



Perspective on Engaging African universities in agriculture and food and nutrition security process in Africa

Africa is Europe's closest neighbour with a long and rich history. Through multi-lateral support, Africa partnership with Europe grew significantly after the Second World War and this has been instrumental in the continent's growth and development. In the recent past this partnership has been framed, by among others, the September 2018 EU President announcement of a new Africa-Europe Alliance for Sustainable Investment and Jobs. The Alliance purposes to;

1. **Boost strategic investment** and strengthen the role of the **private sector** to create jobs
2. **Invest in people** by investing in education and skills
3. **Strengthen business environment** and investment climate
4. Tap the full potential of **economic integration and trade**

In terms of **Engaging African Universities in in Agriculture and Food and Nutrition Security Processes in Africa** I see the following as some of the key issues:

1. **Policy information, review and co-learning** especially the CAADP and other frameworks
2. **Threats to our economies:** Production imperatives: Emergent and future- biophysical, environmental and economics threats, among others
3. **Food and nutrition insecurity**
4. **Regional integration of food markets as they relate to** Agri-food systems perspectives
5. **Holistic- ecosystem framing of farm to fork policy/intervention-** An Agri-food systems perspective
6. **Response and planning for disasters:** Holistic planning for green recovery, inclusivity, review and management highlighted by COVID- 19 pandemic and other bio-threats.
7. **Leveraging** on various policy and biophysical research in the continent and with EU to holistically manage to prioritize, design and implement interventions, and the critical need for engagement of African Universities and other actors such as AGRINATURA.
8. **Financing:** Support by European Union Commission (EU) and Africa Union Commission (AU) for various programmes on the continent.

My discussion of the above are framed on two broad areas:

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A: The economic environment that requires intensified roles of universities in supporting agricultural transformation and in developing resilience mechanisms to weather current and future shocks

ECONOMIC GROWTH

1. The Good news

- Africa has experienced strong growth since 2000 rebounding to **GDP of up to 5.5%**. This led to optimistic projections of a GDP growth that have now been tapered by new externalities in the recent past.
- **Trade partnerships diversification** especially with emerging economies, especially India and China that tripled from **USD 276 billion to USD 806 billion**. Trade flows with China and India expanded significantly accounting for nearly **51%** of exports and **41%** of imports in 2016. However, these **expanded trade relations** have not **diversified the continent's export basket**. A lot is still primary product especially in the extractive industry. There are other compounding issues and opportunities:
 - a) **Urban transition**. Increased urbanization from **42%** in 2018 and projected to increase to **50%** in **2035**. **The Agri-food systems must sustainably transition** to feed a **dynamic and changing urban population**, while **creating jobs** and providing for **equal opportunity (inclusivity)**.
 - b) **Technological change and digitalization**. Africa has over **277** million mobile users which is more than for any other developing region. This will **shorten value chains** as part of a new production revolution in Africa
 - c) **Climate change and weather variability**: Africa has **27** out of the **33** of the most vulnerable countries. With or without adaptation Africa will lose up to 34% of her crop yield. This will affect the projected food security.
- a) **Population growth**. By 2050 Africa will account **for 60% of youngest population**. Will this be a dividend or threat?

2. Looking ahead:

- **The dark cloud**: It is unlikely that Africa will meet the targets set in the first ten-year implementation plans of the Africa Union's Agenda 2063.
 - In the first five years of the plan (**2013-2017**), Africa's real GDP grew at 3.4% a year.
 - For the next five-year period (**2018-2022**), the projected real GDP growth is projected at 3.9%, well below 7% annual target.
 - It is expected to be **> 4%** growth as aggregate for Sub Saharan Africa. This will affect the march to delivery of the SDG targets and Agenda 2063, the Africa We Want.

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RUFORUM THOUGHT PIECE ON COVID-19

