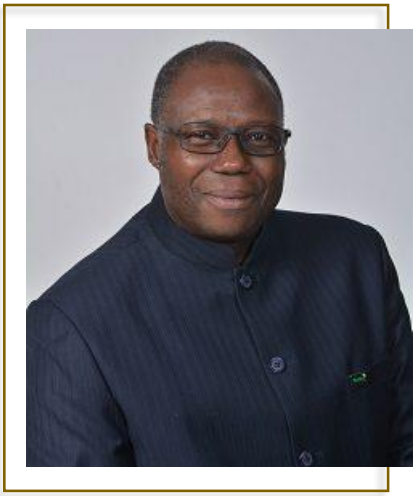
Actualization of the SDGs by 2030 for Food and Nutrition Security of Africa – The Perspective of Research and Innovation



Dr. Yemi Akinbamijo

Executive Director
Forum for Agricultural Research in Africa

Feeding the African continent with sufficient, safe, and nutritious food to its ever-growing population in a manner that reduces malnutrition and promote good health is one of the major concerns that has existed and continues to exist in the twenty-first century. The FAO acknowledges food security to exist when all people, at all times, have physical, social and economic access to sufficient, safe and nutritious food which meets their dietary needs and food preferences for an active and healthy life. It is with this spirit and commitment that on 1st January 2016, the 17 Sustainable Development Goals formally became successors to the Millennium Development Goals and dedicated one of its goals to ensure the achievement of food security and improved nutrition. Sustainable Development Goal 2 aims to end hunger and ensure access to sufficient, safe, and nutritious food by all people all year round. The Goal focuses on a large diversity of tasks, beginning from an increase in yield and improved infrastructure to the functioning of local markets and international commodity trading. The Goal 2 has three interconnected parts namely ending hunger, achieving food security and improved nutrition, and promoting sustainable agriculture.

The challenge confronting Africa and other developing continent is that available statistics show that about 720 to 800 million people in the world experienced hunger in 2020 and nearly 2.37 billion people did not have access to adequate food in 2020. Child malnutrition and adult obesity continues to be a challenge, particularly in Africa and Asia. I am of the conviction that in addition to the short-term effects of food insecurity and malnutrition, there are also long-term developmental impacts of lack of food security. I argue that beyond the direct apparent cost associated with loss of human lives and well-being, there is an implicit economic cost of hunger and malnutrition. Malnourished people are less productive, hungry children get no or little education, and become less productive adults in future even if hunger is overcome. Short-term events of food insecurity have been shown to have a long-term negative impact on growth potential of every economy.

I am associated with the school of thought that believes that economic development is an important success factor in ameliorating food insecurity and undernourishment, but it must be complete and provide opportunities for improving the livelihoods of the poor. Achieving zero hunger by 2030 as stipulated in the SDGs places a strong demand on the application of science, technology, and innovation

across the food system to address all the dimensions of food security. In a world that has surpassed its human carrying capacity by a large margin, my view is that innovative capabilities are critical for ensuring nutritious food on the continent and also for harnessing agriculture and the continent's food system as drivers of economic and sustainable development. I contend that whilst research has a significant role in forming new knowledge to tackle food insecurity and malnutrition, research is part of the entire process and not the entire process. To achieve the social and economic impact, research agenda should be set with an insight into the future and should create opportunities for social and technological innovation, which would eventually lead to social and economic change.

Research contributes to ensuring the availability of nutritious and safe food to the growing population on the African continent through crossbreeding, transgenic production, soil management, and irrigation technology for water management. Science, technology, and innovation play critical role in producing more food by creating plant varieties with improved traits, as well as optimizing the inputs needed to make agriculture more productive. Genetic alteration of plant varieties is used for nutrient fortification, drought tolerance, herbicides production, diseases, and pests' tolerance and for higher yields. Transgenic modification presents several benefits, including tolerance to biotic stresses (insects and disease), abiotic stresses (drought), improved nutrition, taste and appearance, herbicide tolerance and reduced use of synthetic fertilizers. With the prevailing challenges of increasing water scarcity and land degradation in Africa, such technologies potentially increase food crop productivity. It is important to note that genetically improved varieties alone might not increase yields if constraints such as low soil fertility exist. Fertile soils are important in sustaining agricultural productivity towards food security. However, the emphasis of innovations and technological developments has been more on crops and fighting pests and diseases, and less on sustainable soil management practices. Nevertheless, healthy plants that are less affected by pests and diseases grow on healthy soils. It is also important to recognize that the availability of water for ensuring and improving crop productivity. Even though approximately 70 per cent of global freshwater supply is devoted to agriculture, many farmers do not have access to water for agriculture because of physical and economic water scarcity. In response to such challenges, low-cost and affordable drills, renewable energy-powered pumps and technologies for desalination and improved water efficiency possibly make water more available for food production. A key aspect of accessing food is minimizing food losses during production, storage and transport, and waste of food by retailers and consumers. Because many African smallholder farmers lack access to ready markets, they tend to store their grains in unimproved facilities resulting in massive grains waste.

