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Research Application summary

Investing in potential: Africa's people and land feeding the world

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Abstract

Global food demand is experiencing accelerated increase with projected deficits requiring a sustained growth of at least 70% if the world is to feed its growing population by 2050. Amidst this accelerated growth in food demand and population growth, a declining trend is observed in natural resource envelop. This has cast Africa as a frontier for meeting the future food needs for both her people and the world, this, owing to the expanse and potential of arable land unutilised and her under utilised population potential. The continent has thus become a new frontier for international competition in the 21st Century. Evidence available indicates that global production is declining but the overall production is not increasing volumetrically. Africa's agriculture has continued to lag behind in terms of production and productivity gains owing to series of constraints. Despite this pattern, some successes have been registered in the continent, production in some crops such as rice has seen some yield increases, seed varieties have been released, agribusiness sector and private sector are becoming vibrant and active in delivery of agricultural innovations, and governments are investing in infrastructure developments. Taking lessons from the past interventions, it was observed that the Green Revolution was primarily successful because of a combination of strategic investments in crop research, infrastructure, market development, credit provision systems to supply the right input packages, price stabilization mechanisms and appropriate policy support were provided to farmers in Asia. Africa especially sub-Saharan Africa ought to re-examine such interventions, take worthwhile lessons and reformulate her context specific 'green revolution' within the current circumstances. Further, investments in rural development and human capital development are critical in driving the ability of Africa's farmers to translate their opportunities and potential into tangible agricultural products that will feed the continent and the world.

Key words: Africa, demography, Green Revolution, Opportunities, Potential, Rural Development

Résumé

La demande alimentaire mondiale connaît une augmentation accélérée, les déficits projetés nécessitant une croissance soutenue d'au moins 70% d'ici 2050. Dans ce contexte d'augmentation de demande alimentaire et de croissance démographique, on observe une tendance à la baisse dans les ressources naturelles. Ceci affecte le continent africain à répondre aux besoins alimentaires futurs du peuple africain et du monde, du fait

de l'étendue et du potentiel des terres arables et de son potentiel démographique sous-utilisés. L'agriculture africaine a toujours pris du retard en termes de production et de gains de productivité en raison d'une série de contraintes. Malgré cela, certains succès ont été enregistrés sur le continent, la production de certaines cultures telles que le riz ayant connu une certaine augmentation de rendement, des variétés de semences étant mises à disposition du public, le secteur agroalimentaire et le secteur privé devenant dynamiques et actifs dans les innovations agricoles, et les gouvernements investissant dans le développement des infrastructures. Tirant les leçons des interventions passées, il a été observé que la Révolution verte a été principalement couronnée de succès en raison d'une combinaison d'investissements stratégiques dans la recherche sur les cultures, les infrastructures, le développement des marchés, les systèmes de crédit pour fournir les bons intrants, les mécanismes de stabilisation des prix et le soutien politique approprié fournis aux agriculteurs en Asie. L'Afrique, en particulier l'Afrique subsaharienne, devrait réexaminer ces interventions, tirer des enseignements utiles et reformuler sa «révolution verte» spécifique au contexte des circonstances actuelles. En outre, les investissements dans le développement rural et du capital humain sont essentiels pour accroître la capacité des agriculteurs africains à traduire leurs opportunités et potentiel en produits agricoles tangibles pour le continent et le monde.

Mots-clés: Afrique, démographie, Révolution verte, opportunités, potentiel, développement rural

Introduction

Africa, a continent of mixed fortunes, in less than a decade, has had a significant shift in the global perspective from a region perceived to be riddled with disappair to a narrative of 'Africa rising'. This positive outlook of Africa has become the 'new normal Africa' (Brooks *et al.*, 2018). This new normal of buoyant growth across Africa was facilitated by positive sentiments in the global markets, strong demand for Africa's resources from China, increased investment from the BRICS (Brazil, Russia, India, China and South Africa) and general positive evolving narrative from development partners (Deloitte, 2017). As if to reinforce the narrative of Africa rising, the International Monetary Fund (IMF) hosted a conference in Maputo-Mozambique in 2014 dubbed "Africa rising: Building for the future". This conference delivered some realities to the continent but also fell short of realising that liberal economic policies, entrepreneurship and free trade alone can not sustainably hold the Africa's economic bubble without a firm foundation on its people and land that Africa has a global comparative advantage.

Africa's people and land represent the 21st Century 'gold mine' for which the global community is repositonning to valorise (Figure 1). A rush for land in Africa escalated in the last decade with upto 685 cases covering nearly 40 million hectares acquired for Large-scale land based investments a cross the continent was recoreded between 2000 and 2013 alone (AUC, 2013). This represented 45% of the global large-scale land based investments undertakings. As such, Africa represents the most significant frontier of agricultural

expansion whose arable land remains grossly under utilised and whose potential arable land expansion if realised could range from 150–700% depending on the region (Ahlenius, 2006).

At present, the continent’s agricultural productivity is the lowest on the global scale with area wise expansion as the main contributor to production increase as opposed to Total Factor Productivity in other regions of the world (Aparajita and Nash, 2016; Figure 2). Further, a number of African farms perform at 40% of their potential capacity; thus, by 2050, the continent will only be in position to produce 13% of its food needs (Chibonga, 2014). This represents a huge demand that requires urgent attention. The need to close the potential to harness this into economic magnate for the continent is evident. Already Africa is a net food importer with upto US\$35 billion in annual food imports in 2015 with a projected growth to US\$110 billion by 2025 (AfDB, 2016a). These projections demonstrate the versatility of opportunities in Africa’s agricultural sector with diverse diverse set of markets, both in key commodities as well as processed goods and associated agro-allied industries. The agribusiness component that will emerge out of this potential is estimated to fetch US\$ 1 trillion by 2030. However, this requires considerable effort to translate these opportunities and potential into tangible products because the reality is that no one eats potential (Adesina, 2015).

