



THE REPUBLIC OF UGANDA



MAKERERE UNIVERSITY

PROJECT SUMMARY

Project/ Name	RIF 1 PROJECT CONAS 012 UTILIZATION OF THE POTENTIAL OF ORNAMENTAL FISH SPECIES FOR TRAINING AND BUSINESS DEVELOPMENT IN UGANDA.		
Project Sponsor	Government of the Republic of Uganda to Makerere University		
Project PI	Dr. Juliet Kigongo Nattabi		
Start Date	Dec 2019	Completion Date	June 2021

PROJECT CLOSURE SUMMARY

PURPOSE OF THE PROJECT

Production of animals for the aquarium hobbyist trade is a rapidly growing sector of the aquacultural industry, and it will continue to become more important as restrictions are placed on collecting animals from the wild. Currently, approximately 90% of freshwater fish traded in the hobbyist industry are captively cultured. Given the future importance of aquaculture production of ornamental species, it is important to elucidate the benefits and risks for this sector. There are over 300 species of Haplochromine widely distributed in Ugandan lakes with a huge potential for ornamental trade but not exploited. Moreover, most ornamental fish fetch much higher economic value than food fish, they may provide a good alternative livelihood option for fishers and the lakeside dependent communities (Kannan, 2014, Namulawa, *et al.* 2014). In 2015, Uganda ranked 129 in export of ornamental live fish (Factfish, 2018), however, the ornamental fish industry is still under-developed and limited in knowledge of available ornamental fish species. One of the sustainable ways of resource utilization is through artificial culture; our project therefore intended to undertake a robust collection, identification and breeding potential ornamental species, starting with the haplochromine cichlids fish species from the Lake Victoria basin

The Department of Zoology, Entomology and Fisheries Science located at the College of Natural Sciences, Makerere University has had a moderate outdoor aquarium facility since its inception in the 1940s which is of aesthetic value and an indoor aquarium facility with 17 tanks which were not fully functional due to limited funding towards development of teaching aid infrastructure. With Support from the government of Uganda to Makerere University RIF one. The indoor aquarium facility has been fully refurbished and currently stocked with upto 13 fish species unique and some on the verge of extinction majorly collected from the Lake Nabugabo ecosystem during samplings. If fully expanded in the training-business perspectives and diverse collections undertaken, the available facilities and ornamental fish collections provide huge potential for training and income generation.

OBJECTIVES ACHIEVED/NOT ACHIEVED

1. To revamp the Aquarium facility at ZEFS for educational training and create awareness on ornamental fishes through training.
2. To collect diverse specimens of haplochromine fish species and other ornamental fish species from the Lake Victoria and its satellite lakes.
3. To identify and document the occurrence and distribution of ornamental fish species in the study lakes

4. To conduct selective breeding of wild haplochromine species for ex-situ conservation and aquarium business promotion through tourism and aesthetic value addition

