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Editorial

Contribution to catalysing research for development on key concerns with respect to rural livelihoods

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ABSTRACT
This Issue of the African Journal of Rural Development (AFJRD), Volume 4 Issue 2 presents a couple of articles covering topical global themes that are deemed to have significant impact on socioeconomic development and betterment of rural livelihoods. These concerns include (a) Nutritional security; (b) zoonotic diseases; (c) Livestock and crop improvement; and, (d) Women in socio-economic development, agribusiness and collective marketing. Global and Africa's continental level frameworks, particularly the SDGs and Agenda 2063 – The Africa We Want, respectively, are replete and abounding with concerns on each of these themes. The frameworks provisions aim at a call to action for all stakeholders and actors to develop and implement appropriate interventions. In line with this desired end I view, the publication of peer-reviewed articles in this Issues on these key thematic areas is for purposes of sharing information to advance knowledge for application as well enhance research. This editorial piece highlights some of the gaps in research and knowledge applications for each of the thematic threads presented in the eight papers of the AFJRD, Vol. 4, and Issue 2. These gaps include (a) ethical considerations to prevent and exclude entry of invasive alien species; (b) the need to establish mechanisms for systematic data collections and analysis as well as provision of tools and approaches in the control of zoonotic diseases; (c) strengthening the evidence base to support policy decision and interventions for women economic empowerment projects / programmes; and, (d) the need to focus efforts on conservation, in livestock –crop improvement programmes, of breeds and crop varieties that have potential to secure ecosystem integrity and functioning.

Key words: Agenda 2063, agribusiness, alien invasive species, livestock and crop improvement, nutrition, rural development, SDGs, women

RÉSUMÉ
Ce deuxième numéro du volume 4 de la Revue Africaine de Développement Rural présente quelques articles couvrant des thèmes d'actualité ayant un impact considérable sur le développement socio-économique et l'amélioration des conditions de vie en milieu rural. Ces termes comprennent (a) la sécurité nutritionnelle; b) les zoonoses; c) l'élevage et l'amélioration des cultures; et d) Les femmes dans le développement socio-économique, l'agro-industrie et le marketing collectif. Les documents de travail au niveau global et continental, en particulier les ODD et l'Agenda 2063 de l'Afrique que Nous Voulons, respectivement, font cas des préoccupations sur chacun de ces thèmes.

Les dispositions-cadres visent à un appel à l'action pour que toutes les parties prenantes et acteurs développent et mettent en œuvre des interventions appropriées. Conformément à cette fin souhaitée, la publication d'articles relus par les pairs dans ces domaines thématiques a pour but de partager des informations pour accroitre les connaissances et leur application. Cet éditorial met en évidence quelques lacunes dans les applications de recherche et de connaissances pour chacun de ces thèmes à travers huit articles de ce numéro. Ces lacunes comprennent (a) les considérations éthiques pour empêcher et exclure l'entrée d'espèces exotiques envahissantes; b) la nécessité de mettre en place des mécanismes de collecte et d'analyse systématiques des données ainsi que les outils et approches de lutte contre les zoonoses; c) le renforcement des bases de données factuelles en appui aux décisions politiques et interventions des projets / programmes d'autonomisation économique des femmes; et (d) la nécessité de focaliser les efforts sur la conservation, les programmes d'amélioration des élevages, races et variétés de cultures susceptibles de garantir l'intégrité et le fonctionnement de l'écosystème.

Mots-clés: Agenda 2063, agro-industrie, espèces exotiques envahissantes, amélioration de l'élevage et des cultures, nutrition, développement rural, ODD, femmes

INTRODUCTION

Sustainable rural development is vital to the economic, social and environmental viability of nations. It is essential for poverty eradication since global poverty is overwhelmingly rural. Rural development is a knowledge intense enterprise that is context specific. As contexts (the environment within which rural development intervention operate) evolve, our understanding of them also continues to evolve. A key factor for this evolving understanding has been the impact of ongoing meaningful research. The significant evidence-based knowledge created through all forms of research in rural development and related fields has clearly demonstrated to organizations valuable insights for managing and implementing their mandates to achieve desired impacts. Research has demonstrated that managing based on legacy approaches, intuition, or organizational snapshots imposes costs and substantial risks on the organization. As a result, evidence-based knowledge creation, the forte of scholars and researchers worldwide, continues to be essential (Colebatch, 2017).

