Enhancing Agriculture and Food Security for Sustainable Development in Africa

Sustainable Agriculture and Food Security in Africa

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Outline of the Presentation

Introduction

- Decolonization of Africa
- Strengthening African Agriculture Value Chains
- The Pursuit of Food and Nutrition Security
- Critical Role of Policies and Institutions
- The Challenge of Agricultural Research and Innovation
- Policy Gaps and Future Perspective

Introduction (1/3)

- Agriculture will remain an important and driving sector of the African economy, the main source of livelihoods for majority of people in rural Sub-Saharan Africa (SSA).
- The sector contributes 15% of GDP, employment for 50% of the labour force - 47% are women, main income source for Africa's rural population estimated at 64%.
- Agriculture production in Africa has increased steadily over the last 30 years, with its value almost tripled (+160%).
- The agriculture growth is on average 4.3% during the period 2003-2017 which is 1.7 less the 6% annual growth set under the CAADP.

Introduction (2/3)

- The agricultural labour productivity grew at 1.6% annually (2003-2008) and at 2.5% annually from 2008 to 2017.
- Land productivity grew more rapidly at 3.2% and 5.3% during the two periods.
- The population in Africa is currently estimated at 1.2 billion where the majority are women and youth and it is yet to grow.
- The entire population is relatively young with a median age of 19.7 years old compared to 30.4 years old for the global median age.

Introduction (3/3)

- These trends in terms of population growth summarises the scale of agriculture challenges: feeding the ever-increasing population in Africa, create wealth, and conserve resources for the future.
- The above challenges, among others, call for <u>transformative</u> <u>changes in agriculture and food systems</u> to achieve Africa without <u>hunger and malnutrition and to protect the natural resources</u> <u>base required for feeding present and future generations</u>.
- Responding to the increasing demand of food through the currently prevalent food farming and processing systems <u>will add</u> too much pressure on already scarce land, soil, and water resources, and further degradation of the quality of these resources.

Decolonization of Agriculture in Africa 1/5)

- During the colonial period, farmers were required to grow cash crops for export, <u>primarily to provide raw materials for industrial</u> <u>production in the metropolitan count</u>ries.
- The dominant cash crops for export: cocoa, coffee, tea, palm oil, and rubber in the rainforest areas of Central and <u>West Africa</u>; groundnuts and cotton in the <u>Sahel belt of West Africa</u>; sisal, tea, and coffee in <u>East Africa</u>; and sisal, sugarcane, and tobacco in <u>Southern Africa</u>.
- All these crops are still produced across Africa and exported without going through the necessary preliminary crop processing for value addition.

Decolonization of Agriculture in Africa: (2/5)

- The domestic consumption of the exported products is still too small. For example, the domestic consumption of coffee has only increased between 2.2 and 5.3 million of 60Kg bags during 1990/91-2015/16; Ethiopia being the main consumer.
- In the 1970s and 1980s, African agriculture began with chronically poor performance due to leadership problems, economic mismanagement, corruption, and political turmoil and internal conflicts which many African countries experienced during this period.
- During the same period agricultural output in SSA grew by only 1% per year on average, compared with 3% in Asia and other developing regions of the world.

Decolonization of Agriculture in Africa (3/5)

- During <u>1980s and 1990s Africa</u> ushered in the Structural Adjustment Programs (SAPs) and the economic recovery programs (ERPs) of the International Monetary Fund (IMF) and the World Bank.
- The programs exacerbated the lack of attention on the rural sector, smallholder farmers, and food crops.
- Some of the immediate effect of structural adjustment was to raise the prices of agricultural inputs, especially those of yieldenhancing technologies, such as fertilizers, pesticides, and machinery, which are typically imported.
- Furthermore, private-sector investments did not materialize as expected and new problems related to market failures surfaced.

Decolonization of Agriculture in Africa (4/5)

- In July 2003, African heads of state at the Second Ordinary Session of the Assembly of the African Union launched CAADP in Maputo, Mozambique.
- The main difference between CAADP and preceding development strategies in Africa is that <u>it emphasizes the role</u> of agriculture as the engine of economic growth and <u>development in its compact-signing countries.</u>
- Since its launch in 2003, CAADP has significantly raised the political profile of agriculture; has contributed to more specific, purposeful, and incentive-orientated agricultural policies; and has promoted greater participation of multiple state and non-state actors in agricultural policy dialogue and strategy development.