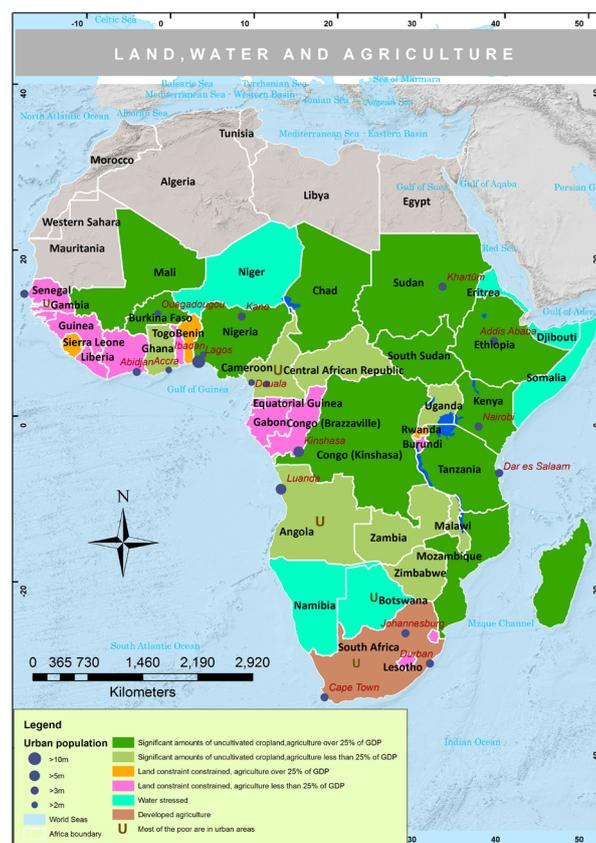


Figure 1. Land, water and agriculture nexus in Africa

As Africa's land confers immense potential and opportunities to the continent and its people, a young and versatile population perhaps represent one of the single most important opportunities that the continent possesses on a global scale. One in every four persons in the world will be from Africa by 2050 and by 2100 the continent will be accounting for 80% of the 4 billion projected increase in the global population (Drummond *et al.*, 2014; Figure 3). Africa's growing population represents one of the natural disruptive trend dynamics that the world is coming to terms with. By 2050 Africa's youth population alone will be 830 million; this represents the core of the continent's demographic dividend in Africa discussed at various fora (AfDB, 2016b). Notwithstanding this, the demographic dividend will certainly vary across countries, depending on drivers such as the initial working age population as well as the speed and magnitude of demographic transition at country and sub-regional level (Drummond *et al.*, 2014). It is vital to underscore that the reality to harnessing Africa's demographic dividend and its population's potential rests with how Africa transcends its regional challenges to promote inclusive economic transformation and jobs-induced growth to improve the quality of life and human capital development for all Africans (African Economic Outlook, 2015). With improvement in educational outcomes and increase in the skills share of Africa's population with a doubling from 25 to 50% by 2030, the demographic dividend will potentially expand Africa's economy by 22% by 2030 and reduce poverty for additional 51 million people on the continent (Ahmed *et al.*, 2016).

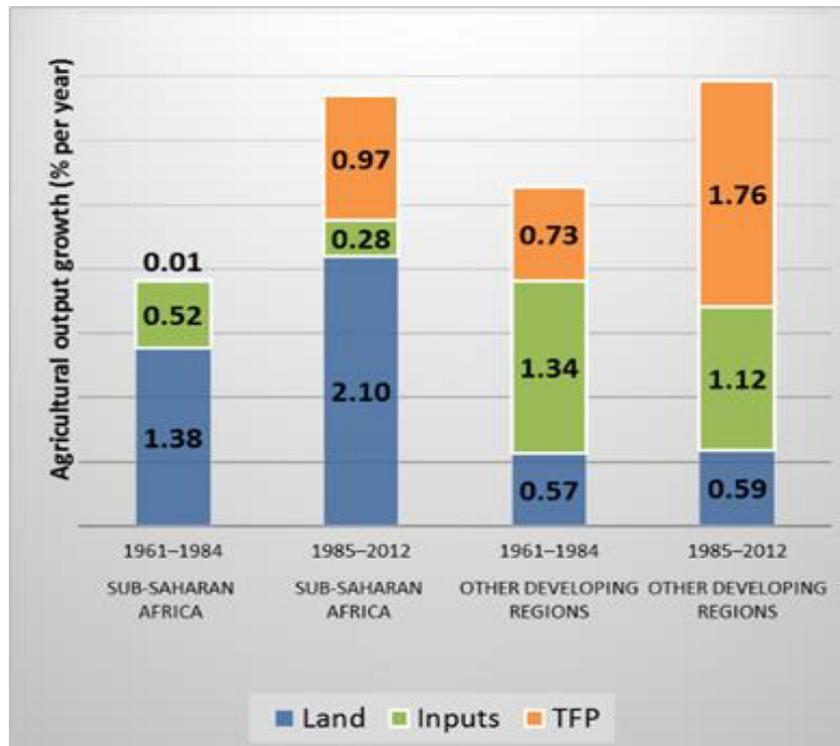
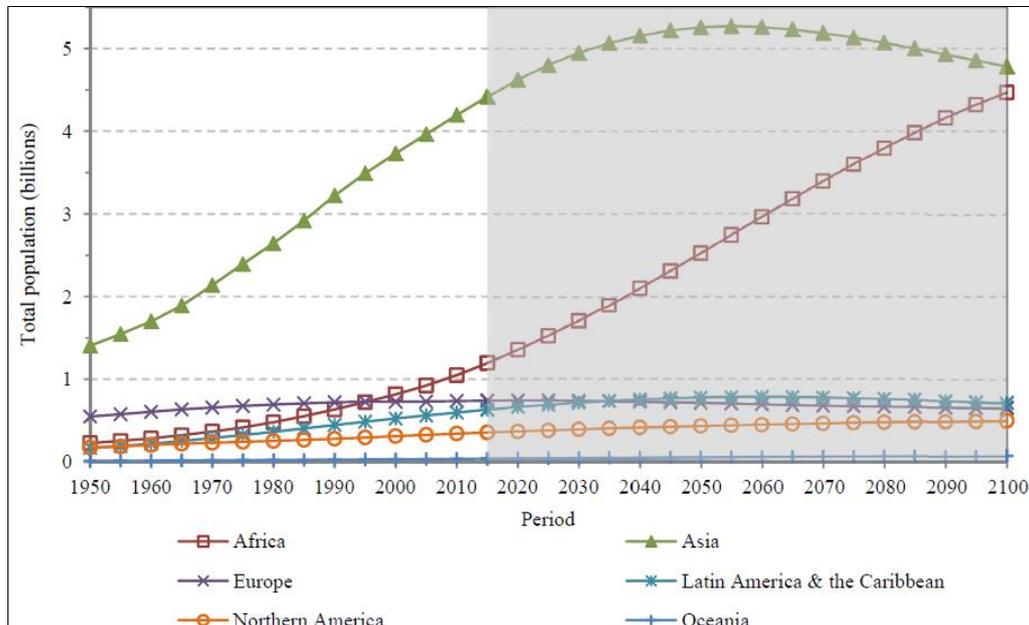


Figure 2. Land, inputs and Total Factor Productivity. Adapted from Aparajita and Nash, 2016.