Given the current scale of demand for accountability and contribution of research to rural development agenda and in particular attainment of targets and indicators set out in global continental and national-level frameworks, it is essential that studies in the area reach a wider readership, through scientific periodicals of varying scope. In fact, dissemination of the results of research that informs practice in rural development should be a priority, as a way of ensuring that new findings can be analysed and duly applied to individual and community interventions geared to better livelihoods. Journals in the field of rural development, such as the AFJRD, thus have an important responsibility, given that wide-ranging interdisciplinary studies based on solid science are indispensable for improving the livelihood of populations as a whole.

The articles published in this Issue feature four key themes that are pertinent to rural development contexts as outlined below. The objective of this editorial is to highlight some key gaps for further research and knowledge application.

Nutritional security. There is consensus that

for a long time there has been more effort focused on increased production at the expense of quality aspects in the elements of food and nutritional security. The increasing challenges of mineral deficiencies and stunting have brought to the fore the equally importance elements of food quality utilization in addition to availability, access and stability (CFS, 2011). Several frameworks, programmes, projects and studies in response to the SDG targets have been designed to address hidden hunger - a form of undernutrition that occurs when intake and absorption of vitamins and minerals (such as zinc, iodine, and iron) are too low to sustain good health and development (Biro and Menon, 2014). In this issue, Mahlangua *et al*. (2019) presents a review of entomophagy (the practice of eating insects as food) in Africa as a sustainable protein source for an expanding population in the face of declining arable land.

It is estimated that insects form part of the traditional diets of at least 2 billion people. More than 1 900 species have reportedly been used as food. Insects deliver a host of ecological services that are fundamental to the survival of humankind. They also play an important role as pollinators in plant reproduction, in improving soil fertility through waste bioconversion, and in natural biocontrol for harmful pest species, and they provide a variety of valuable products for humans such as honey and silk and medical applications such as maggot therapy. In addition, insects have assumed their place in human cultures as collection items and ornaments and in movies, visual arts and literature. Table 1 presents taxonomic orders of most commonly consumed insects. Entomophagy is heavily influenced by cultural and religious practices, and insects are commonly consumed as a food source in many regions of the world. In most countries and cultures, however, people view entomophagy with disgust and associate eating insects with primitive behaviour. This and several other aspects about entomophagy are discussed in the Mahlangua *et al*. (2019) article. However, the paper does not address the issue of invasive alien species.

Invasive alien species are alien species whose establishment and spread threaten ecosystems, habitats or species with economic or environmental harm (Early *et al*., 2011). These are addressed under Article 8(h) of the Conventional on Biological Diversity, the Aichi Biodiversity Targets and Target 15.8 of the SDGs. Several insects are invasive alien species and there intentional introduction to be used as food for humans bring more harm than good and counter ethic principles of “do no harm”!. The desert locust (Schistocerca gregaria) and the fall army worm (Spodoptera frugipada)

Table 1. Global estimates of commonly consumed insect taxonomic orders

Common name / Category	Taxonomic order	Proportion - %
Beetles	Coleoptera	31
Caterpillars	Lepidoptera	18
Bees, wasps and ants	Hymenoptera	14
Grasshoppers, locusts and crickets	Orthoptera	13
Cicadas, leafhoppers, planthoppers, scale insects and true bugs	Hemiptera	10
Termites	Isoptera	3
Dragonflies	Odonata	3
Flies	Diptera	2
Others	Protura, Ephemeroptera, Thysanura, etc	5

are good examples of very gregarious insects that some communities in Africa have adopted as beneficial for food and nutrition. The ideal should be to prevent entry of species with potential to become invasive; and were efforts to prevent entry and exclusion have failed, then ultimate effort should be to promote control efforts as opposed to enhancing utilization of otherwise very destructive insect species.

