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Editorial

Catalysing African Universities role and relevance across and beyond the RUFORUM network

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Abstract

This edition, Volume 17 Issue 1, captures papers presented during the Sixth African Higher Education Week and RUFORUM Biennial conference, held in Nairobi in October 2018, under the theme “Aligning African Universities to Accelerate Attainment of Africa’s Agenda 2063”. It documents efforts by African universities and other actors in contributing to the African Union Agenda 2063: The Africa We Want. Overall, 116 papers (submitted prior to and during the conference) are presented in this edition, and covers eight broad thematic areas, including (i) agri-food systems productivity, (ii) sustainable food and nutritional security and (iii) environment and natural resources sustainability. Our intention in collating this information is to promote visibility and contribution of African scientists to Africa’s development and global knowledge and help catalyse increased engagement of African universities and their partners in championing Africa’s development. While the potential role of African universities in the attainment of the aspirations of Africa’s Agenda 2063 is widely acknowledged, more still needs to be done at various levels to enable Africa’s universities play a more impactful role in Africa transformation. Other papers received during Biennial 2018 will be published in Volume 17 issue 2.

Key words: Africa, Agenda 2063, Agri-food systems; African Universities, agricultural transformation, inclusivity, RUFORUM, rural development

Résumé

Cette édition, Volume 17 Numéro 1, introduit les articles présentés lors de la sixième Semaine Africaine de l’Enseignement Supérieur et de la Conférence Biennale du RUFORUM, tenue à Nairobi en octobre 2018. Il documente les efforts des universités africaines et d’autres acteurs en vue de contribuer à la réalisation de l’Agenda 2063 de l’Union Africaine. Au total, 116 articles (soumis avant et pendant la conférence) sont présentés dans cette édition et couvrent huit grands domaines thématiques, dont (i) la productivité des systèmes agroalimentaires, (ii) la sécurité alimentaire et nutritionnelle durable et (iii) l’environnement et durabilité des ressources naturelles. Notre intention, en publiant ces informations, est de promouvoir la visibilité et la contribution des équipes de recherches du continent au développement de l’Afrique et de promouvoir un engagement accru des universités africaines et de leurs partenaires dans la promotion du développement de l’Afrique. Si le rôle potentiel des universités africaines dans la réalisation des aspirations de l’Agenda 2063 de l’Afrique est largement reconnu, beaucoup reste encore à faire à divers niveaux pour permettre à ces universités de jouer un rôle plus important dans la transformation de l’Afrique. D’autres articles reçus au cours de la Biennale 2018 seront publiés dans le volume 17 numéro 2.

Mots clés: Afrique, Agenda 2063, Systèmes agro-alimentaires; Universités africaines, transformation agricole, inclusivité, RUFORUM, développement rural

Introduction

Education is one vital human right and the foundation on which to build peace and human capacity, and drive sustainable human and societal development. Across the education value chain, the benefits of skilled human resources and their capacity to respond to societal challenges are recognized globally. However, the expanding human population especially in Sub-Saharan Africa remains a key factor challenging equity and equality in access to education and skills development, thereby hindering the potential for increased growth and development on the continent. Currently and possibly for a very long time in the future, systemic actions need to be continuously undertaken and geared towards realizing the aspiration of the continental frameworks such as the Science, Technology and Innovation Strategy for Africa (STISA-2024); the Continental Education Strategy for Africa (CESA), the Comprehensive Africa Agricultural Development Programme (CAADP) and the Africa Union Agenda 2063-The Africa We Want. These aspirations align to the globally agreed upon Sustainable Development Goals (SDGs).

Agriculture has remained the pillar of the Sub-Saharan African economies. It employs more than 60% of the African population and provides material and economic resources for living. The sector contributes to most African countries gross development product and export. As such, agriculture in Africa is perceived to reduce rural poverty and increase social equality not only sustainable supply of food but also through generating export earnings and higher income for farmers. It is also expected that a dynamic agriculture sector will increase on-farm employment and farm wage rates, and create linkages between farming and other sectors that are drivers of rural economy and provide capital and labor for growth in other sectors of the economy (Adipala and Egeru, 2018; Gashu *et al.*, 2019). However, this is far from being realized, unless skilled resources in Africa take advantage of existing opportunities, and become the engine of new agriculture and agribusiness enterprises driving the transformation on the continent.

The Regional Universities Forum for Capacity Building in Agriculture (RUFORUM), an African-owned network of universities, plays a fundamental role in increasing the quality and quantity of capacity building needs of the continent. Recognizing the vital role of Agricultural Education for the growth and development in Africa, the network has positioned itself as a catalytic engine of skills development for university academic and administrative staff, undergraduate, postgraduate students, postdoctoral researchers and emerging scientists across the continent. RUFORUM through its vision increase the universities relevance to rural transformation and development in Africa through supporting production of applicable research outputs and technologies that contribute to improve livelihoods and development of agri-food sector in the continent (see Box 1).

