

**The Importance of Human and Institutional Capacity Enhancement  
in Building Resilient and Sustainable Agri-Food Systems in Africa**

**Ndizotheka Eminent Speaker Series**

**MwAPATA Institute in partnership with the National Planning Commission (NPC) and  
the Lilongwe University of Agriculture and Natural Resources (LUANAR)**

**Lecture by**

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**INTRODUCTION:**

1. Your Excellencies, Honorable Ministers, Heads of International Organizations, Distinguished Delegates, Ladies and Gentlemen. Please allow me to stand on established protocols.
2. I am deeply honored to have been invited to speak to you as the 6<sup>th</sup> Ndizotheka Eminent Speaker today. Previous editions of the lecture series have hosted several Eminent Personalities and Scholars who addressed key issues for African development.
3. I thank the organizers of the Lecture Series: the MwAPATA Institute, the National Planning Commission (NPC) of Malawi, and the Lilongwe University of Agriculture and Natural Resources (LUANAR) for the invitation.
4. I am excited by the theme of the lecture selected by the organizers: “*The Importance of Human and Institutional Capacity Enhancement in Building Resilient and Sustainable Agri-Food Systems in Africa*”. This topic is intellectually engaging for me for a plethora of reasons which I will briefly speak about.
5. As an African who has spent all my life in studying, teaching, researching, investing in, advising on, and doing development in Africa, I have never ceased to ponder on several questions around the nature of Africa’s agriculture and agri-food systems, as indeed other economic development sectors.

6. A number questions have always elicited my contemplation. Why is Africa so well endowed, yet so deprived? Why is Africa so wealthy yet millions of Africans are so poor?
7. Africa, a continent of 54 countries and 1.3 billion people, constitutes about 16% of the world's population, holds about 65% of the remaining arable land in the world, has enormous potentials in renewable and non-renewable energy resources, minerals, and fish stock. About 41% of its population is currently under the age of 15 years, compared to 28% in Central America, and 24% in Asia and South America. Africa is therefore the most youthful population of all continents today.
8. It is projected that over the next 30 years, more than half of the world's population increase will be in Africa<sup>i</sup>. By 2100, 80% of the world's population will be in Africa and Asia.
9. In my view, the statistics above can only lead to one conclusion. The development and management of Africa's wealth of natural and human capital will define our global common future. Without achieving the sustainable development goals (SDGs) in Africa, the global SDG's will not be achieved.
10. More specifically, building resilient and sustainable agri-food systems in Africa, would not only improve the quality of lives of Africans; it has significant implications for inclusive growth transitions and sustainable development globally.
11. Africa's demographic trends, including its youthfulness could either present great labour market opportunities for African Countries and other countries globally; or present significant risks of increased population pressures, unfettered rural-urban and international migration of unskilled youth, deepened rural poverty, social inequalities, environmental degradation, and other forms of fragilities that can easily erode the economic progress and quality of lives in Africa and globally.
12. Agriculture, the sector that employs over 60% of Africans, especially youths and women in our rural communities, and presents unique opportunities for addressing these growing social, economic, and environment challenges within and across national and continental borders. Building resilient and sustainable food systems in Africa is therefore crucial for building sustainable economies and livelihoods, everywhere.
13. This lecture could not have been better targeted and timed. The global food system accounts for 10% of the world GDP and employs 1 billion people<sup>ii</sup>. In September 2021, the UN Secretary-General will convene a *Food Systems Summit* as part of the events lined up to mark the decade of action for achieving SDGs by 2030.

14. As stated by the organizers in the concept note for the event, this lecture is part of the “*Food Systems Summit Dialogues (FSSDs)*” for generating game changing ideas from global, national (and sub-national) and independent dialogue sessions.
15. I therefore encourage us to read between the lines and think outside the box to come up with game changing actions that can lead to the transformation of agri-food systems in Africa. Africa is often a subject of development policy dialogues both within and outside Africa for decades. Innovative policy recommendations are mostly available to Decisionmakers. But the challenge is often in implementation.
16. In preparing for this lecture, I have drawn from Africa Agriculture Status Reports including the 2021 report focusing on “*A Decade of Action: Building Sustainable and Resilient Food Systems in Africa*” which I am co-editing with colleagues<sup>iii</sup>, a report of the African Development Bank Group (2020) on “*Building Resilience in Food Systems and Agricultural Value Chains in post-COVID-19 Africa*”<sup>iv</sup>; a report of the World Bank on “*Harvesting Prosperity: Technology and Productivity Growth in Agriculture*”<sup>v</sup>; and a USAID Board for International Food and Agriculture Development (BIFAD) report on “*Agricultural Productivity Growth, Resilience, and Economic Transformation in Sub-Saharan Africa*”<sup>vi</sup>; a cursory review of existing literature and my previous work on the subject.

## **SECTION 1: CURRENT STATUS OF FOOD SYSTEMS IN AFRICA**

17. The global supply of food has nearly tripled since 1970 and food exports have grown six-fold over the past 30 years. A third of all food produced globally is wasted each year.
18. Yet about 135 million people faced starvation at the end of 2019, 73 million of which were in Sub-Saharan Africa. In 2020, the UN World Food Program estimated that the number of people on the brink of starvation globally could double by the end of 2020 to about 265 million.
19. In a more recent joint flagship report by [FAO, IFAD, UNICEF, WFP and WHO](#) (2021), it was estimated that between 720 and 811 million people in the world faced hunger in 2020<sup>vii</sup>.
20. This above suggests that that building an inclusive and sustainable food system is not about increasing agricultural output and/or the global supply of food alone. This is necessary but not a sufficient condition for achieving a sustainable agri-food system.
21. As defined by FAO (2018), a sustainable food system as one that delivers food and nutrition security for all in such a way that the economic, social and environmental bases to generate food security and nutrition for future generations are not compromised.

22. Typically, an “*agri-food system*” includes the combination of activities and institutions that shape the sustainable production and consumption of food in a society<sup>viii</sup>. See **Figure 1**. It requires significant investments in the hard and soft infrastructures needed to build and sustain the system – from input supply, on-farm production, agricultural product processing, distribution and logistics, marketing, food consumption and food waste recycling.