Investing in potential. Africa's people and land feeding the world is a discussion paper that raises issues around how to shape Africa's potential and importantly the trajectories around Africa's land, her people and resources as well as sort of investments required to valorise the continent's inherent potential. It is a discursive paper that draws issues from existing literature whilst paying attention to the emerging dynamics of interest. A rewrite on the global scene about Africa has particular taken place in the last decade with a transition from deficits and gaps to opportunities, ventures and creativity discourse (Tareka, 2016). This is particularly important not because the deficits in the continent have ceased but rather because the entrepreneurs and entrepreneurial spirit in the continent have noticed that these challenges offer business opportunities and financial returns in addressing them are immense (The Economist, 2015; Tareka, 2016; Giamporcaro, 2017).

Future food demand: Africa and global dimension

The Sustainable Development Goals (SDGs) Goal 2 stresses the imperativeness to ending hunger, achieving food security and improved nutrition and promoting sustainable agriculture by 2030. These global goals bring to the fore what remains of the critical developmental challenges at the global scale and in particular among developing continents, and the need to meet the food needs and requirements of a rapidly growing population. Global food demand is rapidly rising and by 2030 it will have increased by 35% owing to rising global population, changing composition of the global diets and incomes (Figure 4). Similarly, Africa's food demand is on the rise; a 60% projected increase by 2050 is anticipated compared to the 2005/2007 period. Under the medium population projection conditions of 2010, a 335% increase in cereal demand and per capita demand in 10 countries of sub-Saharan Africa is expected by 2050 (Table 1). This is primarily being influenced by population dynamics which determine three-quarters of the observed increase as Africa's population would have more than doubled in the same period (Van Ittersum *et al.*, 2016)

Per capita food consumption is similarly experiencing an upward switch such that by 2050, it is anticipated that close to 4.7 billion people (52%) of the global population will reside in countries with a 3,000 kcal/person/day, this rising from the current 1.9 billion (28%) (Alexandratos and Bruinsma, 2012). In contrast, those living under 2,500 kcal will likely fall from the current 2.3 billion (35%) to about 240 million (2.6%) of the global population by 2050 (Alexandratos and Bruinsma, 2012). Disruptions are equally taking place in food diets of many developing regions in the world, Africa inclusive. These shifts in food needs and requirements are due to changes in lifestyle and driven by a rapidly urbanizing population, short term volatility relating to spikes in food prices owing to stochastic weather events and medium term yield losses responding to climate change as well as uncertain future owing to climate change (Figure 5) are causing immense pressure on the food systems requiring new innovations and adjustments to rapidly close the emerging gap.

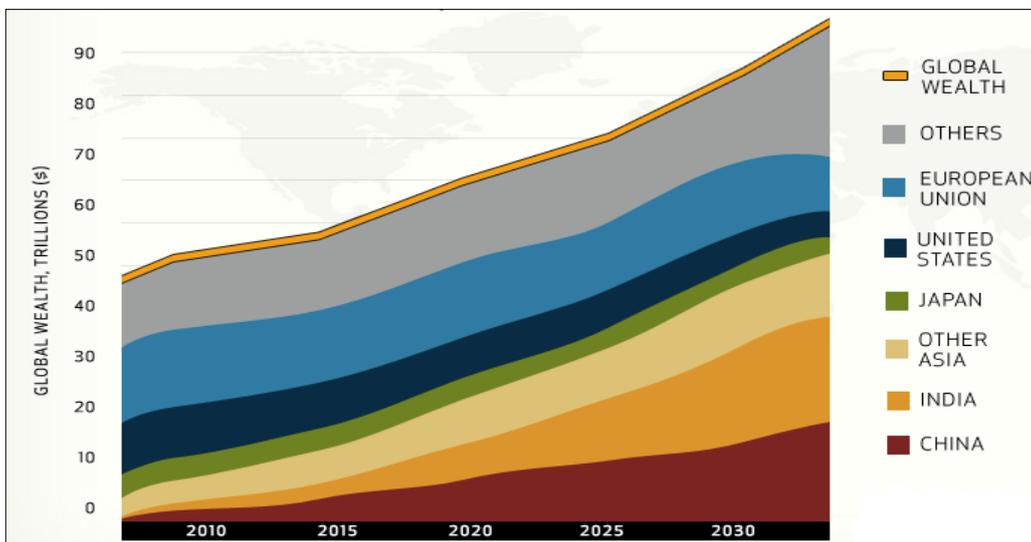


Figure 4 Global food demand. Adapted from Farming First: <https://farmingfirst.org/Post2015-Food#Slide2>

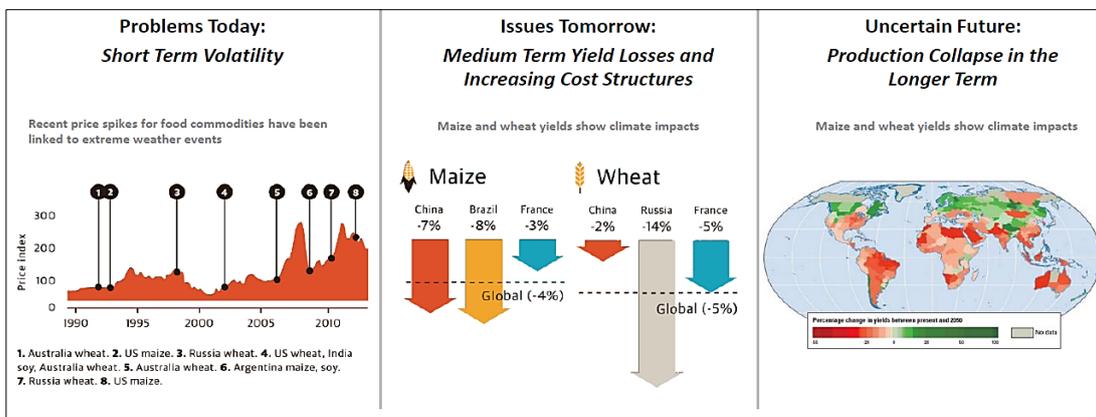


Figure 5. Climate change impacts on food systems. Adapted from CCAFS, 2014.