- **Head winds:** Achieving the anticipated high growth rates has proven difficult for all countries worldwide since the 2009 global crisis and this has been compounded by COVID 19, bio-physical and environmental and socio-economic challenges
 - **COVID-19 losses.** According to the World Bank Africa will lose between **\$37** and **\$79** billion in estimated output losses in 2020 alone. And the economy will contract by between **-2.1** and **-5.1%** in 2020, sparking the first recession in 25 years.
 - **Agriculture-** Sub Saharan Africa total factor productivity of agriculture sector has been less than 1% per year over the past four decades. This is a major threat to achievement of food sufficiency and nutrition security
- **The silver lining**
 - **Policy:** The Science, Technology and Innovation Strategy for Africa (**STISA-24**) and the **Comprehensive Africa Agricultural Development Programme (CAADP)**, Free trade area and Agenda 2063 and its various mid-term implementation framework, embody the continent's aspirations to harness science for development. The EU- Africa Partnerships is also key, since the EU is a major trading partners for Africa and both continents have a strong and shared history.
 - **African countries must strengthen the drivers of long-term growth: Agriculture is part of the solution.** Agriculture is **2-4 times more effective** to move people out of poverty if it can grow at **least 5% annually for a decade**. However, a) **Yield gap is still > 50% for most crops. Access to and deployment of relevant improved varieties will need to be increased significantly, including value-addition;** b) **Africa Research HR (FTE) has improved compared to 20 years ago.** However, the ratio of FTF of researchers per 100,000 farmers, while improving, is still low, with only Mauritius, for example, having 350 FTF /100,000 farmers. As such efforts to strengthen the National Agricultural Research and Extension Systems that include universities are critical and their full engagement in the research framed by an Agri-food systems R&D is critical; and c) **Africa's Agriculture must transform to use and generate: Renewable wealth production systems, feed a growing population and create Jobs and opportunities.**
 - **Science led growth.** There is need to increase the contribution of labour to growth that has not changed much overtime. This requires, among others, the leverage on science innovations to increase total factor productivity (TFP) gains and smoothen its volatility due to externalities such as drought and trade and other challenges. Unfortunately while Africa's Agriculture growth has been mostly led by a positive commodity price, this may not suffice for the coming future and requires a focus on use of improved technologies.

B. The key research issues that should be addressed in the implementation of the Food Nutrition Security and Sustainable Agriculture (FNSSA) road map:

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1. **Evidence to support policy information:** A continental led growth invariably implies that Africa deploys its academia and similar institution to generate evidence for designing interventions and influence policy. The Economic Policy Research Centre (EPRC model) or Tegemeo Institute of Agricultural Policy and Development are examples of influential national think-tanks on economics and policy at Makerere University-Uganda and Egerton University- Kenya. They can support **CAADP and other development blue prints**
 2. **Green economy growth.** There is convergence of what it entails, i.e., fostering economic growth and development especially enhancing agricultural productivity that builds community resilience, enhances sustainable natural resources/assets use, promotes sustainable infrastructure and environmental services. Such growth must invariably also address climate change and weather variability- Africa has 27/33 most vulnerable countries in the world.
 3. **Inclusive and sustainable job creation:** Inclusive growth strategies that create Jobs and reduce poverty are integral to sustainable growth and inclusive development. Over half of Africa's labor force engages in agriculture and climate threats are looming. It is important to develop agribusiness models that recognize and create avenues for the poor, women, and youth to have more ownership in the production process.
 4. **Continental platforms for peer review and learning for scaling out:** The Comprehensive Africa Agriculture Development Programme (CAADP) offers a pan-African framework to allow countries to review their progress towards agricultural transformation, wealth creation, food and nutrition security, and inclusive economic growth. There are many examples of country level highly targeted reviews. Convergence would enhance shared learning. Universities need to be part of national and continental review process
2. **What mechanisms should be put in place to engage research and non-research actors in the process?**

Regional cooperation has a long history in Africa, and has shown its value in ending conflict, building democracies, supporting economic and social development and promoting Africa-EU interests in multilateral and global negotiations. We should leverage on existing strengths by utilizing:

- **Regional networks to develop and coordinate production of regional public goods.**
 - **Supra-national investments have a place:** Shared interests, opportunity and threats and the asymmetric resourcing opportunity can best be served through clustered investments managed collectively. This will avoid duplication of effort while optimizing the comparative advantages.
 - **Higher Education and Research:** Coordination among regional institutions will be critical to both EU and AU. Networks such as RUFORUM and AGRINATURA should be engaged to work collectively in design, implementation and evaluation of new interventions envisioned in the EU-AU partnerships.