Figure 1: Examples of components of an inclusive, resilient, and sustainable agri-food system<sup>1</sup>.

23. On the other hand, **resilience** is generally defined as the capacity of a system to absorb shocks, adapt to them, and transform itself to maintain its core functions after the shock.
24. “Capacity” is “the availability of resources and the efficiency and effectiveness with which individuals, organizations, or institutions deploy these resources to identify and pursue their development goals on a sustainable basis”<sup>ix</sup>.

<sup>1</sup> An inclusive food system is shaped by interactions amongst several spheres of the human experience: the food system, water and sanitation, social environment, education systems, the physical environment and infrastructure including the quality of the human habitat, health infrastructure, social infrastructure, and the environment, etc. The policy interlinkages must be considered in the design of an inclusive and resilient agri-food system.

25. Institutions are the formal or informal *rules of the game* of a society<sup>x</sup>. Organizations are the *actors or players* – groups of individuals bound by a common purpose to achieve defined objectives within the rules of the game.
26. Individuals are the key actors and beneficiaries from both institutional and organizational systems of a society.
27. Knowledge includes facts, information, and skills acquired through experience or education, the theoretical or practical understanding of a subject.
28. The notion of food systems resilience therefore builds upon the human, organizational and institutional capacity required to enhance the absorptive, adaptive, and transformative capabilities of the agri-food system.
29. The quality of knowledge, individuals, organizations, and institutions in a country ultimately define the quality, resilience, and sustainability of its agri-food system. COVID-19 pandemic has demonstrated the risks and uncertainties associated with dependence on global knowledge systems and value chains. Building endogenous knowledge and institutional capacity of a country to feed itself has therefore become more urgent now than ever before.
30. In other words, food systems (and indeed any other economic system) functions according to the capacities of the individuals, organizations, and institutions engaging in them.
31. Specifically, institutional capacities of countries shape the performance of economies through their effects on the costs of exchange and production and on technological progress<sup>xi</sup>.
  - Institutional capacity drives transaction costs, the creation of markets, specialization and division of labor, economic productivity, and economic performance of countries. It also drives the behavior of organizations, the process of creative disruption, technological progress, and wealth creation in countries.
  - Institutional capacity constitutes the “*soft infrastructure*” that shapes the way economies cope with market failures and exogenous shocks like COVID-19.
32. There is need to adopt a whole systems approach to agri-food systems development in Africa, rather than focus on input supply and increased on-farm productivity.
33. Africa has developed several plans to foster agricultural productivity at national, regional and continental levels. The Comprehensive African Agricultural Development Program (CAADP), the Malabo Declaration, Africa Union Agenda 2063 and the Feed Africa

Strategy of the African Development Bank Group, are among the pan-African initiatives that provide continental frameworks for the region's agricultural and regional development. While these provide sound frameworks for agricultural transformation in Africa, more concerted and sustained actions are required to implement them at scales that can achieve resilient and sustainable agricultural food system development in Africa. For example, African Governments pledged to commit 10% of national budgets towards agriculture under CAADP. However, this is a pledge that only a few countries have fulfilled.

34. Investments in agricultural research, technology development, education and extension services remain among the lowest compared to other continents of the World. In general, Africa's gross investments in research and development is among the lowest of all regions in the world (see Figure 2).

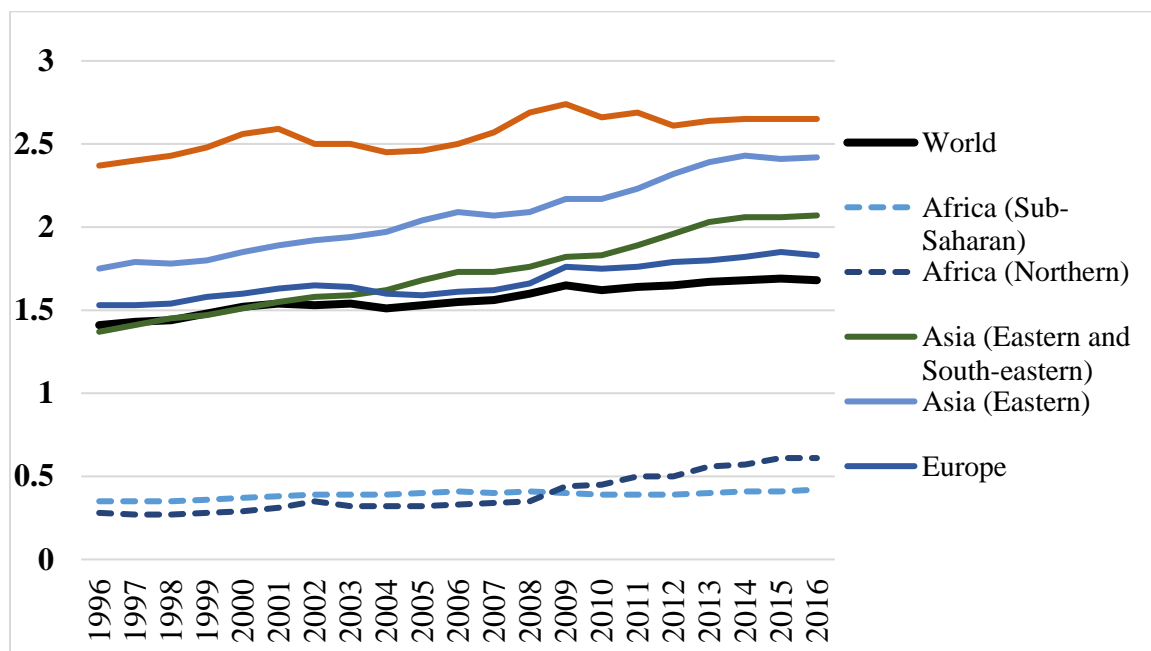


Figure 2: Government Expenditure on Research and Development (GERD) by SDG Regions, 1996 -2016

- GERD in all high-income countries has been over 2% of GDP since the year 2000<sup>2</sup>. In Africa, GERD was consistently below 0.4% of GDP on average until 2004, rising

<sup>2</sup> In 2017, the GERD was 1.66% (world average), East Asia (2.32 %), Europe (1.84 %) and North America (2.65 %), Israel (4.58 %); Republic of Korea (4.55 %); Sweden (3.3%); Japan (3.2 %); Germany (3.04 %); Denmark (2.98 %) , Finland (2.7 % ); United States of America (2.8 %), France (2.19 %) Norway (2.11 %); United Kingdom (1.67 %).

marginally to 0.42% and 0.61% in Sub-Saharan and Northern Africa, respectively, in 2016<sup>3</sup>.