I am deeply convinced that research and academic organizations on the continent such as FARA and RUFORUM which seek to promote research and application of science and innovation in the agricultural sector need to take important research to support the attainment of SDG 2 on the continent. Such research needs to create knowledge that can be used to address important questions related to food insecurity and malnutrition. By coordinating strategy and research prioritizing, it is possible to identify common priorities, such as an aim to increase the efficiency of nutrient usage in agriculture. These common priorities can be addressed by creating joint or aligned research efforts to maximize the value of any research investment, and to ensure the money is spent fruitfully, irrespective of artificial geographic, institutional, and disciplinary boundaries. The added value of alignment can arise by sharing ideas, sharing data or infrastructure. The challenge remains that complex systems such as the research landscape often need to be divided into convenient portions, but dividing creates divisions, and divisions create barriers. Interdisciplinary and transdisciplinary work is needed more than ever to cross such

boundaries; and coordination between institutions is needed to ensure adequate contributions from researchers to tackle food insecurity and malnutrition on the continent.
To continually enhance food security and tackle hunger, malnutrition, and poverty it is necessary to advance agricultural science, technology and innovation with a specific focus on better natural resource management and economic growth. A parallel priority to achieve this goal is the enhancement of people's capacity to deliver high quality research, and this is where organizations such as RUFORUM become important. To respond effectively to these challenges is far beyond the expected capacity of any single institution or country, therefore, research for development partnerships is a key factor in building a food-secure future. The merging of issues including climate change, population growth, energy supply and water scarcity are putting pressures on global food systems on a scale previously unencountered. Agricultural science and technology need to be targeted towards providing solutions to these issues threatening global food security.

Improving communication links with the farmers who implement these technologies and making them more accessible to less developed regions. New and emerging technologies, such as artificial photosynthesis are in their embryonic stages and may provide solutions for food and fuel in the future. It is essential that emerging technologies are permitted the right environment in which to develop in an international and regulatory context. Farmers and scientists need to communicate via two-way feedback mechanisms to ensure that science can be directed to the needs of the producer and the market. Improving communication and links along the agricultural supply chain can help foster sustainable food production. Policymakers need to understand the nature and processes of scientific innovation and to create an enabling environment in which research, science, and technology can flourish. Policy timescales are generally shorter than scientific developments, so policy needs to demonstrate more continuity for fostering innovation. Funding for scientific research and development needs long-term commitments which are not affected by rapid policy changes. African governments should support enabling innovation by removing impediments, including excessive or restrictive regulation. Public and private research sectors need to work together to improve existing agricultural systems and develop new solutions. Consumers' trust in agricultural science needs to be built through the appropriate dissemination of evidence-based knowledge and education to overcome issues of mistrust. Governments of Africa need to enhance their commitment towards the contribution of 1 per cent of GDP to long-term agricultural research as stated in the Malabo Declaration. This is expected to contribute to building agricultural research systems with good infrastructure and human resources.

ABOUT THE AUTHOR

Dr. Yemi Akinbamijo is the Executive Director of the Forum for Agricultural Research in Africa (FARA). He is an agriculture expert with a track record of leadership in Food/Nutrition Security, Rural Development, Agricultural and Environmental Sciences. Prior to his appointment as the Executive Director of FARA, Yemi was the Head of Agriculture and Food Security Division at the African Union Commission Headquarters in Addis Ababa, Ethiopia. He has been in the frontline of the implementation of the Comprehensive African Agricultural Development Programme (CAADP), now operating in 40 African Union Member States. A thought and process leader on the continent, He is an agricultural research and development specialist with considerable expertise in natural resource management including crop-livestock integrated systems, market-oriented production systems, regional value chains, sustainable agriculture and climate change adaptation strategies.

He is an experienced research manager with proven strength in project development; monitoring and results-based evaluation. He is a strong analytical and strategic thinker who is fully engaged in global discourse on agricultural/ecological transformations and investments in Africa, especially regarding food security, land use, biodiversity, climate change/climate smart approaches, ecological and organic agriculture, and their inter-linkages. With more than 30 years in the practice of agriculture and rural development, he has served with increasing responsibilities and leadership roles in institutions with national, regional, and continental mandates, including as a Diplomat/Head of Mission. He is widely published in various agricultural disciplines – Animal Production, Crop Production, Ecological and Organic Farming, Climate-Smart Initiatives, etc. He is a former editor of the Bulletin of Animal Health and Production in Africa and lead author of the book, Crop-livestock Integration in West African Cities.

This is our first issue in a series of articles we are releasing as part of the RUFORUM 2022 Annual General Meeting Digests. More information about the meeting is available at https://www.ruforum.org/AGM2022/. Join the Conversation on Social Media using our Official hashtag #RUFAGMZim2022