Decolonization of Agriculture in Africa (5/5)

- It is clear from the above that the efforts made in political freedom are not equal to those spared for the economic and particular the agriculture decolonization.
- Question: what will happen if European Union, USAID, DFID, the World Bank, and other development partners decide not to support the agriculture sector in African countries?
- The measurement of a decolonized African agriculture is the ability of Africa to finance its agriculture and strengthening its value chains.

Improving access to productive inputs:

Trends of fertiliser use in Africa, Asia, and the world

	2002	2009	2016
Sub-Saharan Africa [world's hungriest & most food-aid dependent region] – excl high income	-	14	16
Rwanda	-	-	35
Middle East + North Africa	89	84	95
Latin America/Caribbean (excl high income)	102	92	166
Developing countries	-	94	-
World	108	101	141
South Asia (India, Pakistan etc) [the region next in hunger to	100	104	160
SSA and in dependence on international food aid]			
High-income countries	117	120	130
European Union	166	198	158
East Asia/Pacific [China alone feeds 22% of the global population on 9% of its land area]	246	230	331

Irrigation and Mechanization: (1/2)

- Farming practices in Africa remain traditional: about 1% claim ownership of agriculture tractors).
- About 5% of HHs use some for of irrigation in the main growing season, covering only about 2% of land under cultivation in six countries namely Ethiopia, Malawi, Niger, Nigeria, Tanzania and Uganda (Sheahan and Barrett, 2017)
- Not benefiting from the yield potentials from irrigation and mechanization (90% higher than rain fed) due to their small incidences.



Irrigation and Mechanization (2/2):

Key Constraints :

- High Investment Costs/ Farmers
- Poor Market Linkages
- Inadequate Farmer based institutions (e.g. WUAs and Cooperatives)

SWC / Irrigation Measure	Estimated Cost / Ha (Full land husbandry)
Irrigation (Marshland)	USD 7500-8500
Irrigation (Hillside)	USD 12000-15000
Bench Terraces (Fanya Juu)	USD 2500-3000





Crop production:

- African farmers pursue a wide range of crop and livestock enterprises without specialization.
- The notion of agriculture targeting is still limited and not well supported with proper guidance on what crop to plant on what types of soils in addition to other complementary best practices.
- Without such services in a consistent or regular fashion, it is hard to expect greater improvement in food availability and access.

Post-Harvest Losses:

- In the framework of SDGs, SDG12 seeks to ensure "sustainable consumption and production patterns".
- The SDG target 12.3 calls for halving per capita global food waste at retail and consumer levels and substantially reducing global food losses along production and supply chains (including postharvest losses) by 2030.



Post-Harvest Losses:

- Post-harvest losses in SSA are estimated at 30% on average, or even higher in some countries.
- Perishable crops face more losses due to inadequate storage facilities and other post-harvest handling infrastructures.



Agribusiness and Markets:

Key challenges:

Etc.

- Limited access to, and delay in supply of quality seeds and fertiliser
- Agriculture financing is with high interest rates and not adapted to production cycle.
- Limited access to sustainable markets
- Limited post-harvest handling facilities
- Issues of contract farming has not yet received a good shape



- SDG Target 2.1: "By 2030, end hunger and ensure access by all people, in particular the poor and people in vulnerable situations, including infants, to safe, nutritious and sufficient food all year round".
- S Key questions to reflect on:
 - Why the pursuit of food and nutrition security has been an endless struggle?
 - What is wrong? Who to blame? What are the fixes needed?
 - Is food security achievable? If yes under what circumstances?
- In this presentation we give our humble opinion to the ongoing debate re food and nutrition security.

State of Food Security in Africa

- The report on the State of Food and Nutrition Security of 2017 shows how in Africa, especially in SSA, 23.2% of the population suffered from chronic food deprivation in 2017.
- This is happening while food and nutrition security have been on the top list of priority development areas by governments in Africa and its development partners.
- In 2014 through the Malabo Declaration African Leaders committed to reduce stunting to below 10% in Africa, as well as to reduce underweight in children aged below five years to well below 5% by 2025.

Prevalence of undernourishment (205-2017)



Change in the prevalence of undernourishment in Africa from 2004/06 to 2015/17





■ 2014 ■ 2015 ■ 2016 **■** 2017

Prevalence of stunting among under-5 children, 2017 (%)

Region	Stunting Prevalence	Number (Million)
World	22.2	150.8
Africa	30.3	58.7
Northern Africa	17.3	5
Sub-Saharan Africa	32.6	53.8
Central Africa	32.1	9.3
Eastern Africa	35.6	23.9
Southern Africa	29.1	2.0
Western Africa	29.9	18.6

Source: FAO and ECA (2018)

Africa's agricultural trade deficit; US\$ million (2001-2016)



Source: FAO and ECA (2018)

Selected key determinants

- Ecological zones: Weather shocks such as droughts are frequent, and rainfall varies dramatically across Africa. Given the continent's low use of irrigation and overwhelming dependence on rain-fed agriculture, the ecological factors are a significant impediment to Africa's agricultural development.
- Inadequate policies: Most government policies in Africa are inappropriate and not coordinated in order provide an enabling environment for the development of the crops sector in Africa.
- Market failures: Policy and market failures account for the slow adoption of productivity-enhancing inputs such as equipment, fertilizers, and pesticides.