Box 1: RUFORUM's Strategic Goals

1. Masters and doctoral programs responsive to stakeholder needs and national/regional development goals.
2. Shared research and education/training facilities and capacities rationalized for enhanced economies of scale and scope.
3. Innovative education/training research and outreach activities supported by adaptive management structures in universities contributing to policy and development practice.
4. Operational capacity and approaches for innovative, quality and impact-oriented agricultural R4D mainstreamed in universities.
5. Increased participation and voices of women in education/ training, research and production and marketing of knowledge;
6. Increased use of technology to support effective, decentralized learning and sharing of knowledge.
7. A dynamic regional platform for policy advocacy, lobbying, coordination, and resource mobilization for improved education/ training, research and outreach by universities.

In line with its operational procedures, in October 2018, RUFORUM held its sixth Higher Education Week and Biennial Conference under the theme “Aligning African Universities to Accelerate Attainment of Africa’s Agenda 2063”. The focus of the Biennial convening was to bring universities together with other actors including business community and policy makers to discuss how best African universities could contribute to advance knowledge generation, innovation and technology for transformation of the African continent for improved livelihoods and prosperity, and thereby contributing to the aspirations of Africa’s Agenda 2063: Building the Africa We Want. The Conference held in Nairobi, Kenya from 22-26 October 2018 brought together 1063 participants comprising of graduate students, university academics and administrators, development actors, business community, and policy makers. Several dialogue sessions were held including 18 technical sessions that provided opportunity for presentation of scientific papers and discussion on topical issues affecting development in the continent or their regions. Authors were invited to submit papers to profile their research and development activities. A total of 415 papers were received from within and outside Africa and reviewed for possible publication. This Issue, Volume 17 (1) presents 116 papers that were submitted prior to and during the biennial conference. These papers highlight various topics that are relevant to agriculture, education and policy in Africa. In particular, and among others, the papers highlight issues related to (i) agri-food systems productivity, (ii) food and nutritional security, (iii) natural resources sustainability, (iv) agribusiness, markets and trade, and (v) ICT and agricultural education. Our aim in publishing these papers is to showcase the contribution of African universities and their partners to global knowledge, document on-going R&D efforts, and help catalyse engagement of especially Africa’s universities in development process. Other papers will be published in Volume 17 Issue 2, while others have been published in African Journal of Rural Development Volume 4.

Highlights on the thematic areas addressed in this issue

In this volume, 116 papers are presented, across 8 broad thematic areas which were identified from the author’s submissions prior and during the conference. Most papers (45%) focused on agri-food systems productivity, and sustainable food and nutritional security (16%). In the following sections, we discussed three major thematic areas and provided some background information and highlights across these papers.

Table 1. Thematic areas of the papers in Volume 17 Issue 1 of the RUFORUM Working Document Series

Thematic Area	No. of papers in this issue
Policy environment, policy analysis and foresight: Cross-cutting development perspectives	7
Transformative potential of agricultural education	10
Harnessing ICT and digital potential to increase Africa's competitiveness	5
Research, innovation and technology capacity in postharvest processes	8
Catalyzing competitive agribusiness, markets and trade	7
Environment and natural resources sustainability: Climate change and extreme weather events in development	11
Sustainable food and nutritional security	8
Agri-food systems productivity	60
Total	116

Alignment to the Development thrusts in the Continent and Globally

The Global community, building on the ended Millennium Development Goals targets, in 2015 rallied the world together and launched the Sustainable Development Goals (SDGs), a blue print for addressing global development challenges, under the call, leaving no one behind (UN General Assembly, 2015). Concurrently, the African Union rallied the Member States and people to launch an ambitious drive, not only to attain the SDGs but to spur development and prosperity in the continent, with African people driving its agenda. The blue print for this is the African Union Agenda 2063: Building the Africa We want, also launched in 2015 (AUC, 2014b, 2015). A number of strategic frameworks (see AUC, 2014a; Africa Union, 2016) have been developed to guide the drive to attain the African Union Agenda 2063, which resonate closely with the SDGs. Critical in the interventions is the need for Africa to strengthen its human capital base to generate technologies and innovations to support the continent development agenda. This will require building a strong skill base in order for the continent to harness Science, Technology and Innovation advancement and opportunities. Like elsewhere in the world Universities will need to be part and parcel of the change process. Accordingly RUFORUM in consultation with its Member universities, partners and other actors designed and launched in 2017-2018 its Vision 2030 Strategy: Africa's Universities Agenda for Higher Education, Science, Technology and Innovation (AHESTI). The 2018 Africa Higher Education Week thus provided opportunity for the RUFORUM Network and other actors to profile how African universities and their Network are aligning their efforts to the attainment of the SDGs and Africa Agenda 2063. In the case of RUFORUM this is documented and highlighted in the first paper of this Volume 17 Issue 1 by Adipala *et al.* (2018). The follow up paper by Waswa *et al.* (2018) addresses the issue of inclusivity in terms of RUFORUM thrust not to leave any one behind.