Table 1. Cereal demand increase by 2050 and recent developments in cereal production and cropland area in sub-Saharan Africa

| Country | Population 2050 (million) (and as % of 2010 population) | Cereal demand 2050 as % of that in 2010 | Cereal area as % of total current cropland | Actual maize yields (2003-2012) used in GYGA, tharvested ha ⁻¹ | Annual maize yield increase (1991-2014) kg ha ⁻¹ yr ⁻¹ | Crop and area 2010, Mha | Crop and area 2004, 2013), Mha, Mha |
|--------------|--|---|--|---|---|----------------------------|---|
| Burkina Faso | 43 (275) | 304 | 74 | 1.5 | 9 | 5.8 | 1.6* |
| Ghana | 50 (206) | 372 | 34 | 1.7 | 16* | 4.6 | 0.7* |
| Mali | 45 (325) | 365 | 60 | 1.9 | 60* | 6.4 | 1.4* |
| Niger | 72 (454) | 508 | 70 | 0.8+ | 6 | 15.2 | 1.8* |
| Nigeria | 399 (250) | 314 | 48 | 1.6 | 31* | 33.0 | -1.0 |
| Ethiopia | 188 (216) | 237 | 40 | 2.2 | 86* | 14.6 | 2.8* |
| Kenya | 96 (233) | 346 | 45 | 1.9 | -4 | 5.5 | 0.5* |
| Uganda | 137 (305) | 381 | 44 | 1.2 | -9 | 11.9 | 4.0* |
| Zambia | 102 (300) | 396 | 25 | 1.6 | 51* | 6.7 | 1.0* |
| Total | 43 (325) | 519 | 35 | 2.3 | 55* | 3.5 | 0.8* |
| | 1,175 (261) | 335 | 49 | 1.9 | 30* | 107.0 | 13.6* |

Medium fertility population projection in 10 sub-Saharan African countries by 2050, cereal demand 2050 versus 2010 (Robinson *et al.*, 2015), and UN medium fertility population projection (United Nations, 2015), cereal area as a percentage of cropland (%), actual (2003-2012) and progress (1991-2014) in maize yields (the former estimated in GYGA, the latter based on FAOSTAT, cropland area (2010) and trend in cropland area (2004-2013), FAO, (2015). * significant trend (p<0.05). Maize area in Niger was too small to include in GYGA; average yield is taken from FAOSTAT. Adapted from Van Ittersum *et al.*, 2016

Meeting the future food demand

Global production is depicting unique patterns with a projected growth in global consumption of all agricultural products as 1.1% per annum from 2005/07-2050. The unique patterns are founded in how the absolute volumes are non-declining despite constraining growth patterns. For example, the world cereals production is estimated to increase at 0.9% per annum from 2005/07-2050, declining from the 1.9% per annum from the 1961-2007 period. While this decrease in percentage growth is evidenced, the absolute growth in volume by 2050 is projected to reach three billion tons compared to the 1,225 million tons between 1961/63 and 2005/07 period (Alexandratos and Bruinsma, 2012). Another unique pattern into the future of food at the global scale relates to the fact that by 2050, there will be a third more mouths (2.3 billion) to feed requiring a 70 percent increase in food production (FAO, 2009). These trends and patterns are disruptive forces in the agricultural markets, as farmers need to increase crop production, either by increasing the amount of agricultural land under crops or by enhancing productivity on existing agricultural lands through making the right use of agricultural inputs including fertilizer and irrigation and adopting new methods like precision farming (Elferink and Schierhorn, 2016). Livestock productivity must also increase more than tripple. All these increases must take into consideration environmental and natural resource sustainability.

Even as these trends pile pressure on agri-food systems, a real potential to raise crop and livestock productivity with existing technologies exists conditional to appropriate socio-economic incentives being in place (FAO, 200). The differences in production to meet the food needs on a global scale are bridgeable gaps but at the same time constitute the major bottle neck to Africa's agriculture. This is due to a number of reasons. Firstly, Africa's yields for a majority of food crops are far below the global average (Figure 6) and require substantial investments to prop them up. Secondly, sub-Saharan Africa accounts for less than 2% of the global fertilizer consumption owing to its high costs rather than deliberate choice by farmers. Thirdly, the continent is already reeling with the effects of climate change, further constraining production (Tall, 2015). Fourth, global and regional income levels are growing and are putting pressure such that a global calories shortage of 214 per annum is projected by 2027 (Menker, 2017).

Transitioning from these bottle necks to take advantage of the bridgeable gaps in Africa's food systems will require making significant yet strategic investments to rapidly marshal production and productivity potential of both the continents' land and people. Growing food supply to increase food availability has a direct correlation with the productivity of the entire chain from seeds and soils to the forks and bellies of consumers. In this case, supply must grow rapidly to meet the increasing and changing demand patterns predicated on increasing incomes, urbanisation and for the growing population whose shifting geographic, cultural, and age distribution are greatly transitioning. Producing more with less, while preserving and enhancing the livelihoods of farmers, is a global challenge under the current conditions and thus remains a major constraint. As such, resource use ought to be intensified, and intensified in ways that do not undermine future productivity. Sustainable intensification (Figure 7) has proven to deliver multiple benefits

with multiplicative character including increasing yields per hectare through combining the use of new improved varieties and new agronomic-agro-ecological practices. Further, the action has had an additive effect with diversification resulting into emergence of a range of new crops, livestock and/or fish into the already existing ones. Scaling up and out the sustainable intensification paradigm in Africa requires taking stock of lessons emerging from pilots in the continent. Importantly seven guidelines are critical to scaling up and spreading sustainable intensification: i) making use of science and farmer inputs into technologies and practices that combine crops—animals with agro-ecological and agronomic management; ii) creating novel social infrastructure that builds trust among individuals and agencies; iii) improving farmer knowledge and capacity through the use of farmer field schools and modern information and communication technologies; iv) engaging with the private sector for supply of goods and services; v) focusing on women's educational, microfinance and agricultural technology needs; vi) ensuring the availability of microfinance and rural banking; and vii) ensuring public sector support for agriculture (Pretty *et al.*, 2011).