- Investments in African institutions (from both external and domestic sources) accounted for only 0.8% of the \$2 trillion spent on research and development globally in 2018<sup>xii</sup>. This limited investment in African institutions undermines locally driven research and development and creates a weak environment for innovation in Africa's agri-food system.
  - Within this limited funding environment, the dominance of external funding in Africa's agri-food research systems and the nature of those funding programs, often deployed through external intermediaries based in the funders' home countries create structural constraints that further exacerbate institutional capacity deficits on the continent.
35. Consequently, value addition post farm in Africa is low by international standards. While some progress has been made by several countries in driving increased agricultural productivity during the past decade, Africa's food systems remain fragile – very vulnerable to shocks from diseases, climate change, extreme weather events, conflict, policy instability and other market failures.
- Available data show that Sub-Saharan Africa (SSA) has registered the most rapid rate of agricultural production growth since 2000 of any regions of the world.
  - However, roughly 75% of the agricultural production growth in Sub-Saharan Africa (SSA) since the year 2000 came from the expansion of area under cropland (agriculture extensification) rather than factor productivity improvement. The latter – meaning agricultural products per unit of input (for example crop yield per hectare of land used) is lowest in Africa compared to other world regions (see Figure 3).

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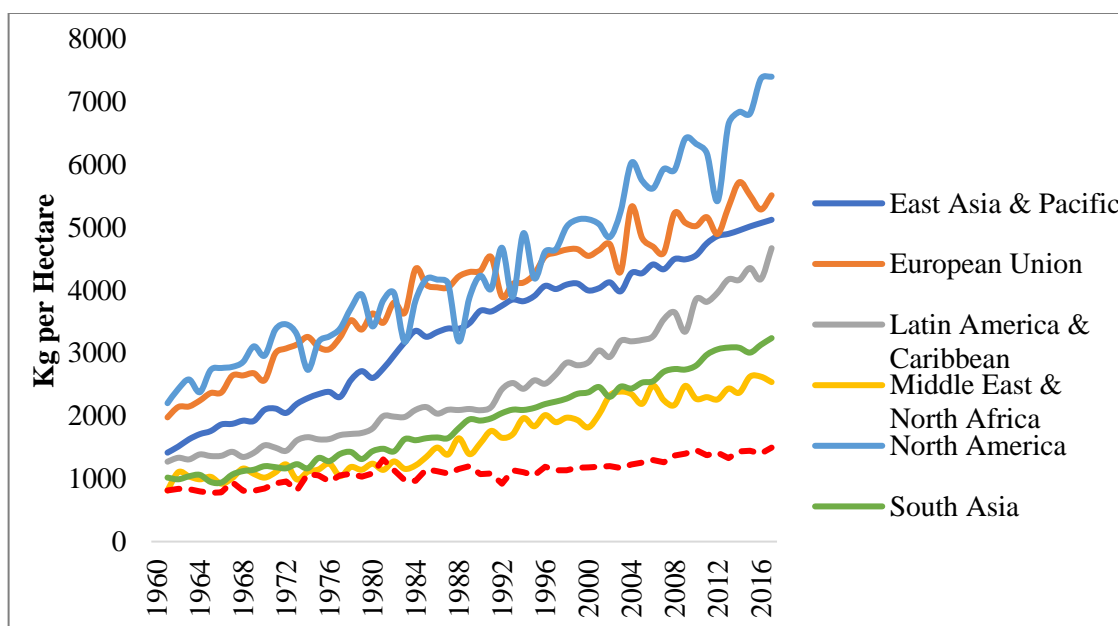


Figure 3: Cereal Yield (kg per hectare) by Regions 1960 - 2017

- Only about 25% of growth in agricultural output in SSA came from crop yield improvements per factor of production during the period.
36. Agricultural productivity driven by land-use extensification rather than technological innovations that drive sustainable intensification is neither resilient nor sustainable.
- The emphasis on land use extensification has significant implications for deforestation, biodiversity loss, and other ecosystem services. Hence in Africa, the agriculture, forestry, and land use sector constitute the largest contributors to climate forcing green-house gas emissions. The increased pressure on available land also present trade-offs for other economic uses. This has significant negative externality costs for African economies, and implications for global sustainability.
37. The level of agricultural technologies and other innovations which can drive factor productivity growth and value addition along agricultural value chains remain among the lowest in Africa compared to other regions of the world.
- Investments in agricultural technologies – including farm inputs (seed systems, soil nutrient enhancing technologies (organic and inorganic fertilizers), production technologies (mechanization), processing, logistics and marketing technologies are often discussed in the context of adoption of technologies produced elsewhere, with



little attention to what needs to be done locally to upgrade existing technologies and/or build capacity to develop new ones.

- Again, this locks Africa's agri-food systems to global markets where Africa exports primary agricultural commodities with limited or no value addition. Reliance on agricultural commodity exports with little value addition leaves countries with limited returns and exposes the agri-food system to global market price shocks.
- As shown in Figure 4 below, the real prices of key agricultural commodities produced by African countries have tended downwards over time. This means that countries get less value over time for exporting primary agricultural commodities. The true economic value of these commodities often goes to technology owners who add value to commodities along the global value chains.
- It is common knowledge in economics that Consumers cannot declare profit. If Africa remains consumers of agricultural science and technologies requires to add value to agricultural commodities, countries will remain price takers in the global food markets.