Apart from the scientific papers presented during the 2018 Higher Education Week Conference, policy dialogue platforms were also held (Table 2) and some of these are captured in the documentaries ([Biennial 2018 Documentary](#); [the Ministerial round table](#))¹

Table 2. Thematic areas of the Policy dialogue meetings held during the 2018 Africa Higher Education Week Conference, Nairobi, Kenya

No.	Thematic areas
1	Converging the power of investment in Higher Education to transform Africa
2	Harnessing regional and global partnerships for higher education innovation in Africa
3	Unravelling University, Community and Private Sector Engagement for agricultural transformation in Africa
4	Skilling Africa's youth: the role of TVETS
5	Harnessing the Africa Youth bulge: Innovation, entrepreneurship and agribusiness incubation
6	Increasing the pool of women scientists in Africa
7	Harnessing the digital potential to drive agricultural/Higher education transformation in Africa
8	Building foresight capacity to guide Africa's development
9	Strengthening sustainable food and nutrition security in Africa in response to Climate Change

Agri-food systems productivity in Africa

Development of agri-food systems in African countries face considerable challenges, among which is the rapidly increasing population growth which significantly increases the demand for food (Ahmed *et al.*, 2016; Adipala and Egeru, 2018). It is projected that by 2050, more than 50% of the increase in the world population will come from Africa. The current era of rapid urbanization and the emergence of a middle class has brought the necessity to transform African Agri-food Systems (Gashu *et al.*, 2019). In the context of a rapidly evolving society and increasing needs in terms of food supply and food and nutrition security, transforming African agri-food systems holds promise for smallholders farmers, agro-food industries, urban food markets, all of which are connected to a vibrant and transformative knowledge center. A total of 49 papers published in this issue address this particular aspect. The high percentage of work related to agri-food system productivity in Africa, underlies the importance of the thematic area but also the urgent need for response to various challenges faced by smallholders farmers across the crops and livestock value chains in Africa. For instance, papers addressed issues and challenges in crop production, such as cowpea (Horn and Shimelis, 2018), tomatoes (Otieno *et al.*, 2018), but also livestock and fisheries production (Chifunga, 2018; Tarus *et al.*, 2018). Aspects of crop pathology and bacterial diseases were discussed, for instance in cassava (*Manihot esculentus*), common bean (*Phaseolus vulgaris*) (see Munguti *et al.*, 2018; Ochichi *et al.*, 2018). The depth of the insights into agri-food systems productivity in Africa in this issue provide information across a wide range of commodities that are relevant to all regions in Africa.

Sustainable food and nutritional security

Food and nutrition security remains a critical and most debated issue, not only by virtue

¹https://www.youtube.com/watch?v=_Uu-aaRpXBY
<https://www.youtube.com/watch?v=vgbpGKUUSAg>

of being the second UN SDG goal, but also by the fact that it is increasingly affecting livelihoods, resilience and hope for the future generation. Whereas one the 2030 SDG Target is to halve the number of stunted children, more than 820 million people in the world are still hungry today, underscoring the immense challenge of achieving the Zero Hunger target by 2030. Particularly, hunger is on the rise in almost all sub-regions of Africa, the continent with the highest prevalence of undernourishment, at almost 20 percent (Fig. 1). Several papers in this issue address key emerging food and nutritional security challenges. For example, among others, Ogweng *et al.* (2018) presented in-depth analysis of a major challenge to food and economic security to pig farmers in Uganda. Of particular importance was the need to address children malnutrition and food insecurity on the continent. Accordingly, Nginya *et al.* (2018) elaborated on the vital role of staple foods such as cassava in the nutrition of 2-5 years old children in East Africa, whereas Natabirwa *et al.* (2018) examined the nutritional value for school children of extruded composite iron-rich bean based snacks.

Environment and natural resources sustainability: Climate change and extreme weather events in development

Environmental and natural resources sustainability have been a major topical issue most often debated in political arena, as a result of the negative consequences of industrialization to feed the increasing number of people on earth. The three Rio Conventions—on Biodiversity, Climate Change and Desertification, the Paris agreement -COP 21, the