Sub-Saharan Africa is uniquely controversial in that intensification of smallholder farming systems raises both prospects and questions of possibility of timely success. This is because the sub-region is predisposed to a diverse group of smallholders with considerable

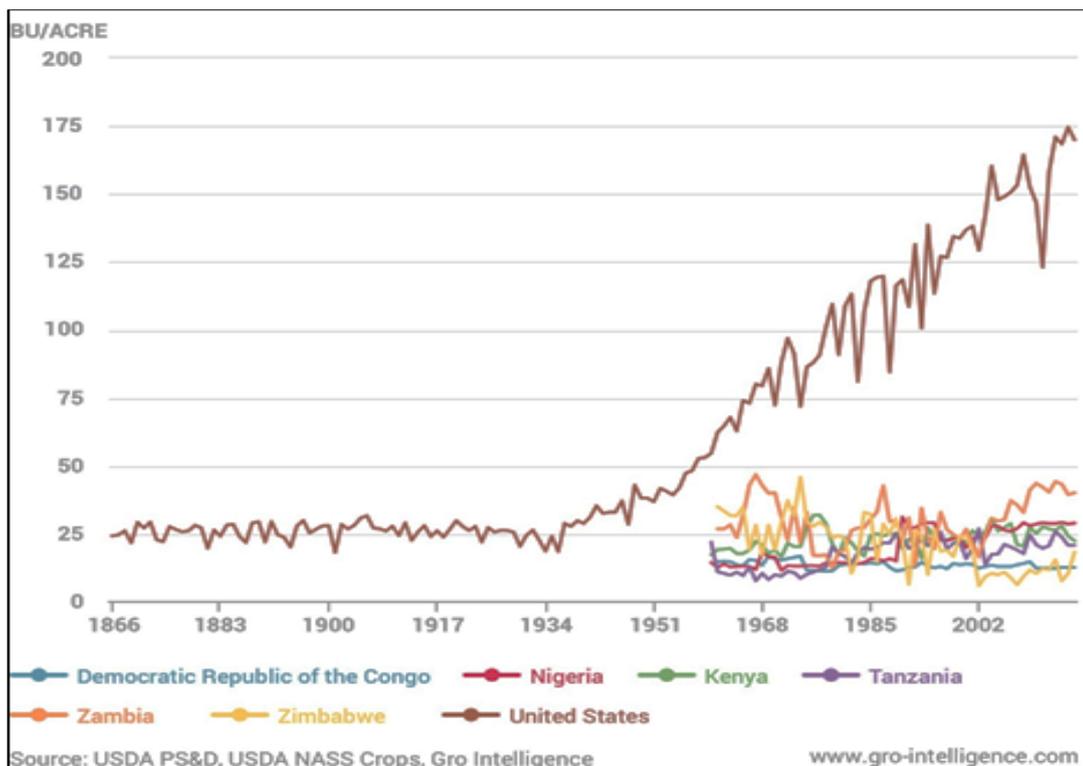


Figure 6. Maize yields for United States and African Countries (1866 to 2017). Adapted from Menker, 2017.

heterogeneity in socio-technical conditions, farmer typologies, production objectives, and the biophysical environment (Vanlauw *et al.*, 2014). Owing to this mix, multiple pathways from the current low productivity based on nutrient mining to sustainable intensification exist. But, the institutional context needs to be right for delivering the necessary goods and services underlying sustainable intensification, ensuring inclusiveness across household types, facilitating local innovation and adaptation processes (Pretty, 1997; Vanlauw *et al.*, 2014), and considering equitable distribution of food as well as individual empowerment in the intensification decision process while paying close attention to distributive and procedural justice for the requisite for successful sustainable intensification (Loos *et al.*, 2014). Notably, sustainable intensification is not writ without any challenges; often when approached from a security versus intensification dichotomy, some forms of intensification tend to increase farmer vulnerability (Robinson *et al.*, 2015). For example, intensifying agricultural production with increased use of irrigation will result into increased water use on a global scale by 2030 by 50 percent (Figure 8). This calls for the need to be deliberate to a set of actions whose level of assessments and evaluations have been rigorously undertaken prior to promotion as worthy interventions.

Harnessing innovation for African agriculture and food systems is a strategic intervention as well as a worthwhile investment point for unlocking a range of opportunities in meeting present and future food demand in the continent. With over 80% of agricultural output in Africa coming from smallholder farmers particularly in sub-Saharan Africa, innovation in its broadest sense will play a vital role in shaping the future (near term, mid-term and long-term) of agricultural development in the continent. Innovation will shape Africa's capacity to respond and raise the productivity, profitability, resilience and climate change mitigation potential of rural production systems and ecosystems (Alarcon and Bodourolou, 2011). Innovation provides opportunity for the developing countries to