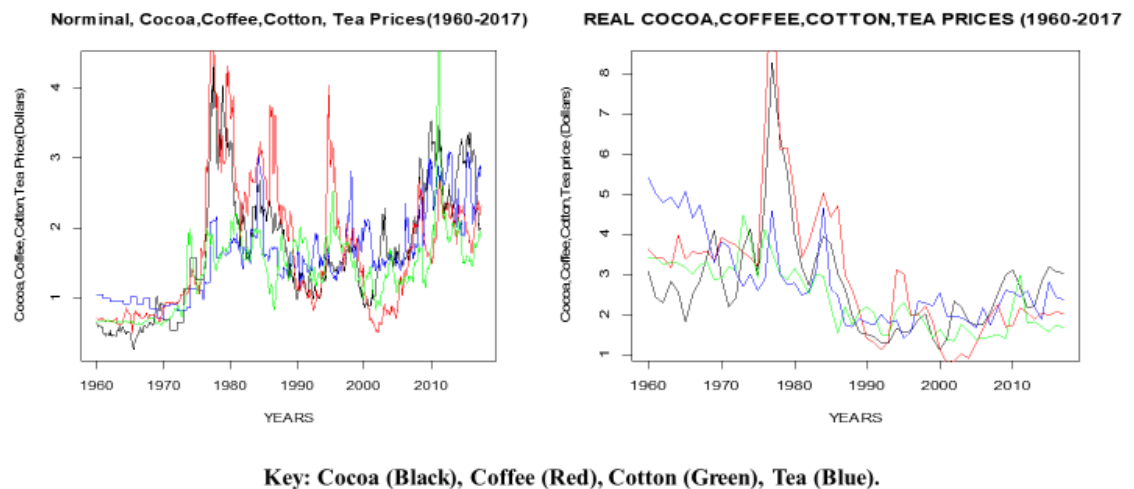


Figure 4: The nominal and real prices of cocoa, coffee, cotton, and tea 1960 -2017

- Farm input supply systems, food processing, packaging, and distribution / logistics as well as agricultural market and regional market integration in Africa will remain vulnerable to the risks of multiple external shocks, including fluctuations in the global food markets.
38. Despite holding over 65% of the remaining arable land on earth, African countries rely heavily on food imports to feed its citizens.

- Africa currently imports about 12% of its food needs, with food import bill increasing from US\$37.4 billion in 2007 to over US\$68 billion by the end of 2019; and could rise to over US\$110 billion by 2025<sup>xiii</sup>.
  - The huge food import bills continue to drain the fiscal balances of African countries and imported foods continue to displace locally produced food products in Africa's food markets. The substitution effects of cheap food products often made available in African markets through market competition policies and implicit agricultural subsidies in the exporting countries create disincentives for local entrepreneurship and small businesses in Africa's agri-food systems.
  - The ongoing COVID-19 pandemic has further exposed the risks of over reliance on global value chains, especially for life-saving products such as food. There is a need for countries to consider policies that encourage small and medium scale enterprises, deepens inter-regional trade, especially in Africa's staple crops and indigenous technologies, and improve comparative and competitive advantages in the global markets and global value chains where possible. Continued reliance on agricultural inputs and food imports to feed Africa is a disincentive for local entrepreneurship and innovation in many countries.
  - A resilient and sustainable food system that increases productivity and minimizes the externality costs to society, economies, and the environment, concurrently can make the difference between life and death for millions of Africans during exogenous shocks such as COVID-19.
  - Africa will benefit from the upgrading of value chains in the national and regional food systems, but this process is best achieved through policies that support agricultural transformation more generally.
39. Regarding government expenditure in agriculture, Malawi is amongst the shining examples in Africa.
- In Malawi, the economy is heavily dependent on agriculture and vulnerable to external shocks, particularly climatic shocks.
  - Agriculture accounts for 30% of GDP
  - Agriculture generates over 80% of national export earnings.
  - The agriculture sector employs 80% of the population and 64% of the country's workforce

- Total agriculture expenditure accounts for 11% of the total budget in line with the recommended 10% budget allocation as per the 2003 Maputo declaration on agriculture and food security. It is however necessary for the country to expand the share of this expenditure that is allocated to agricultural education, research, and development to build local capacity in the sector. More investments are also required to diversify agricultural value chains and improve competitiveness in key national staple crops.
40. From the foregoing, the challenges of building an inclusive and sustainable agri-food system in Africa are diverse. These include:
- Low investments in agricultural education, research, technology development, and extension services.
  - Low factor productivity on farms. The high rate to growth in agricultural outputs are driven largely by area expansion (agricultural extensification) rather than factor productivity improvements (sustainable intensification).
  - Low levels of investment in technology and innovation shapes limited value addition across the agricultural value chains, and in turn, low return on investments in agri-food systems in Africa.
  - Lack of economies of scale limits capacity for competitiveness in global markets: According to a report by FAO, (2018), between 75 to 90 percent of the food consumed in Africa are produced by small-scale farmers. Most of these farmers engage in agriculture for subsistence, cultivating on average of under 2 hectares per farmer, with limited use of improved including seeds, fertilizers, and equipment.
  - Over-dependence on external markets for food and agricultural technologies creates disincentives for local entrepreneurship and strains fiscal balances of countries. Africa imports 12% of its food needs, with food imports bill increasing from US\$37.4 billion in 2007 to over US\$68 billion by the end of 2019.
41. At the root of these core drivers of food insecurity in Africa is weak knowledge systems and institutional capacity to build resilient and sustainable food systems across the continent.
42. A recent review of capacity development effectiveness in Africa-led capacity development organizations summarized in the African Development Bank Group's Capacity Development Strategy 2021 – 2025, show several constraints that impede the resilience and sustainable development of all economic sectors, including agriculture<sup>xiv</sup>. These include:
- Donor dependency and unstable funding for program implementation.

- Supply-driven agenda setting.
  - Low productivity and variability in the quality and relevance of work produced.
  - Low utilization of local capacity and low demand for technical services by African experts in African countries.
  - Lack of appropriate infrastructure for capacity development and research.
  - High staff turnover and brain drain due to lack of resources to offer competitive salaries and benefits.
  - Inability to cope with the rapid technological transitions in the respective sectors; and more generally, and
  - Non-conducive environments and incentives for quality research and impacts<sup>xv</sup>.
43. These constraining factors lead to lack of continuity and longevity in Africa-led institutions. In 2017, the Think Tanks and Civil Society Program at the University of Pennsylvania estimated that about 60% of think tanks in Africa were highly vulnerable, with a serious risk of disappearing due to unstable funding, staff turnover, and brain drain.

