

## **Multidisciplinary collaboration between Agriculture and Engineering as a catalyst for development in Kenya**

**Abstract:** The Kenyan government has identified the manufacturing sector as a strategic entry point to sustainable growth and development. This has led to coalitions between government, academia and private sector with a focus toward reinvigorating the manufacturing sector to drive economic development and wealth creation. The agriculture sector continues to play a vital role as a source of raw material for many industries and it accounts for 65 percent of the export earnings in the economy. It further provides livelihood (employment, income and food security needs) for more than 80 percent of the Kenyan population and contributes to improving nutrition through production of safe, diverse and nutrient dense foods. Jomo Kenyatta University of Agriculture and Technology has strategically embraced long term multidisciplinary research project to help the government in realizing its goal of using Scientific and Technological Innovations as enablers for realizing Vision 2030 and the sustainable Development Goals. One such project is the JICA funded potato project where farmers are now benefitting from adoption of good agronomic practices resulting in doubling of potato yields, increasing storage life of potatoes from 1 week to 3 months, creation of a diverse range of value added potato products, improved efficiency of potato planting, harvesting and processing through mechanization, and adoption of ICT tools for marketing. In the EU funded food fortification project, maize flour compliance to the national food fortification standards has increased from 16% (2018) to 45% (2023), while for wheat flour, the compliance has increased from 18% (2018) to 84% (2023) due to adoption of innovative engineering technologies. This was possible due to effective collaboration between staff from college of Agriculture and Engineering at JKUAT with government, industry and society.

**Biography:** Professor Robert Kinyua is the Deputy Vice Chancellor for Academic Affairs of Jomo Kenyatta University of Agriculture and Technology (JKUAT) since 2020. With a strong foundation in physics, he earned his B.S. and M.S. degrees from the University of Nairobi and his Ph.D. in High Energy Physics from Osaka University in 1990, 1993, and 2000, respectively. He joined JKUAT in 1993 as an Assistant Lecturer in the Department of Physics. Over the years, he has made significant contributions to the field, serving as the chairman of the Department of Physics from 2004 to 2009, and later as the Director of the Institute of Energy & Environmental Technology (IEET) from 2000 to 2016. His research interests span fundamental and high-energy physics, radiation physics, and renewable energy and environmental sciences. His international



recognition is evident through his involvement in global projects. He served as a member of the steering committee for the United States Agency for International Development (USAID)-funded “Low Emission and Climate Resilient Development (LECREDE)” Project and as a Project Manager for both “the Africa-ai-Japan Project” and “the BRIGHT Project” implemented by the Japan International Cooperation Agency (JICA).

**Biography:** Professor Daniel Ndaka Sila works at the Department of Food Science and Technology at Jomo Kenyatta University of Agriculture and Technology (JKUAT), Kenya. He is currently, the Principal College of Agriculture and Natural Resources, Nov 2022 to date), former Dean School of Food and Nutritional Sciences (2018 to 2022), and former Chairman Department of Agricultural and Resources Economics (2012 -2016).

He holds a PhD in Bioscience Engineering from Katholieke Universiteit Leuven, Belgium (2007) and a MSc in Post-harvest and Food Preservation Engineering (2002) from the same University, and BSc in Food Science and Technology, JKUAT, Kenya.



He is the Chairperson of the AFRICA-*ai*-JAPAN Project (JICA) task force, Chairman of Kenya National Food Fortification Alliance and currently, the Project Manager for the European Union funded project on Food Fortification in Kenya, a collaborative effort between JKUAT and Ministry of Health (Kenya). He has a strong public-private linkage understanding.