Similarly, Yatuha *et al*. (2019) article addresses an equally important issue of iron deficiencies and nutritional anemea which is rampant in rural poor households in Africa. The *Claria liocephalus* and other fish species that are endemic to wetlands in Africa are steadily becoming endangered species because of disappearing wetlands in many countries. The article recommends domestication trials of these fish and this is welcome; especially given the fact that Africa has diverse fish resources with immense potential and opportunities for contributing socio-economic growth of the continent and improving livelihoods of its citizens. In light of this, the Policy Framework and Reform Strategy for Fisheries and Aquaculture in Africa creates a conducive and enabling environment for the fish sector to deliver equitable, social and economic development in Africa. As part of this agenda, the fisheries and aquaculture sector should address concerns of sustainability of the ecosystem and in particular provide systematic guidance on how to manage introductions (such the Nile perch) with supposedly beneficial impacts but greatly undermine ecological systems functioning.

The Nile perch (*Lates niloticus*) was introduced to Lake Victoria in East Africa in the 1950s (Pringle, 2005). Its introduction was ecologically disruptive and is attributed with causing the extinction or near-extinction of several hundred native species, with some populations fluctuating with commercial fishing and the actual Nile perch stocks. The Nile perch initially fed on native cichlids, but with decreasing availability of this prey, it now consumes mainly small shrimp and minnows. The alteration of the native ecosystem had disruptive socioeconomic effects on local communities bordering the lake. Many local people have been displaced from their traditional occupations in the fishing trade and brought them into the cash economy or, before the establishment of export-oriented fisheries, turned them into economic refugees. At least initially, nets strong enough to hold adult Nile perch could not be manufactured locally and had to be imported for a high price (Kaufman, 1992). The introduction of Nile perch has also had additional ecological effects on shore. Native cichlids were traditionally sun-dried, but because Nile perch have a high fat content (higher than cichlids), they need to be smoked to avoid spoiling. This has led to an increased demand for firewood in a region already hard-hit by deforestation, soil erosion and desertification. The Nile perch is also associated with economic gains but regardless of whether it is introduction is considered positive or negative (Kaufman, 1992; Ben-Yami, 1996) the trophic web of Lake Victoria appears to have been drastically impoverished by the introduction of this novel near- top level predator. While the ecosystem seems to be moving towards a new equilibrium, neither its former state nor the state of fisheries on Lake Victoria can ever easily be brought back.

Zoonotic diseases. Over the recent years, public awareness of the risks posed to human health by various diseases of animal origin (Table 2) has been greatly increased given the emergence and re-emergence of diseases which pose world-wide threat to both human and animal health. In this Issue Yatuha *et al*. (2019) highlights the challenge of a zoonotic - *Cysticercosis* which is a tissue infection caused by the young form of the pork tapeworm (Roberts *et al*., 2009). People may have few or no symptoms for years (Garcia *et al*., 2002; 2003). After months or years these

lumps can become painful and swollen and then resolve (Gacria *et al*., 2003). A specific form called neurocysticercosis, which affects the brain, can cause neurological symptoms (Roberts *et al*., 2009). In developing countries this is one of the most common causes of seizures (Garcia *et al*., 2002). Because of unintentional under-reporting, the cases of zoonosis' are underestimated and the available factsheets of common diseases are thus, incomplete.