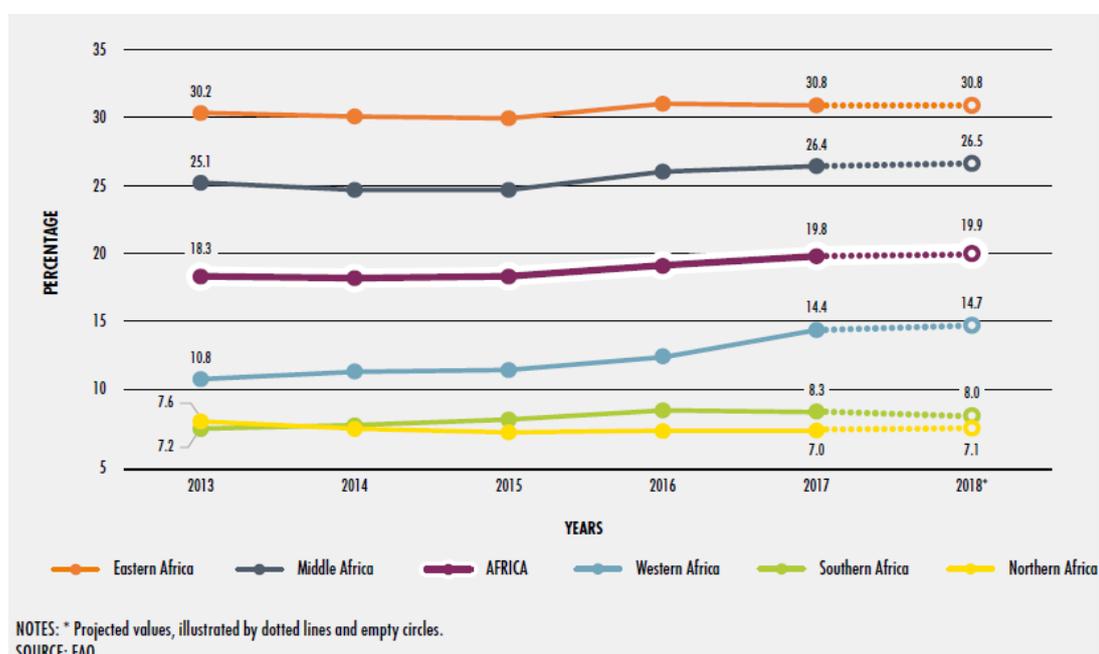


Figure 1. Undernourishment is rising rapidly in West Africa

Bonn Challenge, and many other newly established initiatives such as The Economics of Ecosystems and Biodiversity (TEEB), and the Intergovernmental Platform on Biodiversity and Ecosystem Services (IPBES) are manifestations of the ongoing debate.

The African continent is not immune to the negative impacts of greenhouse gas emission and deforestation that result from overexploitation of forest resources, agricultural intensification and wasteful relocation of lands. In this edition, several papers tackle issues that affect Africa's resilience to climate change and extreme weather events in development. For instance, Mugalavai *et al.* (2018) showed how rice intensification systems can help mitigate climate change effects on rice production in East Africa. In dry areas, the long-term drought and water stress have had acute effects on crop productivity and resilience of the agro-ecosystem to climate change. Therefore climate change adaptation strategies are useful to enhance both the agricultural system resilience and productivity, as shown for mixed-systems potato-forage legumes in smallholder farms in Kenya (Nyawade *et al.*, 2018)

Conclusion

This edition, Volume 17 Issue 1, captures papers presented during the Sixth African Higher Education Week and RUFORUM Biennial conference, held in Nairobi in October 2018, under the theme "Aligning African Universities to Accelerate Attainment of Africa's Agenda 2063". While it is recognized that African universities are substantially contributing to advance knowledge generation, they must play a more visible relevant role than before by generating innovations and technologies that push the continent and especially its agriculture sector to a competitive level. Unfortunately these promises are constrained by a series of challenges, among which is the limited investment in African higher education and research. Currently most countries in Africa still have not reached the budget threshold for science technology and innovation. Further, the current passive discourses and weak policy environment have not favored the necessary investment in quality and transformative capacity building of higher education institutions, downgrading the African higher education sector and its universities, compared to others in Europe, America or Asia. Therefore, the need to keep the pace and the speed in an evolving technology era has exposed most African universities to deal with real and practical societal challenges. Nevertheless, hope is not lost, as universities, albeit the hostile and financially challenging environment in which they operate, showcase their various contributions. For example, in this issue, we present papers that addressed transformative potential of agricultural education in East Africa (Ongeng *et al.*, 2018; Otieno *et al.*, 2018) and in Southern Africa (Chiwa and Mukumbi, 2018). Other papers have further addressed how Africa can harness ICT and digital potential to increase its competitiveness (see for example Chimoita *et al.*, 2018; Otto *et al.*, 2018) and climate change and extreme weather issues (Mugalavai *et al.*, 2018; Nyawade *et al.*, 2018). Most papers presented in the issue addressed issues related to agri-food systems productivity and nutritional security, including challenges constraining smallholder farmers' productivity. It is our hope that you will find the papers contained herein useful and applicable for your own work, and for advancing knowledge co-creation, research and its application for growth and development on the continent.

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