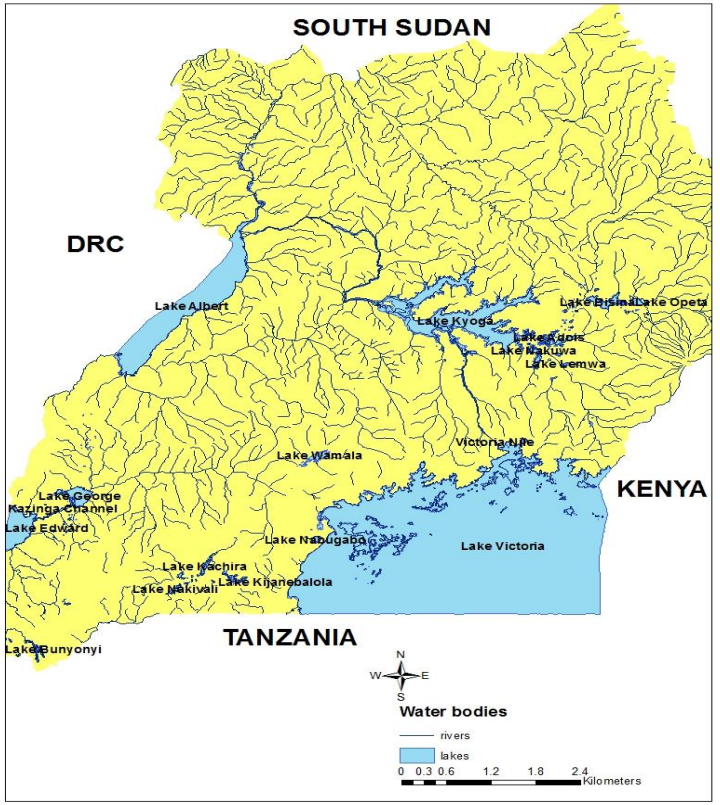
1. One of the sixteen (16) Public Agricultural Research Institutes in Uganda and one of the seven (7) National Agricultural Research Institutes of the National Agricultural Research Organisation (NARO)

2. NARO is mandated to guide, coordinate and oversee all aspects of agricultural research in the National Agricultural Research System (crops, livestock, **fisheries**, forestry, agro-machinery, natural resources and socio-economics).

Mandate

To conduct basic and applied research of national and strategic importance in:

1. Aquaculture,
2. Capture Fisheries,
3. Water Environment,
4. Socio-economics and Marketing,
5. Information Communication Management, and
6. emerging issues in the fisheries sector



~ 20% of the country's total surface area

Research Programmes

1. Capture Fisheries and Biodiversity Conservation
2. Aquaculture and Fish BioSciences
3. Fish Habitat Management
4. Innovations and post harvest fisheries