## **SECTION 2: EVOLUTION OF KNOWLEDGE AND INSTITUTIONAL CAPACITY DEVELOPMENT IN AFRICA: 1960 - 2021**

44. A quick review of agricultural policy landscape in Africa show that the objective has been shifting from building Africa's capacity to feed itself to feeding Africa. There has been a shift from a special focus on strengthening higher education in Universities and Colleges of Agriculture during the post-independence period, to increased share of support going into food aid, and humanitarian support.
45. The agricultural research policy during the colonial era focused on production of cash crops for exports. Thus, the focus was on research to produce cocoa, coffee, cotton, palm products, rubber, tea, sugarcane, and similar commodities. Later, livestock and food commodities were added<sup>xvi</sup>. The research landscape was dominated by foreign researchers.
46. In efforts to build capacities of local scientists to replace the foreign ones in the post-independence era that began in late 1950s to early 1960s, a series of Land Grant Universities and Colleges of Agriculture were established across the continent. These included the Alemaya College of Agriculture in Ethiopia (now Haramaya University); Ahmadu Bello University, Nigeria; Malawi's Bunda College of Agriculture, and School of Agriculture and Food Sciences, Njala University, Sierra Leone, among others. In further efforts to shore up the development of the capacities for the local scientists, the CGIAR entered the picture in the 1970s. Several international agricultural research centers were also established. These include IITA, ICRAF, ARC, ILRI, etc. The major value addition of these centers was their introduction and management of multi-country and inter-regional research, capacity building

and project management. The Forum for Agricultural Research in Africa (FARA) was added to the list of institutions in the late 1990s.

47. The support to the Land Grant Universities as well as the activities of the CGIAR centers significantly increased the percentage contribution of the agricultural sector to GDP across the countries.<sup>xvii</sup>
48. Several countries experienced significant increases in agricultural export earnings from several cash crops during the 1960s. This positive trend did not, however, continue.
49. A confluence of factors during the 1970s, including series of droughts and associated crop failures across the Sahel region (from Senegal to Ethiopia) and the associated spikes in food prices drained forex reserves in most African countries. The constrained national capacities to foot the rising food import bills shifted attention to urgent humanitarian support through food aid. This has not contributed to resilient and sustainable food systems in Africa. Donor competition and lack of coordination led to multiplication and duplication of programs, to the extent that most national governments are unable to track projects and programs within their countries let alone aligning them with national agricultural development priorities. Effectively, the generation of agricultural knowledge – science, technology, and innovations, became more of the preserve of international donors and research agencies rather than of national governments. The boom in other commodity prices (oil, gold, and minerals) during the 1970s shifted the focus in resource-rich countries away from agriculture.
50. During the 1990s and first decade of the 2000s, there was an emerging consensus amongst researchers and policy analysts that policy incentives to refocus on building knowledge institutions is a pre-condition for achieving sustainable agricultural development in African economies. Many countries established policy research institutions to support policy analyses for informed decision making. Some examples include the Agricultural Policy Research Unit (APRU) at Bunda College in Malawi; the Tegemeo Institute at Edgerton University in Kenya; Ethiopia's Agricultural Transformation Agency (ATA), and several Non-Governmental Organizations, Think Tanks and Networks established to deepen local agricultural policy research, each providing critical inputs to the policy and practice of agricultural transformation in Africa. These efforts continued and expanded into building continental and regional networks.
51. The CAADP process was launched in Maputo in 2003 by the African Union. Yet core funding for these institutions remained mostly externally provided. With frequent changes in donor priorities, these agricultural research organizations and networks continue to face existential challenges. National Agricultural Research Organizations (NAROs) continue to face significant budget constraints. New initiatives are beginning to emerge since 2000. Yet, the funding model remain largely external.

52. As aptly noted by a report published by the Centre for Global Development (Ezeh and Lu, 2019):

*“Africa tends to be a child with many parents, very many parents. And unfortunately, most of the parents want their child to learn how to walk their way... and most of the parents do not want to hear and listen to the child when the child is asking to walk their [own] way. Our researchers, our PhDs, our patents, our ideas, we are a child, and nobody wants to allow us to walk our way. If you unpack that analogy, there’s quite a bit in there.”<sup>xviii</sup>*

53. With few exceptions, knowledge and institutional capacity development investments in Africa since the 1980s has focused on short-term, programmatic objectives, designed and driven by external funders, and spread thinly across multiple organizations in multiple countries, and at levels of investment that barely go beyond meeting immediate organizational or programmatic needs of the supported African institutions and the donors that support them. In addition, the limited engagement of African stakeholders in the design and funding of these efforts means the efforts often collapse once the contributions of the external funders cease<sup>xix</sup>.
54. In summary, the evolution of investments in knowledge and institutional capacity development in Africa require a critical review. While the pre- and post-independence interventions focused on building endogenous knowledge and institutional capacity for Africa to feed itself, the focus since the 1980s has shifted towards feeding Africa instead of helping Africa to feed herself. The impacts of this transition speak volumes. Africa has remained the continent with the most food insecure citizens in the world (see Figure 5).

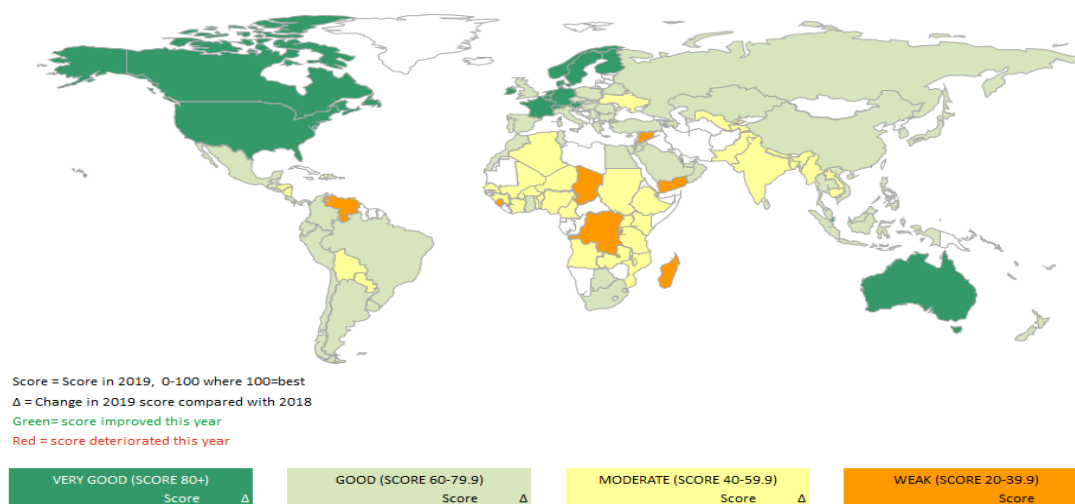


Figure 5: Global Food Security Index, 2019<sup>xx</sup>

55. Investment in agricultural research and development, education and extension, and supportive policies that drive on-farm and off-farm technical innovation, agribusiness,