Selected key determinants

- Non-transferability of "outside" technologies: International research on high-yield crops did not focus on African staple foods and agro-ecological systems. The heterogeneity of both agro-ecological conditions and crop production suggests that "outside" technologies are often not directly transferable to improve the continent's productivity.
- Limited public Investment in Agriculture.
- Higher global food demand and Africa's unexploited arable land.
- Climate Change and Variability
- Demographic dividend

Critical Role of Policies and Institutions

Farmers' participation in Food and Agriculture planning: Farmers are at the interface of policies and institutions



Role of Agriculture Research and Innovation : In addition, investment in agricultural research which is currently less than I % of the total GDP in most African countries.

The Challenge of Research in Africa: Limited qualified personnel



The challenge of research in Africa: Investment in agricultural research



Nienke Beintema and Gert-Jan Stads (2017)

The Challenge facing Research in Africa : the need for interdisciplinary approach



Paper

(2017)

The Challenge Facing Research in Africa : the need for interdisciplinary approach

- To prevent malaria from spreading in areas where the disease is common, knowledge from other disciplines, e.g. about human behaviour, sanitary conditions, local economy, is absolutely necessary.
- There is a need to introduce interdisciplinary programmes that help put fundamental knowledge into practice, collaboration with local authorities and local people (indigenous knowledge) is essential.



The Challenge Facing Research in Africa : research dissemination

- I. Lack of coordinated research priority setting.
- 2. Mismatch between research and Polic Mozambique Zambia Ghana
- 3. Lack of sufficient research and extension capacities
- 4. Difficult to demonstrate research impact especially for social sciences.
- 5. Limited linkage between Research Institution and the Private companies because of limite innovative research products that would translate into relevant products to addres societal challenges and demand.



PUBLICATIONS PER FULL-TIME EQUIVALENT RESEARCHERS WITH PHD

Nienke Beintema and Gert-Jan Stads (2017)

The challenge of research in Africa: measuring research impacts

- Researchers are more for academic and journal impact than community impact oriented research.
- This makes difficult to make the case of the relevance and the budget allocation.
- What does the Article with a high Impact Journal (7.5) would mean? <u>Financial cost-benefit</u> <u>analysis of bench terraces in Rwanda:</u> AR Bizoza, J De Graaff - Land degradation & development, 2012 [Impact Factor 7.27].
- Most of research is done to measure the results and not the effects on people's livelihood.
- The Research done in Africa mostly imitates that of overseas for some case without taking into account the local context. It ends irrelevant on the two sides.



The challenge of research in Africa: measuring research impacts

- The measurement of the Impact Factor needs to be revisited: It is used to measure the importance or rank of a journal by calculating the times it's articles are cited.
- Institutional fragmentation and limited collaboration: this has hindered the effective use of the available resources.
- Limited funding and investment: Research agendas with high donor funding help to achieve short term research targets that are not necessarily customized to national or regional research and development priorities.
- With less than 1% of the Agriculture GDP, it is hard to see the research impacts.



The challenge of research in Africa: Innovative approaches for Research Conduct and Dissemination



Example of the Pilot : SUVI



Innovative activities : Biopesticide





- The policies being promoted for agriculture and food security, including the food trade, treat the issues as if they were about any other sector.
- Policies need to recognize that agriculture is not about mere food; it is also about prosperity.
- It is best no to focus on "agricultural or food policies" but on "policies for agriculture and food security"; the policies outside agriculture sector make the greatest difference.

Policy Gaps and Future Perspective

- Many policies constraining African success in agriculture are made and enforced outside Africa
- Africa's agricultural situation, even in Sub-Saharan Africa, is not all bleak.
- African agriculture will succeed if its appropriately attended with required investment.
- African crops receive little fertilisers less than 20Kg/ha while developed countries received around 141 kg/ha.
- A new look at the Impact of Agriculture Research is highly needed (e.g. IAR4D)

God bless You God has blessed Africa