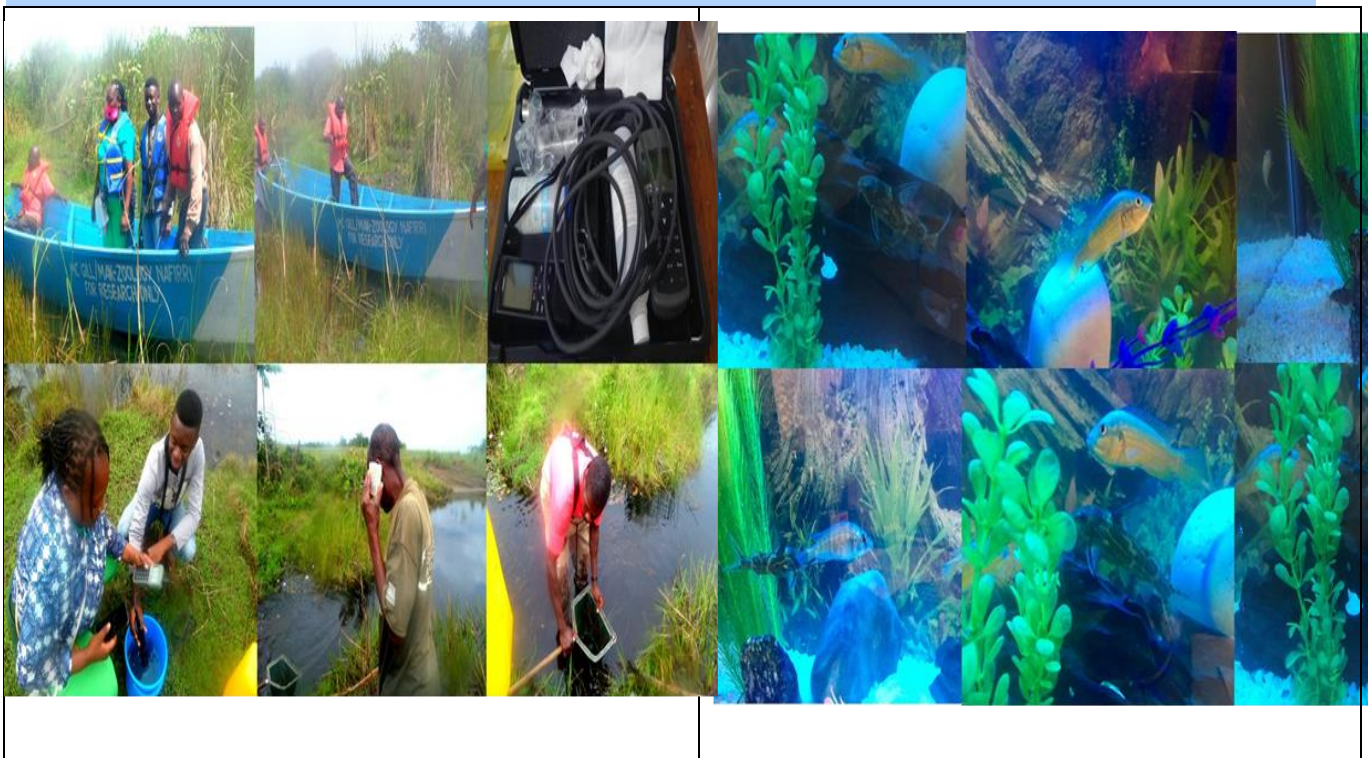
5. Develop guidelines for ornamental aquaculture and trade in Uganda.

NB Objectives 1-3 were achieved while objective 4 and 5 are/were not and we will be seeking for funding both internal and external later on to accomplish them.

OUTPUTS

1. A fully equipped and refurbished training and research aquarium facility available for students of Fisheries and Aquaculture and other allied courses within the vicinity of University premises.
2. Innovation of a Solar powered fish transport tank that uses conversion DC to AC for aeration during transit of live fish from field to aquarium resulting in the removal of using oxygen cylinders to transport fish over long distances
3. 17 fish species have been collected
4. Identification of the species documented and distribution pending input into GIS of points sampled

ENGAGEMENT PICTURES



World Fish Migration Day

World Fish Migration Day is a one-day global celebration to create awareness on the importance of free-flowing rivers and migratory fish. It is usually celebrated on 21st May every two years however this year it was extended due to the Covid19 outbreak for this year.



2 4th October 2020 was world fish migration day. For the first time Uganda joined the rest of the world to commemorate this day. It was hosted by at Makerere University, Department of Zoology, Entomology and Fisheries Sciences in conjunction with Fisheries Training Institute Entebbe.

It was co-hosted by Dr Juliet Kigongo Nattabi and Mr Nathan Semwanga who are staff in these institutions respectively and enthusiastic about the life in rivers which a long neglected especially in Uganda where more is done on the other water bodies.

These are the two oldest public institutions mandated to train for the fisheries sector at degree and diploma in terms of human resources respectively for over 30 years.

For this year's theme we decided to bring our students and the public the importance of human impacts on riverine fishes which affects their migratory movement. The host team held a 30 minute presentation show casing the importance of rivers and migration of the fishes therein and how they are being impacted on by human activities like dam construction pollution, road construction across the rivers without creating

pathways for the migratory fish in them. Also the team show cased live fish specimen kept in the aquarium collected from River Ndyabusole that pours into River Juma the only inlet to Lake Nabugabo complex in Masaka district as well as the impacts of gold mining and a proposed HEP construction across River Warugo in Mitooma District which has species of fish that migrate upstream for Migratory purposes.