marketing and finance and sustainable consumption and recycling are all preconditions for a resilient and sustainable agri-food system. It requires efficient markets that drive private investment and technical innovation at the various stages of the upstream and downstream food systems.

56. The resilience and sustainability of a food system is therefore not just about increasing farm productivity. It is about how and where we source farm inputs, the farming systems adopted to transform them into food products, processing, aggregation, preparation, storage, distribution, transportation, marketing, consumption, and recycling of food<sup>xxi</sup>.
57. Review of recent evidence in independent publications of the African Development Institute of the African Development Bank Group<sup>xxii</sup>, the World Bank Group<sup>xxiii</sup> and USAID Board for International Food and Agriculture Development (BIFAD)<sup>vi</sup>, underscored the importance of technical innovation driven by research, development, and extension (RD&E) as drivers of agricultural productivity growth, and the catalytic role of agricultural productivity-led growth in poverty reduction, food systems resilience, and economic transformation. Existing evidence show that investments in agricultural RD&E generate among the greatest impacts on agricultural productivity growth and poverty reduction per dollar spent. With the low gross expenditure on agricultural RD&E in African countries, currently below the Khartoum Target of 1% of Agricultural GDP, the agri-food system in African countries remain highly exposed to exogenous shocks in global value chains to which African countries contribute little. In effect, these challenges not only present existential threats to many African think tanks, but they directly impact the resilience capacity of agri-food systems and broader economic transformation on the continent.

### SECTION 3: RECOMMENDATIONS:

Before going to proffer some recommendations, let me restate some key points of the lecture:

- a. **First, for Africa to build a sustainable agri-food system, there is need to re-focus on sustainable intensification and factor productivity growth not area expansion:** Raising farm productivity on existing farmland is among the most important ways to make African food systems more resilient and sustainable. <sup>iii</sup>.
- b. **Second, existing evidence show that investment in technical innovation driven by education, research, development, and extension (RD&E) is the key driver of agricultural productivity growth and a catalyst for agricultural productivity-led growth, poverty reduction, food systems resilience, and economic transformation in countries. <sup>iii</sup>****Error! Bookmark not defined.**

- c. **Third, investments in agricultural RD&E** have been consistently found to generate great impacts on agricultural productivity growth and poverty reduction per dollar spent.<sup>v</sup> Most African governments invest less than 1% of agricultural GDP on agricultural research and development. Strengthening national agricultural research & development and extension services (RD&E) to deliver improved farm inputs – seeds, soil nutrient and water management, farm mechanization, logistics and infrastructure development that support regional value chain development and trade are critical for agri-food systems resilience.
- d. **Fourth, a whole systems approach and full cost-accounting is required:** Building inclusive, resilient, and sustainable African food systems means adopting policies and making investments that lower the price of quality food for consumers, and minimize the externality costs to human health, the physical environment, and the fiscal capacity of countries. Majority of African households spend more than 40% of disposable income on food on average and is much higher in Nigeria with household spending approximately 50% of disposable income on food. This is not sustainable.
- e. Fifth, achieving sustainable agri-food systems in Africa require a combination of *traditional agroecological principles and farming systems* including “*green revolution technologies*” African countries need to harness the existing knowledge and lessons learned from *traditional agroecological principles and farming systems* and “*green revolution technologies*” that can drive sustainable intensification with their local conditions. We often get locked into intellectual debates on whether Africa should adopt organic farming and other environment-friendly and agro-ecological principles, of the modern green revolution technologies such as improved seeds, inorganic fertilizers, etc. In my view, this is a false narrative. The real policy question for me is how Africa can build local capacity to harness both systems to feed its citizens in an inclusive and sustainable manner. Improved seed varieties and inorganic fertilizers that can increase factor productivity are essential, and so is the use of sustainable agro-ecological principles - organic inputs and integrated soil fertility management practices, which are in fact, indigenous farming systems in Africa. Africa needs context-specific, climate-smart, sustainable agri-food systems that are embedded in the beautiful diversity of the agro-ecological zones in the continent. Ideological debates would not save the millions of Africans dying of starvation today.<sup>iii</sup>

### 3.1 RECOMMENDATIONS FOR AFRICAN GOVERNMENTS<sup>4</sup>

- 1. **Demonstrate political commitment for national agricultural RD&E investments.** National governments need to demonstrate commitments to investing in R&D rather than relying on the donor community to do it for them. This will help to scale RD&E input in locally relevant, adaptive national level agricultural research and development, make national RD&E more accountable to national entities, improve institutional absorptive capacity for internationally funded RD&E, and enhance local ownership of the RD&E agenda aligned

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<sup>4</sup> These recommendations are also included in the AGRA. (2021). Africa Agriculture Status Report. A Decade of Action: Building Sustainable and Resilient Food Systems in Africa (Issue 9). Nairobi, Kenya: Alliance for a Green Revolution in Africa (AGRA)-In press.



to national priorities to drive resilience and sustainability in the sector. Local content should be prioritized in the entire research and capacity development process. They should demonstrate this commitment through sticking to commitments such as the Maputo Declaration to increase annual national budgetary allocations for agriculture to at least 10% and to ensure a growth of the agricultural output of at least 6 % annually. Indeed, given the enormity of financial resource requirements in Africa, countries should leverage and build on investments of international donor and private sector investments. Another way the government demonstrates its commitment is by investing time and efforts in developing policies and regulatory reforms that facilitate private sector and foreign direct investments in the food production system. The focus should be on radical change from the *status quo*. The key to achieving meaningful development and poverty reduction in Africa lies in its willingness and readiness to invest in its knowledge institutions.