Livestock and crop improvement. In this Issue, Goitom *et al*. (2019) and Mwololo *et al*. (2019) represent the themes of Livestock and Crop Improvement research with the Barka cattle breed in Eritrea and genetic variability among groundnut accessions against rosette disease infestation, respectively. From both studies the information generated is useful for breeding programs, which in addition to more attention on exotic introductions with desired traits should also consider conservation of indigenous breeds and crop varieties that have potential to secure sustainability of ecosystem functions. The natural resource base on which agriculture depends has declined faster in the past 50 years than at any other time in human history, owing to increased global demand and degradation of land, water and biodiversity. In the same period, 75 percent of the crop genetic base has been lost (Neely and Fynn, n.d). By

Table 2. Zoonotic diseases factsheet

Disease	Pathogen	Genius species	Host range	Transmission
Brucellosis	Bacteria	Brucella (*B. melitensis, B. abortus, B. suis, B. canis*)	Infested animals (swine, cattle, goats, sheep, dogs)	Skin or mucous membrane contact with infected animals, their blood, tissue and other body fluids
Salmonellosis	Bacteria	Salmonella (*S. cholera-suis, S. typhymurium, S. typhi*)	Domestic (dogs, cats, monkeys, rodents, laboratory rodents, reptiles (especially turtlines), chickens, fish and herd animals (cattle, chickens, pigs)	Direct contact as well as indirect consumption (eggs, food, food vehicles using eggs, etc); human to human transmission also possible
Shigellosis	Bacteria	All Shigella species	Captive non-human primates	Oral-fecal route
Leptospirosis	Bacteria	Leptospira interrogans	Animal, human urine	Direct contact with urine of of infected dogs, mice or rats; indirect contact with urine contaminated materials; droplet transmission via earosols of urine

Source: OSHA's Alliance Program - https://absa.org/wp-content/uploads/2017/01/ZoonoticFactSheet.pdf

conservative estimates, a quarter of the world's population now depends directly on land that is being degraded. Degradation is caused by unsustainable agricultural production methods, especially intensive tillage (which promotes erosion of some 25 000 million tonnes of topsoil per year), nutrient mining, poor soil cover, and pollution from conventional intensive farming, deforestation and poor grazing management. Mechanical soil tillage and removal of vegetation destroy soil structure and accelerate soil erosion by exposing the soil to the impacts of rain and wind. Salinization of unsustainably irrigated land is also a major factor for soil degradation.

Women in socioeconomic development, agribusiness and collective marketing. The economic empowerment of rural women and the achievement of gender equality is central to ensuring economic growth and sustainable development. This is an integral component towards achievement of the SDGs. Sustainable Development Goal (SDG) 5 is focused on gender and equality and women's rights; and in addition, at least 11 of the 17 SDGs require indicators related to gender dynamics. A comprehensive study by Doss *et al*. (2018) analyses four gender myths: 1) 70% of the world's poor are women; 2) Women produce 60 to 80% of the world's food; 3) Women own 1% of the world's land; and 4) Women are better stewards of the environment. The analysis in this comprehensive study presents the kernel truth underlying these myths, questions its underlying assumptions and implications, and examines how it hinders us from developing effective food security policies.

For instance, One of the most enduring myths about gender is that 70% of the world's poor are women (UNDP, 1995). Although it is well-documented that women (and girls) worldwide are disadvantaged in terms of schooling, command fewer resources such as land and assets, have earnings and productivity gaps relative to men, and are disadvantaged in terms of voice in their households and society (FAO, 2011; World Bank, 2012), the assertion that women comprise 70% of the world's poor has been challenged as far back as the late 1990s. One needs to question the data on which this myth is based and besides, as discussed in this Issue by Kwigilile *et al*. (2019); Mungwe *et al*. (209) and Tikazara *et al*. (2019) there are conspicuous equity concerns with regard to women participation in rural development and indeed overall socio-economic growth.

In rural economies, women account for a significant proportion of the agricultural workforce in many countries and play a major role as smallholders, wage labourers and value chain actors. Evidence demonstrates that greater attention to identifying and addressing the differing constraints, needs and priorities of rural women and men in the design and delivery of services or labour recruitment results in improved productivity and higher rates of economic growth. Moreover, with women over-represented among those living at the bottom of wealth pyramid, there is further justification for gender-differentiated approaches on the grounds of poverty reduction.