1. Capture Fisheries and Biodiversity Conservation

Fish stock assessment

Research vessels

MV Angara

Research vessels

MV Nkejje


Lates niloticus


Oreochromis niloticus


Labeo victorianus


Labeobarbus altianalis


Bagrus docmak


Protopterus aethiopicus


Alestes baremose


Hydrocynus forskahlii


Clarias gariepinus


Brycinus macrolepidotus


Labeobarbus bynnii

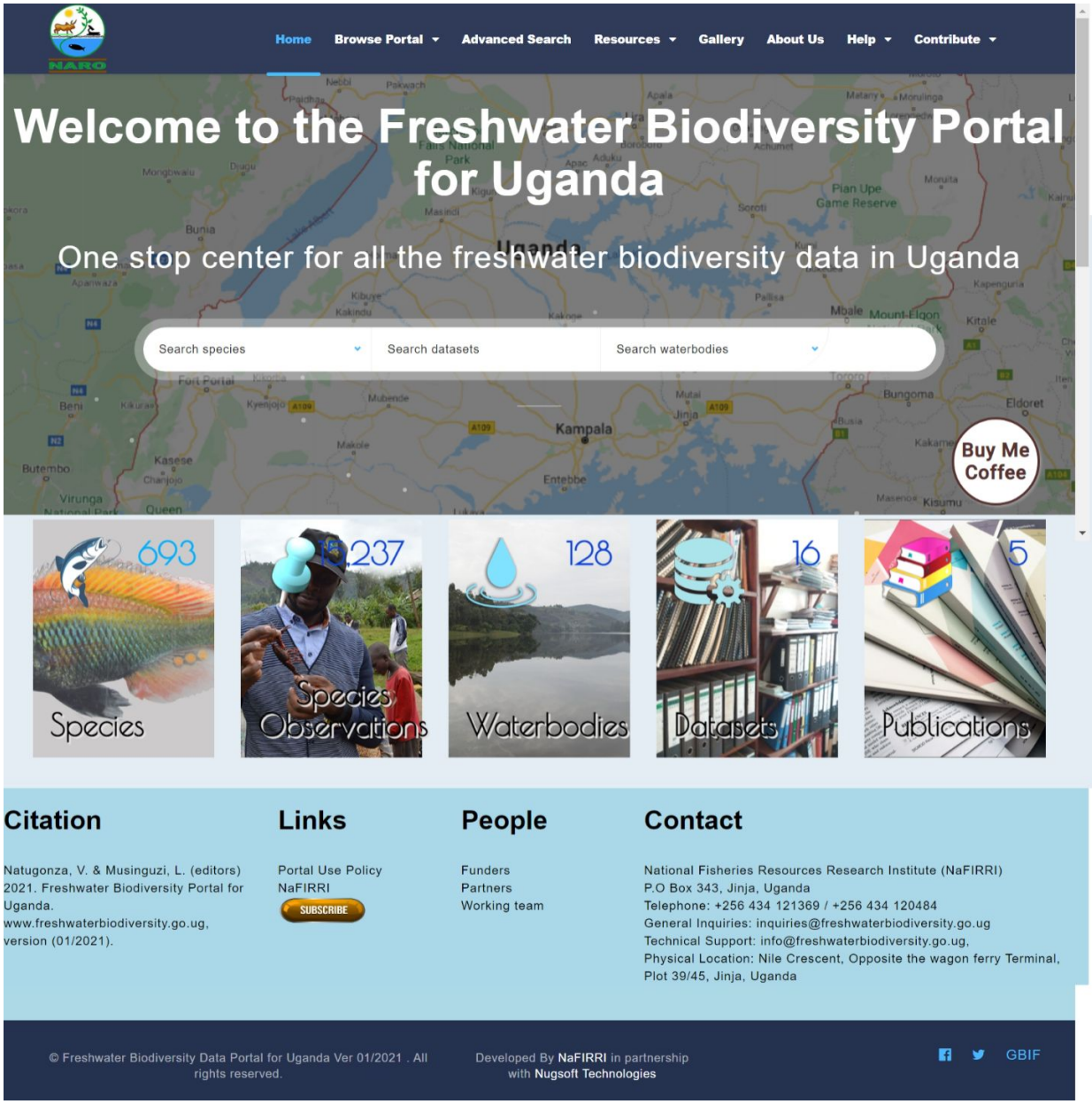

Distichodus nefasch


Polypterus senegalus


Mormyrus kannume

- 500 species
- All edible

https://freshwaterbiodiversity.go.ug



2. Aquaculture and FishBiosciences

Floating and sinking feeds

On-station made feeds

Mass of Moina ready for Use for larval nursing

Improving traits of farmed fish

Pond layout

Concrete tanks

Two Hatcheries

Feed mill

Some Laboratories

Training and meeting facilities

AU-IBAR Training on intensive fish cage culture
27th – 29th July 2022

Accommodation facilities

Hostels

2. Aquaculture and FishBiosciences

Cage culture demonstration site

3. Fish habitat Management

Aquatic weeds

Salvinia molesta (Kariba weed)

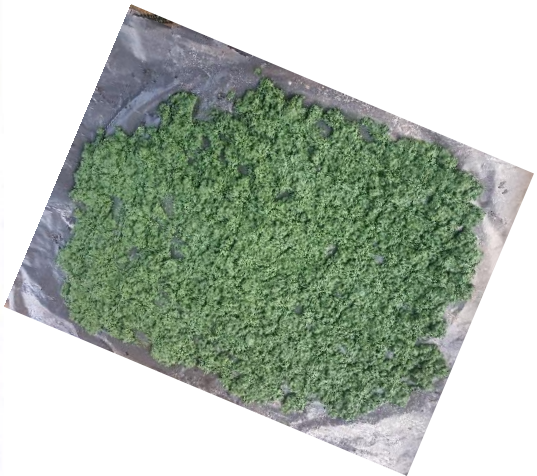
3. Fish habitat Management

Limnology studies

Water quality sampling and analysis

3. Fish habitat Management

Limnology studies



4. Innovations and post-harvest fisheries

Alternative livelihoods

4. Innovations and post-harvest fisheries

IMPROVING PROCESSING AND QUALITY OF MUKENE:
Women fish processors at Kiyindi Landing site using a Solar tent dryer for better quality fish.

Outreach and dissemination

OUTREACH: Disseminating NaFIRRI technologies to various stakeholders at World Science Day 2020 at Kyambogo University Kampala .