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- a) **Right membership.** Recent ratings of top world universities show that RUFORUM members Universities are among the best in Africa. A similar trend is true for Europe. Many of the World Bank's African Higher Education Centres of Excellence are RUFORUM member universities. We should leverage on existing capacities in these universities and strengthen gaps where they exist. We should also build data science and foresight capacities in some of these universities to guide policy and help Africa anticipate the future.
 - b) **Train for the region.** The RUFORUM approach to human capital development has shown that graduates trained in Africa through both South-South and North-South arrangements are retained in the continent. A 2020 RUFORUM tracer study showed that 97.6% of the graduates trained through intra-Africa university cooperation have remained in the continent. Member States and EU-AU partnership should build on this RUFORUM approach for human capital development for Africa.
 - c) **Bio-surveillance:** The current COVID-19 threat and other zoonoses have exposed our vulnerability as humans. Universities have the most diverse and skilled scientists who collectively could contribute to addressing such threats, including others such as the locust invasion. A One-world-One health system is critical to prevent future threats. Building prediction capacities (foresight) to anticipate future trends and crises is important. Apart from strengthening the capacity for One Health, Africa needs to invest in frontier sciences including training molecular scientists, epidemiologists, virologists, entomologists, and plant pathologists.
 - d) **Nature's capital and Creative employment:** Africa has 60% of the world's remaining agricultural landscape. It also has one of the world's lungs- Congo in the DRC. Supranational engagement will ensure these are protected in line with SGD 14 and 15. Universities have the diversity to design, support implementation of work across country-border's to inform how Africa can harness its land resources and other bioresources without driving further a 6th mass extinction that is looming.
 - e) **Trade:** Regional trade and movement of Agri-innovations including seed and other allied Agri-innovations. The ratio of Agri-science/ million is still very high.
- **Strengthening National investment in Agriculture and Food and Nutrition Security processes:** The **FNSSA** roadmap provides a useful framework for focusing National and bilateral arrangements. African Union Commission through the Department of Rural Economy and Agriculture (DREA) and indeed the EU-AU processes need to leverage capacities in African Universities and their Networks such as RUFORUM:
 - **Malabo /CAADP domestication-** Leverage on past experiences where Universities were involved in development of the CAADP Compacts. University Thinktanks such as EPRC and Tegemeo could be engaged

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- Engagement of RUFORUM in FNSSA and its associated activities such as DeSIRA on the Africa part
- **Technical:** Analytics, reporting and sharing including review. RUFORUM's 129 member universities base provides leverage solidarity types of meetings for such reviews apart from technical reviews.

Conclusion: Realising Food, nutrition and income security will require a rethink and re-plan of how Africa in particular undertakes agriculture:

1. **Within a sustainable intensification framework, there will be need for**
 1. Agri-innovations-technologies
 2. Strengthening research and development of new skill sets and innovations in response to the changing global landscape
 3. One-world one-health linking agriculture, veterinary and wildlife specifically using the University broad expertise for
 - Bio-prospecting- Generating solutions and new option of food and biosecurity
 - Conservation and protection of bio-diversify
 - Bio-surveillance- for new threats especially zoonoses. The current COVID - 19 is an example of why this is critical. There are many other threats such the West Nile Virus, a zoonotic pathogen that have since migrated from Africa to Europe. Other threats such as the desert locust are also a major concern
2. **Recommendation.** The AUC ought to leverage on RUFORUM and its member Universities and other African institutions to inform the design of implementation frameworks for major growth agenda programmes in three broad areas:
 - Strengthening coordination and management of especially transboundary development issues;
 - Intellectual input to inform design of policy and its implementation and where applicable country level review processes such as CAADP and other processes such as the FNSSA Roadmap
 - Support research-to-delivery

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This is our twenty fourth issue in a series of articles we are releasing as part of our RUFORUM Thought Pieces on the Corona Pandemic. This Thought piece is a summary of the discussions points that emerged from the 10th RUFORUM Webinar which focused on “[Engaging African universities in agriculture and food and nutrition security process in Africa: a policy perspective](#)” You can get more information about RUFORUM at www.ruforum.org. You may also share your thought piece about the Pandemic with us by writing to e.adipala@ruforum.org and copying m.agen@ruforum.org

About the Author

Dr Patrick Okori is a Ugandan national who obtained his PhD from the Department of Plant Breeding and Forest Genetics at the Swedish University of Agricultural Sciences in Uppsala in 2004. He obtained a BSc. Agriculture and MSc Crop Science from Makerere University in Uganda. Patrick is currently a Principal Scientist with ICRISAT based at the Malawi Station in Chitedze outside Lilongwe the capital. At ICRISAT Patrick leads the groundnut improvement activities in partnership with National Agricultural Research System Partners in East and Southern Africa (ESA). His team also undertakes technology delivery activities and food system research in east and southern Africa, focusing on improving last mile delivery to Africa’s rural farming populations.

Before joining ICRISAT, Patrick was an Associate Professor at Makerere University, in the School of Agricultural Sciences where he was also Dean. Patrick led a multi-disciplinary team called the Cereals’ Research Group in the Department of Agricultural Production. Patrick’s former research group worked on unlocking the potential of cereals (maize, sorghum) as income, food and nutrition security crops to underpin livelihood strategies of farmers. The team developed several resilient and high yielding speciality sorghum and maize lines with single or combined (high amylose and high lysine). They also pioneered the use of molecular markers in breeding and population studies of maize and sorghum and their pathogens in Uganda; and new human food and animal/ fish value added products. Patrick is widely published and graduate over 50 PhD and MSc students.

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