CONCLUSION

Building on the issues and recommendations raised in the eight articles published in this Issue of the AFJRD, stakeholders and actors involved in generating knowledge and its application for rural development to the betterment of livelihoods need to pay more attention to the following for each of the thematic areas discussed above:

- Ethical considerations must be taken and ensure that the benefits for a few are weighed against losses for many as part of efforts to secure sustainability of the ecosystem. The principles of "do no harm" must be upheld especially with introductions of organisms that seem beneficial for food acculturation (with

a view to improve nutritional deficiencies) to new environments but have potential to become invasive alien species.

- Zoonotic diseases affect both people and animals, especially where they involve domestic animals and interventions to effect control measures require concerted action between veterinary and human health actors, while at the same time offering substantial benefits to both actors. Apparently, the change of zoonotic diseases is underreported and there is need to develop new tools to effectively and efficiently control this challenge. This in essence also implies systematically collecting data on the incidence of zoonotic diseases supported by studies to estimate their dual burden on humans and livestock, quantify under-reporting and identify communities and groups at risk.

- Livestock and crop improvements efforts are very critical. A growing global population, has resulted on increased pressure on arable land and efforts to produce adequate food necessitate securing efficient livestock – cropping systems through agricultural intensification efforts. These efforts should endeavour to conserve crop varieties and animal breeds that contribute significantly to the sustainability of natural resources and ecosystems functioning.

- Evidence-based approaches are important to support the understanding and implementation of intervention for women economic empowerment. There is the recognition of the need to address underlying structural barriers (such as women's weak and unequal access to land and other productive resources, and their heavy and unequal responsibility for unpaid care work) in order to achieve and sustain effective economic empowerment of women.

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STATEMENT OF NO-CONFLICT OF INTEREST

This Editorial was commissioned by the Editor-in-Chief and the author is a member of the Editorial Team that was tasked to highlight key issues in the published articles and point out gaps for further research for development attention.

REFERENCES

Ben-Yami, M. 1996. Ecological and socioeconomic aspects of the expansion of Nile Perch in Lake Victoria. pp. 95–110. In: Fisheries resource utilization and policy. Proc. World Fisheries Congress. Theme 2. New Delhi: Oxford and IBH Publ.Co. ISBN 1-886106-28-2.

Biro, E. and Menon, P. 2014. Addressing the challenge of hidden hunger. Global Hunger Index, Available from: https://www.globalhungerindex.org/issues-in-focus/2014.html

Committee on World Food Security (CFS). 2011. Global Strategic Framework for Food Security and Nutrition, 2011.

Colebatch, H. 2017. The idea of policy design: intention, process, outcome, meaning and validity. *Public Policy and Administration* 33 (4): 365–83. doi: 10.1177/0952076717709525

Doss, C., Meinzen-Dick, R., Quisumbing, A. and Theis, S. 2018. Women in agriculture: Four myths. *Global Security* 16: 69 – 74. Doi.10.1016/gfs.2017.10.001

Early, R., Bradley, B.A., Dukes, J.S., Lawler, J.J., Olden, J.D., Blumenthal, D.M., Gonzalez, P., Grosholz, E.D., Ibañez, I., Miller, L.P., Sorte, C.J.B., Tatem, A.J., 2016.

Essl, F., Dullinger, S., Rabitsch, W., Hulme, P.E., Hülber, K., Jarošík, V., Kleinbauer, I., Krausmann, F., Kühn, I., Nentwig, W., Vilà, M., Genovesi, P., Gherardi, F., Desprez-Loustau, M.-L., Roques, A., Pyšek, P. 2011. Socioeconomic legacy yields an invasion debt. Proceedings Natl. Acad. Sci. U.S.A. 108: 203–207. doi:10.1073/pnas.1011728108.