2. **Develop and support the National Agricultural Innovation Systems (NAIS) with a focus on adaptive, sustainable, and competitive agri-food systems in Africa.** This can be achieved through honouring the Maputo Declaration. Each NAIS should focus on local relevance, strengthening national and regional agri-food value chains, regional trade competitiveness, and climate resilience. The African Continental Free Trade Agreement (AfCFTA) will provide expanded markets for African farmers and provide incentives for the adoption of farm technologies that increase productivity; those technologies need to be developed and adapted to the highly varied farming conditions in Africa in order to realize these benefits.
3. **Prioritize inclusive, demand-driven, and adaptive agricultural research and technology capacity development.** There are several undergoing agri-food production technology adaptation trials at different locations across African countries. These attempts are already field tested regarding their suitability and performance on different moisture and soil conditions as well as field size in the African context. But they are under-funded and under-staffed. Knowledge and capacity development that aims to deliver technology and innovation that is adaptive to environmental changes and local contexts would most likely be better embraced because it already revealed and reflect the preference and choice of local stakeholders (innovators, women, and youth) who are usually smallholders. Building on this existing foundation through field trials, exhibitions, and demonstrations will likely have more lasting impact on resilience of agri-food production systems. Knowledge and technology capacity development that is demand-driven and emphasizes upscaling and out-scaling of the existing local adaptive technology trials promise to be more sustainable, resilient and relevant to the needs of the people.
4. **Invest in digitalization of the African agri-food systems.** The global agri-food system has always been under stress. This has been recently exacerbated by the COVID pandemic

through additional strains on labor supply, farmers' access to information and local markets, food supply chains for food-dependent countries, and logistics. Digitalization offers succor to most of these challenges, just as it is the future of global socioeconomic interactions and transactions. In addition to providing succor, it also provides emerging abundant opportunities through making the food system more effective, efficient, transparent, traceable, and sustainable. For example, agri-food digitalization does not only promote food safety, but also assist food business operators to properly and more accurately predict and monitor consumer food demand trends over the immediate to the long term, thus improving food and nutrition security. Agri-food digitalization also reduces transaction costs associated with buying and selling agricultural produce and food. To achieve agri-food digitalization, there is need for massive investment in upscaling the e-technology platform across the continent. Intellectual property ownership, food systems governance, data protection and data sharing between food businesses and governments, intellectual property management, investment in technology adoption and innovation incubation are some of the key issues requiring attention for any form of food digitalization to succeed. The government needs to take the lead by undertaking an integrated bit-by-bit digitalization of their economies with a view to moving toward digitally driven engagements that guarantee data and information flow. To ensure no one is left behind in the food system digitalization process, the youth and rural communities must be empowered to continue to be relevant in the agri-food system. This requires specialized capacity development on digital solutions and geospatial systems for these important players in the agri-food value chain.

5. **Promote enabling business environment and facilitate public-private partnerships and dialogues.** The primary role of the government in promoting a sustainable and resilient agri-food system is ensuring that the relevant conducive business environment is created through relevant regulatory and private sector reforms. Regulatory frameworks that hinder the private sector access to land, credit, inputs, and other relevant requirements for establishing, building and nurturing agri-business will stifle and stunt innovation and solution-driven interventions. Deliberate efforts must be made by the governments at all levels to unclog and remove the barriers. For example, land tenure, ownership and title system in many countries stifle private sector involvement in agri-food production systems and impede agricultural productivity growth, which is an important component of resilient and sustainable food systems. Fiscal, monetary, trade and competitiveness policies as well as private sector regulation are some specific areas of reforms required to promote access to financing and inputs. Such reforms will also reduce pressure from foreign competition and dumping of inputs and food items that can be produced locally.
6. **Support strategies to promote capacity development for youth and women entrepreneurs in the agri-food sector.** For example, African women face elevated social and economic challenges, even given the fact that they comprise more than 50% of the

agricultural workforce. They often lack access to productive resources, agricultural inputs, information, finance, services, markets, social protection. Some of such policy incentives may include: land-use policies that grant land ownership rights to youths and women; targeted policies that expand investment opportunities in food systems by small and medium scale firms; public investments that improve the productivity of farming as a business; Investments in rural infrastructure that lower the costs of agri-business; rules-based marketing and trade policies that mitigate political risks; targeted capacity building programs for youth and women-owned agri-businesses; education systems upgrading to improving the skill base of youth and women; public investment in developing strong national adaptive RD&E; market access improved conditions through investing in hard and soft infrastructure – including ICT, energy, rural road networks, and regional markets; incorporating in national policies lessons learned from the current efforts by the African Development Bank Group’s Enable Youth Program, Agri-prenure Program and the AFAWA initiative.

7. **Invest in targeted RD&E to upscale urban food system, animal husbandry and aquaculture in Africa cities.** The population of Africa is projected to increase by 30% by 2050, with the urban share reaching 65%. Henceforth: Scaling up urban food systems development can deliver significant multiplier effects for the economies of cities and the environment. Livestock and fisheries sectors, especially small-scale livestock and fish production systems with breeds that are resilient to extreme heat and diseases, can increase production and consumption of animal-sourced food

### 3.2 RECOMMENDATIONS FOR PAN-AFRICAN DEVELOPMENT ORGANIZATIONS<sup>5</sup>

8. **Establish an Agricultural Science, Technology and Innovation Fund for Africa (ASTIA – Trust Fund)** – to identify and leverage opportunities for strengthened cooperation and coordination among national, regional, and international RD&E funding in the spirit of the Paris declaration on aid effectiveness. The rationale for this Fund derives from the existing gap in science and innovation financing in Africa. In addition, with Africa accounting for 60% of remaining arable land globally, this demands a coordinated knowledge system that optimizes local knowledge and indigenous skills to develop these potentials. Establishment of the Fund will provide steady flow of funds for Africa-based institutions undertaking innovations in research, development, and extension through development of local and indigenous skills. This will promote and resuscitate local contents in agriculture and food systems technology. Establishment of the Fund should be as inclusive as possible, spread across public, private, bilateral, multilateral, and development financial institutions.

