Janvière Tuyisenge, a researcher from Rwanda whose work is examining the implications of cage aquaculture for the limnology and health of Lake Kivu in Rwanda.
Photo Credit: Lydia Atieno

Cage fish farming tests the health of Rwanda lake

By Lydia Atieno

DURING her early childhood and education, Janvière Tuyisenge says society made them believe the stereotype that science was not a subject for girls.

She went through school afraid of making a 'wrong career choice' in a science-related field.

When she started her secondary education, however, her parents motivated her to venture into science.

"Science was not my preferred subject but I followed my parents' advice and chose to study biology and chemistry even up to university level, chemistry being my best subject," says Tuyisenge, who is currently studying for her PhD in aquatic ecosystems at IHE Delft Institute for Water Education, the Netherlands.

"Nature is beautiful and we humans highly depend on the ecosystem services from aquatic ecosystems. We use water bodies for recreation, transport, and fishing.

Currently, macro-projects including aquaculture grow on these important ecosystems."

Her research is examining the implications of cage aquaculture for the limnology and health of Lake Kivu, in Rwanda.

Cage aquaculture technology, popularly called '*Kareremba*', involves stocking and feeding fish, mainly tilapia, in floating cages of various sizes until they are ready for harvesting.

It employs an estimated 200,000 people on the Rwandese side of the 2,700 square-metre lake shared with the Democratic Republic of Congo and is being promoted as part of the government's strategy to commercialise fishing, improve livelihoods and alleviate poverty.

But it has also raised concerns about the environmental effects on the lake, especially pollution from the discharge of inorganic and organic nutrients.

Tuyisenge hopes that her research findings will contribute to efforts to ensure ecological sustainability of cage aquaculture on Lake Kivu, even as the government seeks to promote the adoption of the technology in ponds and other lakes in a bid to improve food security.

According to the country's fisheries and fish farming Master Plan, a total of 1,063,000 tons of fish can be generated annually from the aquaculture sector alone.

The government notes that while intensive fish farming requires higher investment, it has a greater potential to increase aquaculture production, with a target of more than 55 percent contribution to fish production.

According to Solange Uwituze, the Deputy Director General in charge of Animal Resources Research and Technology Transfer at Rwanda Agriculture Board (RAB), the country's fish production by 2021 was 39,269 tonnes of which 87 percent was from fish capture and only 13 percent came from fish farming.

Illegal fishing practices, low investment, expensive fish feeds and lack of value addition have been cited among the major contributors to low production.

Rwanda's demand for fish is estimated to reach 112,000 tons by 2024.

Producing 112,000 tons by 2024 per year could help Rwanda attain the average sub-Sahara per capita consumption of 6.6 kilograms of fish per person per annum and 265,600 metric tons to reach the global average of 16.6 kilos.

In order to increase fish production, Uwituze says that Rwanda seeks to invest Rwf240.8 million in 2022/2023 fiscal year and Rwf283.7 million in 2023/2024 fiscal year in restocking lakes and ponds as well as Rwf85.1 million in the training of cooperatives on production technologies.

She adds that Rwf4 billion and Rwf4.7 billion are planned to be invested in subsidizing fish feed production in 2022/23 and 2023/24 fiscal years respectively.

> *Illegal fishing practices, low investment, expensive fish feeds, and lack of value addition have been cited among the major contributors to low production.*