Food and Agriculture Organization (FAO). 2011. State of Food and Agriculture. Women and Agriculture: Closing the gender gap for development. FAO, Rome.

García, H.H, Gonzalez, A.E., Evans C.A. and Gilman, R.H. 2003. *Taenia solium cysticercosis*. *Lancet* 362 (9383): 547–56. doi:10.1016/S0140-6736(03)14117-7.

García, H.H., Evans, C.A., Nash, T.E., Takayanagui, O.M., White, A.C., Botero, D., Rajshekhar, V., Tsang, V.C., Schantz, P.M., Allan, J.C. and Flisser, A., 2002. Current consensus guidelines for treatment of neurocysticercosis. *Clinical Microbiology Reviews* 15 (4): 747-756.

Goitom, S., Gicheha, M.G. and Tsegay, T. 2019. Production and fertility performance of Barka cattle breed in the different agroecological zones of Eritrea. *African Journal of Rural Development* 4 (2): 211-216.

Kaufman, L. 1992. Catastrophic change in species-rich freshwater ecosystems: The lessons of Lake Victoria". *BioScience* 42 (11): 846–858. doi:10.2307/1312084. JSTOR 1312084

Kwigizile, E.T., Nsuya, J.M., and Mahande, M.J. 2019. Relationship between women demographic characteristics, household structure and socio-economic status in Morogoro district, Tanzania. *African Journal of Rural Development* 4 (2) : 243-260.

Mahlangua, M., Folingnib, R. and Mozzona, M. (2019). Can insects save humanity? *African Journal of Rural Development* 4 (2): 185 – 202.

Mugwe, J., Ayieko, D., Bett, E. and Mogaka, H. 2019. Determinants of smallholders farmers' participation in collective marketing of maize in the central highlands of Kenya. *African Journal of Rural Development* 4 (2): 225-241.

Mubai, N., Mwololo, J., Sibiya, J., Musvosvi, C., Charlie, H., Munthali, W., Kachulu, L. and Okori, P. 2019. Assessment of genetic variability among groundnut accessions under natural rosette disease infestation in Malawi. *African Journal of Rural Development* 4 (2): 283-304.

Neely, C. and Fynn, A. (n.d). Land tenure issues in agricultural investment: Critical choices for crop and livestock production systems that enhance productivity and build ecosystem resilience. Thematic Report, FAO, Rome, Italy.

Nguhiu, P.N., Kabuage, L.W., Warutere, P.N., Kabui and Kanina, P.N. 2019. Emergence of *Cysticercosis*, a neglected meat-borne notifiable zoonosis in Thika sub-county of Kiambu county, Kenya. *African Journal of Rural Development* 4 (2): 203-209.

Pringle, R. M. 2005. The Nile Perch in Lake Victoria: local responses and adaptations. Africa: *Journal of the International African Institute* 75 (4): 510–538. doi:10.3366/afr.2005.75.4.510. ISSN 0001-9720. JSTOR 3556959.

Roberts, L.S., Janovy Jr., J. and Gerald, D. 2009. Foundations of Parasitology (8th ed.). Boston: McGraw-Hill Higher Education. pp. 348–351. ISBN 978-0-07-302827-9.

Tizikara, C., Nakayiwa-Mayega, F. and Otto, F. 2019. Investing in women as drivers of growth: A gender-based assessment of the science, technology and innovation ecosystem in Uganda. *African Journal of Rural Development* 4 (2): 261-281.

World Bank, 2012. World Development Report 2012: Gender Equality and Development. World Bank. Available from: http://hdl.handle.net/10986/439

Yatuha, J., Kango'mbe, J., Nkangu, D., Akoll, P. and Masembe, C. 2019. Nutritional and economic potential of *Clarias liocephalus* for rural populations of South Western Uganda. *African Journal of Rural Development* 4 (2): 217 – 224.