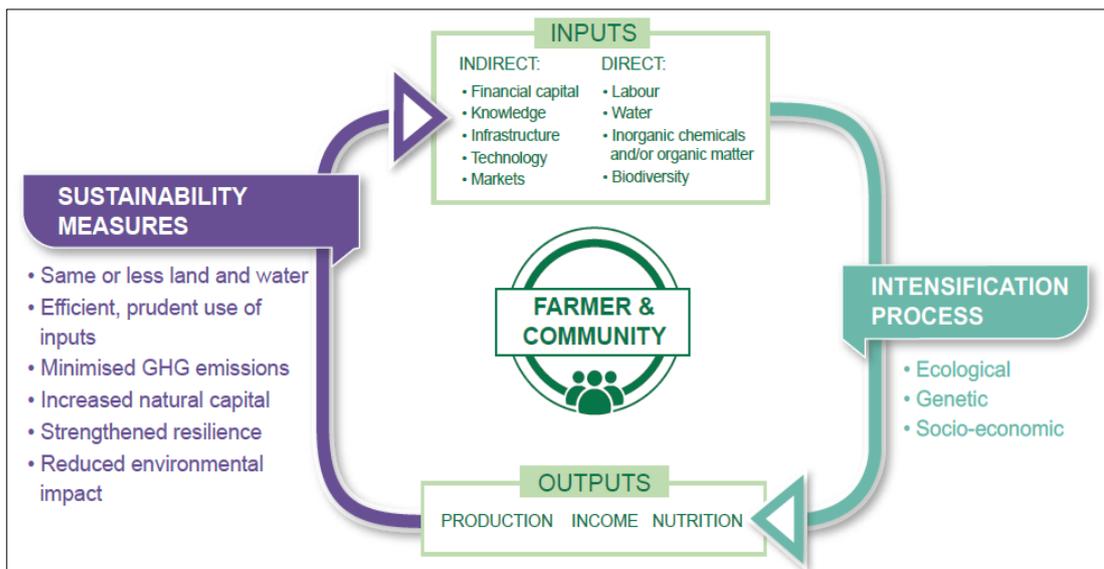


Figure 7. Theoretical model of sustainable intensification (Adapted from Juma *et al.*, 2013)

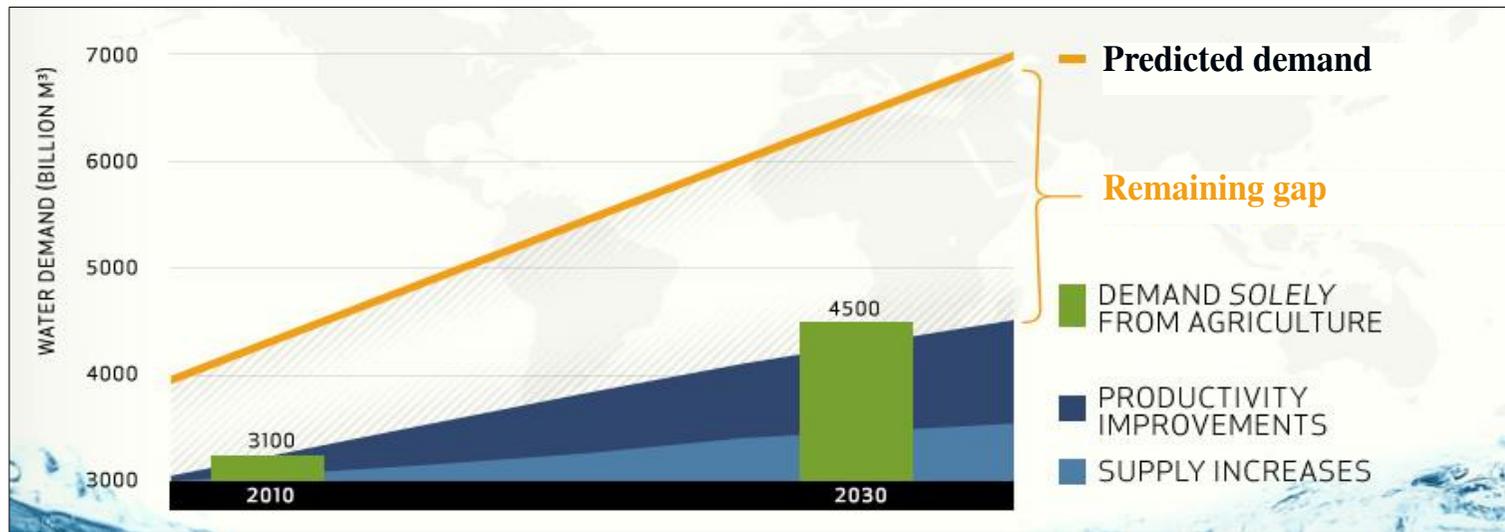


Figure 8. Global water use. Adapted from: Farming First, <https://farmingfirst.org/Post2015-Food#Slide4>

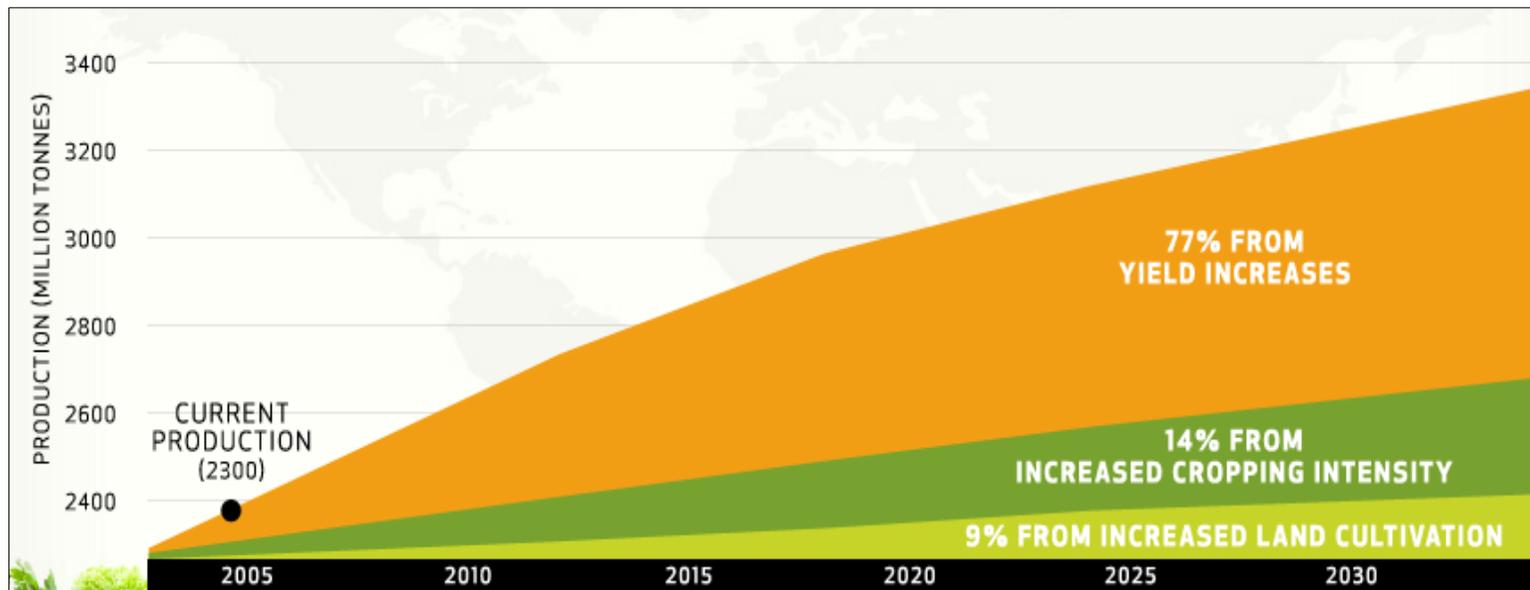


Figure 9. Global crop yield growth. Adapted from Farming First, <https://farmingfirst.org/Post2015-Food#Slide1>