Primary
Secondary
Tertiary
institutions

Outreach and dissemination

Other diverse stakeholders e.g. Fisheries Protection Unit, MPs, fisheries managers

Outreach and dissemination

Other diverse stakeholders e.g. Fish farmers, fishers

Outreach and dissemination

Information and data centre

Education and conservation facilities (Aquarium, Museum, Vivarium)

Partnerships, Collaborations & Linkages

1. Academia
2. Private Sector
3. CGAIR Centres
4. Research institutes (national, regional, international)
5. Government agencies (NEMA, WRM, DiFR)
6. Regional agencies (LVFO, LVBC)
7. Sister institutes (KMFRI, TAFIRI, CHBR)
8. International (McGill University, University of Denver, USA, Queens University, Toronto Zoo and University of Waterloo, Canada, University of Florida, University of Minnesota, Boston University, Ohio University, New England Aquarium, and Auburn University, USA, University of Scotland etc)

Partnerships, Collaborations & Linkages

NaFIRRI and McGill University

On-going projects

Promoting Commercial aquaculture

1. Promoting environmentally sustainable commercial aquaculture (PESCA)
2. Commercialisation of improved and viable African catfish pituitary hormone and quality sperms for increased spawning and fingerling survivals by seed multipliers
3. Knowledge and skills enhancement, adoption, and utilisation of Best Aquaculture Management practices by fish farmers for improved livelihoods in the five irrigation schemes area of Doho, Ngenge, Tochi, Wadeli, and Mobuku of Uganda

On-going projects

Promoting Commercial aquaculture

4. EU-FAO True Fish Farming Story in Lake Victoria Basin (TRUE-FISH) – focusing on business linkages and information, lack of skilled operators, biosecurity risks
5. "Food Systems Africa; the Food and Local, Agricultural, and Nutritional Diversity (FOODLAND) with an overall objective to develop, implement and validate innovative technologies nutrition performance of local food systems in Africa while strengthening agro-biodiversity and food diversity merged with diversity of diets.

On-going projects

Promoting Commercial aquaculture

6. Development of unextruded floating insect meal based fish feed for sustainable aquaculture production in Uganda
7. Strategic methods to advance resilient tilapia (SMART) in Uganda: Diagnostic tools & geostpatial modelling of Tilapia virus (TilV) control

On-going projects

Promoting small pelagics

8. Harnessing dietary nutrients of under-utilised fish and fish processing by-products to reduce micronutrient deficiencies among vulnerable groups in Uganda
9. Cutting edge fisheries research for the sustainable management of Lake Victoria's silver fish
10. Small Fish and Food Security: Towards Innovative Integration of Small Fish in African Food Systems to Improve Nutrition

On-going projects

11. Lakes Edward Albert Integrated Fisheries and Water Resources Management (LEAF II)

Biodiversity Conservation

12. From the lab to the world: unlocking Uganda's freshwater biodiversity data for sustainable development
13. Advancing freshwater biodiversity data and information access, utility and relevance for conservation decision making
14. Harnessing indigenous knowledge in the recovery of critically endangered *Labeo victorianus* (Ningu) within rivers Kagera, Sio and Upper Victoria Nile

On-going projects

15. Expanding spatial coverage of freshwater biodiversity monitoring indicators in the Lake Edward system
16. Securing a global freshwater fish hotspot on Lake Nyaguo

Products for industry

17. Biogas and biofertilizer from water weeds for improved livelihoods in selected fishing villages around Lake Victoria in Uganda
18. The treasure of micro-algae in industrial effluents
19. Commercialisation of Nile perch oil products

On-going projects

20. Food security and health for East Africa: Reducing human schistosomiasis through innovative biocontrol using prawns (cray fish)
21. Fishbase for Africa: data dissemination, capacity building and fisheries
22. Monitoring the impacts of established fish cages at Source of the Nile fish farm
23. Environmental and Socio Impact Monitoring on Bujagali Dam
24. Biodiversity Action Plan (BAP) baseline and monitoring of activities of critical habitat qualifying fish species of the Upper Victoria Nile.

AU-IBAR Consultancies

1. CONSULTANCY TO IMPROVE CAPACITIES AND SYSTEMS FOR REGIONAL COLLABORATION AND INTEGRATION REGARDING SHARED FISHERIES AND AQUACULTURE RESOURCES MANAGEMENT AND TO ENHANCE LINKAGES WITH ENVIRONMENTAL GOVERNANCE FRAMEWORKS

2. CONSULTANCY ON STRENGTHENING STAKEHOLDERS' ENGAGEMENT AND CONSULTATIVE MECHANISMS IN AFRICAN FISHERIES AND AQUACULTURE SECTOR