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<sup>5</sup> These recommendations are also included in the AGRA. (2021). Africa Agriculture Status Report. A Decade of Action: Building Sustainable and Resilient Food Systems in Africa (Issue 9). Nairobi, Kenya: Alliance for a Green Revolution in Africa (AGRA)-In press.

9. **Invest in capacity for deepening regional value chains and intra-Africa trade:** The prospect of a unified African market with more than a billion consumers and a combined GDP of more than US\$2.5 trillion presents vast opportunities for agribusiness. To realize this potential, **African countries should effectively implement the African Continental Free Trade Agreement (AfCFTA).** The additional state revenues from greater intra-Africa food trade can finance additional public investments to make their food systems more resilient and sustainable.

### 3.3 RECOMMENDATIONS FOR THE PRIVATE SECTOR<sup>6</sup>

10. **Be solution-driven and innovate.** Given the myriads of challenges facing the African agriculture and food system, the private sector has ample opportunities to innovate through solution-driven interventions and technology solutions as long as the enabling environment is supportive. The role of private sector here is to harness the opportunities offered by the public sector through promotion of an enabling environment to promote agro-industries and agribusiness development. These interventions promise good return on investment, thus helping the private sector to achieve its primary motive: profit. They also reduce transaction costs in the production, management and distribution processes, thus benefitting both producers and consumers. Other ancillary beneficial outcomes include increased decent employment opportunities, especially for women and youth, and promotion of competitiveness and value addition in the food system.

### 3.4 RECOMMENDATIONS FOR INTERNATIONAL DONOR PARTNERS<sup>7</sup>

11. **Demonstrate sustained commitment to institutional capacity development, and knowledge and technology transfer by shifting funding models to benefit long-term institutional capacity for agricultural research, technology and innovation governance in national, regional and pan-Africa research organizations and networks.** Supporting national, regional, and continental institutions through scaled agricultural RD&E investments would help to leverage international donor and CGIAR investments and enhance multiplier effects of such investments. Current models on programmatic support crowds out opportunities for long term institutional capacity and good governance of agricultural research, technology and innovations which are in themselves the foundations for structural transformation and resilience and sustainable development.
12. **International development partners are encouraged to integrate inclusive, demand-driven, and adaptive agricultural research prioritization and technology development,** both tacit and codified knowledge systems, and public and private sector

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<sup>6</sup> These recommendations are also included in the AGRA. (2021). Africa Agriculture Status Report. A Decade of Action: Building Sustainable and Resilient Food Systems in Africa (Issue 9). Nairobi, Kenya: Alliance for a Green Revolution in Africa (AGRA)-In press.

<sup>7</sup> These recommendations are also included in the AGRA. (2021). Africa Agriculture Status Report. A Decade of Action: Building Sustainable and Resilient Food Systems in Africa (Issue 9). Nairobi, Kenya: Alliance for a Green Revolution in Africa (AGRA)-In press.

actors across all agricultural research and development efforts. This should include community-based endogenous knowledge systems that are yet to be codified in the language of modern science, experiences gained through various forms of research and enquiry, as well as social innovations among African youths and women, farmer-based organizations, and other similar stakeholders.

13. **Restructure the global development finance architecture to give more access to African countries in financing education, research and extension in agriculture and food systems resilience.** While rich countries can borrow at zero or almost zero cost, African countries are unable to borrow or are borrowing at extremely high rates to provide the basic needs and rights of their citizens that include the right to food. The global development finance architecture should be reconfigured to allow African countries, including other low income and middle-income countries, to borrow at rates and terms like the rich countries. Without such favourable borrowing conditions, financing education, capacity development, research and extension in agriculture and food system resilience will remain a mirage in most African countries and the current hunger pandemic narratives would remain unchanged.

#### 4 CONCLUSION

Developing knowledge and capacity for resilient agri-food systems in Africa involves a simultaneous development of sustainable policies and sustainable institutions. These involve a lot of interlinked issues that include sustainable financing for capacity development at individual, organizational and institutional levels which are all pre-conditions for agricultural transformation in Africa. It also involves development of local content in the wide areas of R&D investment, agenda setting, and policy priorities.

One important lesson that has been learned from economic development history is that development cannot happen from outside. African agriculture cannot be transformed by external interventions and financing alone. There is need for African Governments to take ownership and prioritize investments in building regional and national institutions to address regional and national development needs. To be clear, models that provide emergency responses for technical assistance and food needs are necessary for short-term solutions. Sustainable agricultural transformation requires sustainable investments in strengthening Africa-led institutions where local experts lead agenda setting, implementation, monitoring, and evaluation. To this end, the African Development Bank Group has approved a new Capacity Development Strategy (CDS 2021 – 2025) that provides the framework for the Bank's capacity development interventions in its Regional Member Countries for the period. Among the key priorities of the strategy is to work with partners to establish a Knowledge and Capacity Development trust Fund for Africa (KCDFT). The Fund will mobilize resource to scale up the bank's support to African knowledge and capacity development institutions including in agriculture and agri-food systems. The Strategy also includes a program to support countries in Country Capacity Development Needs Assessments (CCDNAs) to provide specific capacity development diagnostic reports that identify priority areas where investments are required to build national capabilities in key economic development sectors in the Regional Member Countries. The Bank looks forward to working with its Regional Member Countries to

implement the capacity development strategy to address the knowledge and capacity development needs of Africa.

Another important fact that must be considered in the process of developing knowledge and capacity for resilient agri-food systems in Africa is the importance of scale. The required capacity must be developed at a scale that can make the necessary positive dent on agri-food systems. This, in turn, requires effective networks, partnerships and collaboration at all levels, ranging from global to community levels. Indeed, no one government, development finance institution, donor, or agricultural policy institution is either sufficiently well-equipped or buoyant to meet the diverse development needs of the agri-food sector. Therefore, institutional networking and collaboration is needed to tackle the challenges. The conditions required for such partnerships, and collaboration to blossom must be created through institutional networks and collaborative platforms that can deliver the needed scale.

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