



Position

Research Officer

Institution

Ministry of Natural Resources,
Energy and Environment, Malawi

Country

Malawi

Education

MSc, Fisheries and Aquatic
Sciences, Mzuzu University,
Malawi

Mentor

Dr. Levison Chiwaula, Associate
Professor, University of Malawi
(UNIMA), Malawi

Research Area

Fisheries and aquaculture
management.

James John Banda

2021 One Planet Laureate Candidate

James John Banda is a research scientist specializing in food science, quality management, fish, and fisheries products. He did his BSc at Mzuzu University in fish science. "My aim was to see if handling techniques have effects on the fish quality," he says.

His research resulted in a new set of good manufacturing practices (GMPs) and then he joined the Department of Fisheries as a research officer in 2014. "I discovered that the growing complexity of the food value chain means that risks posed by unsafe food products like fish have the potential to quickly evolve from a local problem to a national incident in a short period of time, and consumers are not aware," he says.

"They had been using unimproved methods like open drying, which results in quality loss due to cross contamination, meaning that the products were losing a lot of value. We improved the drying technology with a solar tent dryer, a climate-smart technology that works and is governed by the principle of convection current," he says.

James then started his master of science, which he worked on from 2015 to 2017 thanks to a Canadian donor, IDRC in Ottawa, Canada (www.idrc.ca) under the CultiAF program, back at Mzuzu University. His thesis focused on quality and shelf-life analysis of solar tent-dried and open sun-dried *Diplotaxodon limnothrissa*.

This was achieved by conducting multiple laboratory analyses to define product stability. He published papers on the nutritional and microbiological quality of dried products.

In 2019 James travelled to Iceland under the United Nations University Fisheries Training Programme (UNU-FTP) to specialize in fish quality management. "I decided to introduce the use of brine to process pelagic fish products to increase the quality," he says. "If we use brine in smoked products, we increase the storage life of the smoked products." Brine renders the medium an unsuitable environment for microbial proliferation.

He also introduced this to the improved smoking kilns. The kiln works through closed circuit air conditioning while producing quality fish products that are free from polyaromatic hydrocarbons (PAH). "These two technologies are reducing postharvest losses from 37.8 percent to 14 percent," James says. "The Malawi Bureau of Standards has acknowledged that the techniques are valuable, and product standards have been adopted."

"My focus is now on upscaling these technologies to ensure that we continue to do well. In terms of value chain development and postharvest loss management as well as gender, 80 percent of fish processors are women."

James believes that improved processing technologies are crucial in mitigating climate change impacts on the livelihoods of value chain actors. Thus, he is upscaling SMART technologies to ensure value chain development and postharvest loss reduction in Malawi.

James says that he always liked biology, chemistry, biochemistry, and agriculture, “so it was an easy trajectory into microbiology. We need to look at foodborne diseases and the aspect of food safety. I was inspired primarily by my university professor, who explained that microbiology has a huge impact on the food value chain.”

James is currently working as research officer in the Department of Fisheries, Ministry of Forestry and Natural Resources. He heads the section of safety and quality management, but says his aim is not just to study but also to do monitoring of product quality along the value chain. “Consumers are looking for quality products,” he says. “And products are in supermarkets.”

James first heard about the One Planet Fellowship at a conference he attended in Paris, France in July 2016. “There was a presenter on smart technology who mentioned Bill Gates funding. So, I applied when the call came, and I looked online to see how people are being mentored.”

James intends to get a PhD at some point. “Malawi is working on a National Food Policy, and my department gave me a mandate based on my qualifications in risk analysis/management, risk assessment, and risk communication,” he says. “I am also an expert for the African Organization for Standardization (ARSO), a focal point for International Food Safety Authorities Network (INFOSAN) and a member of Codex Alimentarius.

“The One Planet Fellowship will diffuse unique skills and linkages,” James says. “I look forward to reaching far in fish value chain development and postharvest loss reduction.” He is sure that the knowledge gained will help him “and we will develop teams to ensure that what we are doing is self-sustaining.

I’m sharing with my colleagues so we can develop winning project proposals and quality manuscripts for publication.”

James says “As researchers we design smart technologies, and it can be challenging when you take the technology to a community and there is low adoption due to several factors, ranging from complexity of the technologies, relative advantage to the original practices, cultural, and cost of the technologies.” But they use extension workers to bridge the gap. Also, the technologies are developed as a package to increase the adoption rate.

James John Banda is one of the growing number of candidates selected to participate in the One Planet Fellowship. The One Planet Fellowship is a career development initiative that is building a robust pipeline of highly connected, inter-generational scientists equipped to use a gender lens to help Africa’s smallholder farmers cope with climate change. The One Planet Fellowship is funded by the Bill & Melinda Gates Foundation, the BNP Paribas Foundation, the European Union and Canada’s International Development Research Centre (IDRC). African Women in Agricultural Research and Development (AWARD) and Agropolis Fondation are jointly implementing the Fellowship.

Do you have any further questions? Send an email to: oneplanet.award@cgiar.org

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