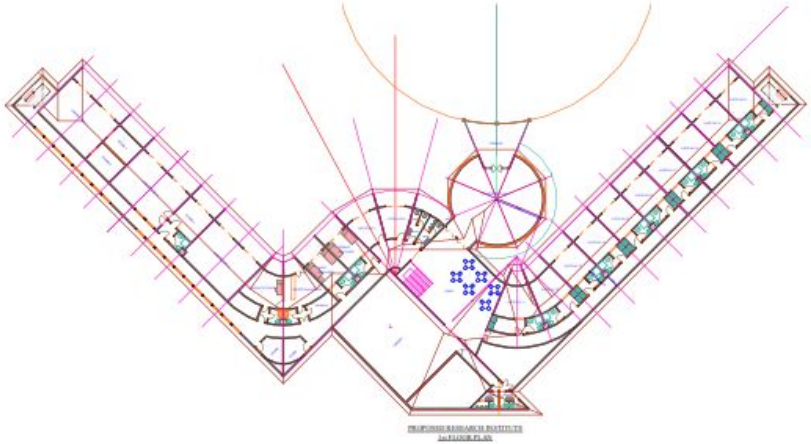
3. CONSULTANCY TO PROMOTE UPTAKE AND IMPLEMENTATION OF KNOWLEDGE, INNOVATIONS AND BEST PRACTICES (INCLUDING THOSE GENERATED BY FISHGOV I AND FISH TRADE PROJECTS) TO INFORM POLICY CHANGE IN FISHERIES MANAGEMENT AND AQUACULTURE DEVELOPMENT AT NATIONAL AND REGIONAL LEVELS IN AFRICA

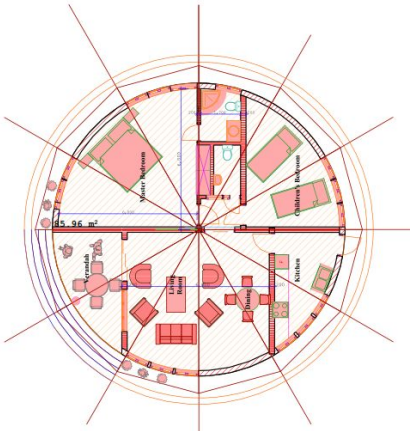
4. CONSULTANCY TO COMMISSION STUDIES ON IDENTIFICATION OF SOURCES OF FISHERIES, AQUACULTURE, SOCIO-ECONOMICS AND ENVIRONMENTAL RELATED DATA (RESEARCH AND STATISTICS) IN THE EAST AND SOUTHERN REGIONS OF AFRICA

Key challenges

Challenge	Nature of challenge
1. Inadequate and unsustainable **funding**	a. Limited budget to meet stakeholder expectations b. Government research grants on steady down-ward trend
2. Working with limited **research infrastructure**	a. Inadequate infrastructure that hinders ability to conduct cutting edge research and readiness to handle emerging issues b. Lack of accredited labs

Proposed Lake Albert Research Station



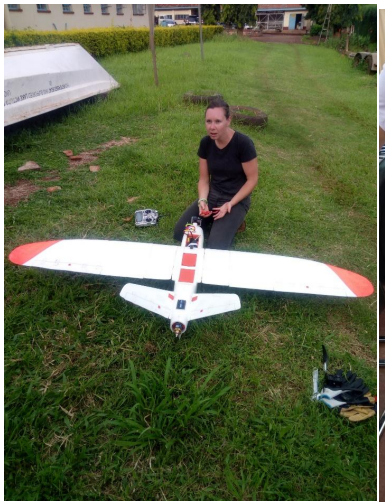


Key challenges

Challenge	Nature of challenge
3. Weak **linkages**	a. Critical partnerships and collaborations are limited b. Low interface and partnerships with other MDAs, CSOs and private sector
4. Technological advancements in fisheries research	New innovations are springing up in technology and software systems that require up-to-date skills e.g. drones

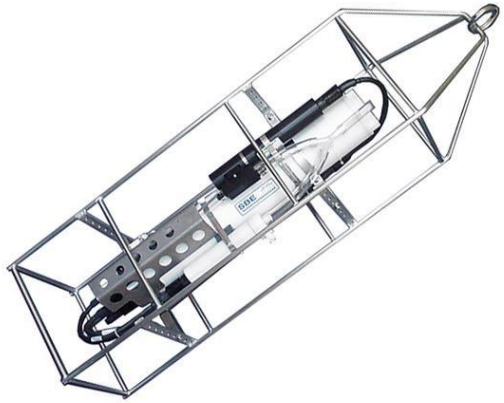
Visual line of sight (VLOS)

BVLOS (currently not accepted in Uganda



Key challenges

Challenge	Nature of challenge
5. Expensive equipment	Some of the genetic engineering, equipment, echosounders, DSTs, remotely controlled under water cameras, feed extruders are expensive
6. Limited research products and services	Fish is considered as a single commodity versus crops (Nile perch, Nile tilapia, Mukene)



Thank you for listening.