translate sophisticated technologies developed in the developed countries to contribute to agricultural transformation in their nations. However, within the innovation context, it is vital to note that innovation is not just about high-technology products development and translation but rather innovation capacity has to be built early in the development process in order to possess the learning capacities that will allow catch up to happen (OECD, 2012). In this context, developing countries including most of Africa, require innovation capacity and local innovations to address challenges unique to local contexts whilst contributing to the global imperatives. Innovation at local level that is disruptive generates products, services and/or technologies that take root initially in simple applications at the bottom of a market and relentlessly moves up the market and eventually displacing established competitors (Rettle, 2017). Thus, in current technological innovation phase, Africa is being challenged to take advantage of the fourth industrial revolution that is primarily based on the power of innovation with the information and communication technology stage. However, positioning to take advantage of innovation space requires investment at various fronts but notably preparing a cadre of human resources with the right skills match and capacities to compete on the global arena.

Learning from past interventions. Feeding the global, regional and nation populations has remained a key development agenda as well as a political undertone at various levels of governments. This is particularly so because food insecurity is intertwined with conflict which further escalate the food deficits, as is the case in many several African countries especially in sub-Saharan Africa (Maxwell, 2012). Conflict in particular affects various pathways: food production, exchange for food, and food transfers through which food security is obtained (Deaton and Lipka, 2015). The recent food and energy crises as well as high food and commodity prices point to a world undergoing resource constraints and scarcity which continue to affect the food security potential (Panel, 2013). Whilst constraints abound amidst increasing demand pressure, additional food will need to come from increases in the yield achieved, or reductions in food waste (Figure 9). Meeting the current and mid to longer term food needs requires taking lessons from both successes and failures in the last century and in the early millennia.

A retrospective of the Green Revolution will provide opportunity to appreciate the achievements and limits it delivers with regards to agricultural productivity improvement and food security as well as its broader impact on social, environmental, and economic levels in Africa. As the world now prepares for perhaps an enhanced version of the Green Revolution, the lessons learned and the strategic insights that the first Green Revolution delivered to the world including the missed opportunities are vital to shaping the global response to rationalizing investments in people and land to feed the world. The successes during the Green Revolution were primarily registered owing to a combination of strategic investments in crop research, infrastructure, market development, credit provision, systems to supply the right input packages, price stabilization mechanisms and appropriate policy support (Hazell, 2009; Pingali, 2012). The Green Revolution thus introduced to farmers in Asia an irresistible package deal that dramatically increased crop production (Hazell, 2009; Figure 10). The lessons from the Asia successes seemed to have flittered quite well into

Latin America with Brazil and Argentina dramatically taking a positive food production trend from being non-existent players in food crops to dominant forces in cereals trade 1975-2015 (Gro-Intelligence, 2017).

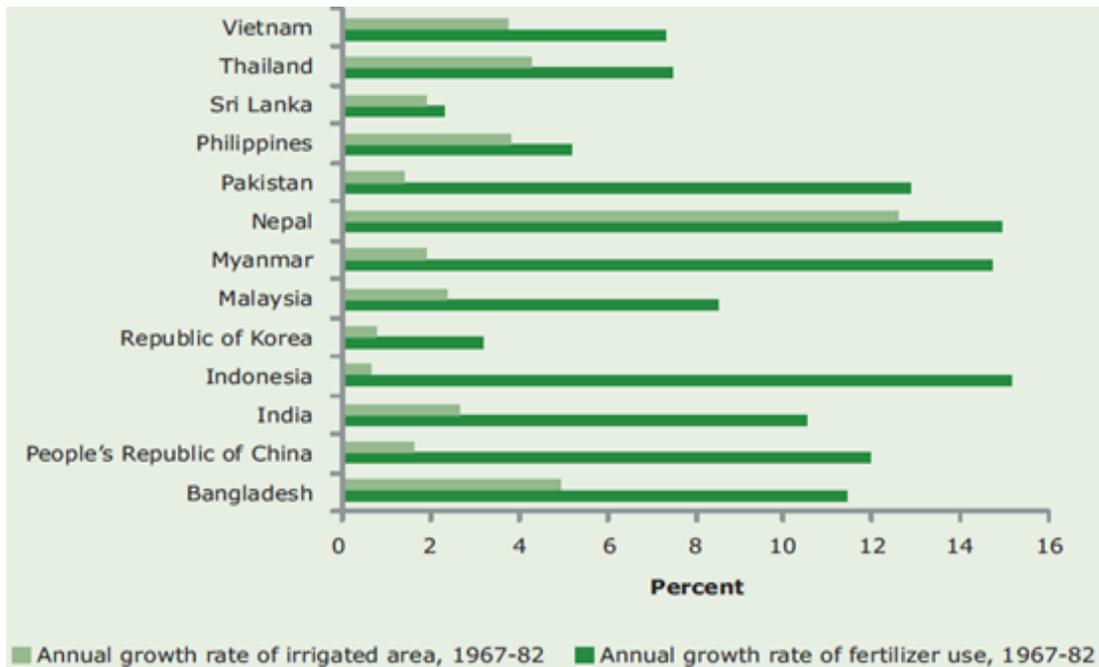


Figure 10. Growth of irrigation and fertilizer use during the Green Revolution in Asia.
Adapted from Hazell, 2009.