Fish migration is essential for healthy rivers. Migratory fish all over the world depend on free-flowing rivers. Today, river barriers like dams, sluices and many other obstacles threaten many fish species' survival. Free flowing rivers, that allow fish to travel upriver, increase fish populations in the river and assure healthy river life.

Our main reason for this cause is to see that fresh water fishes in Africa are preserved for the future generation amidst the increasing population and mans activities including creating pathways for migratory fish across dams, road construction pathways that transverse the rivers.

We welcome to our next celebration. next edition will be held on May 21, 2022. we look forward to seeing you join us

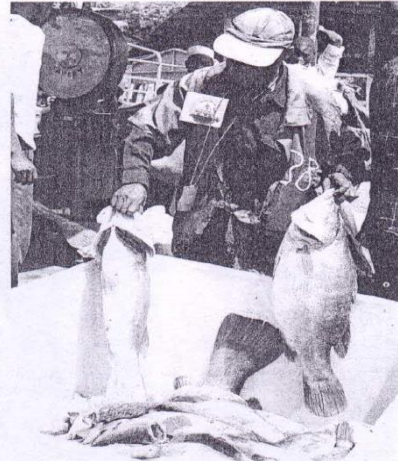
Rivers are the arteries of our planet; they are lifelines in the truest sense."

~ Mark Angelo

Contributed by:-

Juliet Kigongo Nattabi (PhD), Lecturer Makerere University, Department of Zoology, Entomology and Fisheries Sciences

MY FISH STORY!



My name is Ssemakalu Angel. I was born in Bukomansimbi district and raised in Jinja, Uganda. Through my up bring, I didn't know a lot about fish except that the head of the family eats the head when it is served as source. At that time, only the adults ate fish in the sense that they could ably deal with the bones not to hurt them (something I learned much later). Initially I was eager to find out why, or probably get myself grown so I could as well eat fish at my comfort.

However, I did have strong passion about water especially river waters. This was because the primary school I attended was across the Nile River so I crossed it by the bridge every day. Seeing the water flow, turn around at the electricity generating point past the dam (Owen falls), water hyacinth, and fishermen comfortably sailing around the calm side all fueled my desire to find out more about water. To mention too, every day I crossed I wondered how the fish lived in the water but luckily my primary six teacher did answer that when we studied about fish.

In 2009, my primary school was asked to present a team to compete with other schools in citing poems and playing skits in a way of creating awareness about the relevance of water bodies to the community. I was luckily part of the team and what made everything great is that we won. This further fueled my passion about both water and the fish that I barely knew two things about! I developed a sense that I could learn so much more and

use it to transform my community. Quite a number of people do benefit from fisheries in our community, despite it having a somewhat crippled attention in the days. The local beliefs that are attached to fish i.e. that it is only harvested and eaten by men and pregnant mothers, that fishermen are extravagant with zero money saving skills, among others affected the perception of natives about fisheries. Well, it's improving to date because of the relevance of both water bodies and fish. Seven years later, I was able to understand Fisheries better and in a much wider scope instead of just my community when I enrolled for a Bachelors program in the science of Fisheries and Aquaculture at Makerere University. I have realized a lot of potential in Fisheries to the world, with great opportunities to transform communities. Not only being highly protein-ous, fish as well creates employment both directly and indirectly to so many people in the world.

Lastly, I conclude by appealing to whole of us stakeholders to do our role, eat fish, conserve the waters from pollution, tell friends about fish. With the help of the better positioned stakeholders like researchers, technologists, fisheries can transform our communities. Thank you for reading my fish story and taking time to read about Fish. I love you!

Yours truly,
SSEMAKALA ANGEL,
BSC. FISHERIES AND AQUACULTURE
STUDENT, MAKERERE UNIVERSITY,
UGANDA.

LESSONS LEARNED