The transfer of the Green Revolution approaches and perspectives to Africa in particular sub-Saharan Africa however became decimally successful owing to in-part to limited viable and suitable seed varieties and lack of human and institutional capacity (Evenson and Gollin, 2003; Denning *et al.*, 2009). It is now apparent that conditions on the continent have changed from the past three to four decades, with some internal continental human capacity and relevant technologies including seed varieties that are adaptive to the local conditions developed (Ejeta, 2010; Dawson *et al.*, 2016). Despite the blanket perception that Africa failed to attain the Green Revolution, some leaps have been made with technology driven interventions including release of new varieties (rice, cassava, maize, soy, and beans, among others) and the policy instruments that have driven some large increases in crop yield and agricultural productivity in general. For example, rice yields in Benin have seen increased growth from the 1990s and with an adjusted pace after 2007, exceeding 4 tonnes per hectare. These patterns were similarly observed in Rwanda peaking above 5 tonnes per hectare (Frankema, 2014; Figure 11). This reinforces the fact that the Asian Green Revolution was rather more of a technology-led and policy-supported, rather than policy-driven as is oftentimes assumed (Estudillo and Otsuka, 2013). Remarkably, Africa has made some leaps with recent improvements in transport infrastructure, communication

technology, urbanisation and transformation in macro-economic governance provides a platform of confidence that the continent has some probability of moving towards an Africa Green Revolution (Frankema, 2014). Further, Dawson *et al.* (2016) indicate that both policy rationale and means of governing agricultural innovation remain crucial for pro-poor impact in the mechanisms aimed at achieving improvements in the lives of smallholder farmers through the Green Revolution.

Investing in rural development provides returns on investment to not only empower rural agricultural communities but also ensure that both the land and people capacities are enhanced and food and income security are raised. With close to 80% of agriculture in Africa being practiced by smallholder farmers a majority of whom are rural resident, it makes both logical and strategic alignment sense to invest in such a huge population of actors in agricultural food systems on the continent. Further, the smallholder agriculture is closely linked to many other upstream and downstream rural non-farm activities, through which it can stimulate inclusive growth in rural areas and beyond. Evidence from International Fund for Agricultural Development-IFAD's investment in rural development indicates that over 410 million people worldwide have been empowered and moved out of poverty and helped to create vibrant rural communities (IFAD, 2015). This suggests that it is simply not adequate to make pronouncements that rural areas deserve more investments but rather it is strategic and imperative that investments are deliberately made to this effect. In the current contexts, a reversal to the excessive segmentation in sectoral policy-making that leads to the rural dimension in overall strategy design to be neglected ought to dramatically readdressed (FAO, 2017).

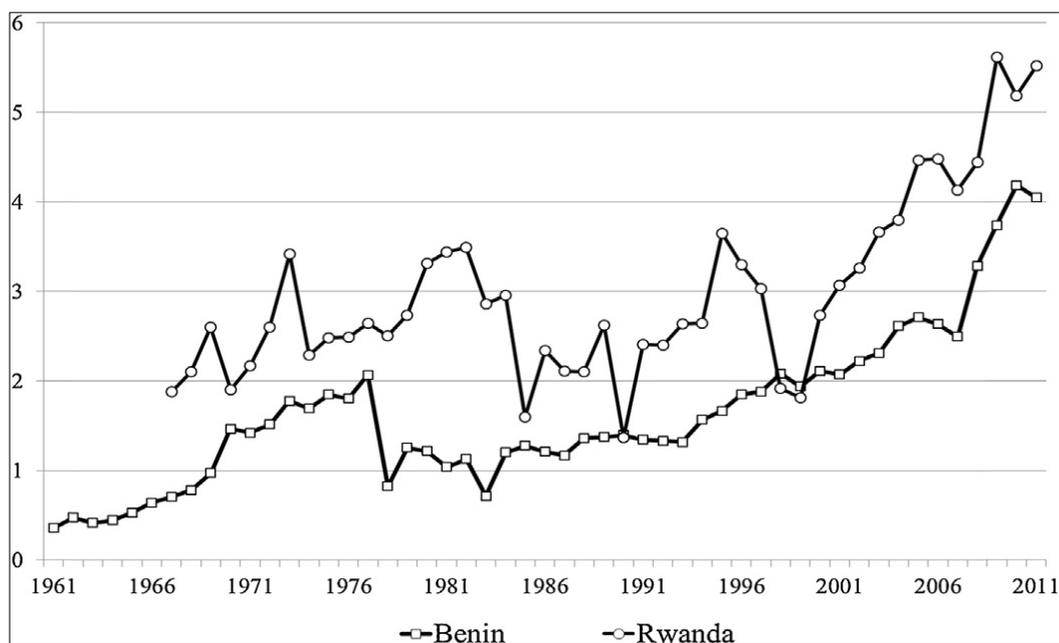


Figure. Rice yields (paddy) in Benin and Rwanda, tonnes per hectare, 1961-2011. Adapted from Frankema, 2014.

Conclusion

This paper highlights the underpinning mixed bag of African potential and opportunities, raising the fundamental argument that significant investments still need to be made for Africa to take advantage of both its land and people. Africa has enormous resources with its land and people being the new dawn of interest on the global stage, owing to its potential to be exploited to meet the global growing food demand. With the anticipation that by 2050 one in every four people in the world will be an African, Africa's demography has drawn global attention. Strategic and relentless investment in this youthful population will dramatically increase the continent's competitive and innovations edge. As such, investments in human capital development are critical in the current circumstance and these investments ought to be sustained on a long term basis. It is these investments that will facilitate Africa's ability to translate her potential into meaningful and tangible products as well as address several constraints within her midst including, among others, climate change, diseases and pests, low land productivity, low yielding seed varieties, poorly constructed policy instruments and mechanisms for transformation. It is evident that global, regional and national food demand is rising, contributed by rising population, changed consumer preferences and tastes. As such food systems are rapidly and continuously evolving. Adapting to this dramatic changes and shifts will define how the world and Africa especially sub-Saharan Africa will be in position to feed its people. Further, it is crucial that lessons from past interventions especially the Green Revolution, investments in rural development and human capital development, among others, are utilized to help shape the course of Africa's interventions to invest in her people so as to valorize the opportunities and potential inherent in the continent.

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