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Climate change constitutes a significant threat to food security and poverty reduction in Africa, and the food system is severely off target in meeting development goals. Policy response should focus on investing in agricultural public goods, scaling up digital solutions, and developing innovative finance mechanisms to enhance resilience.

**Introduction**

Food security is a major development challenge in Africa. Demand for food has been growing rapidly and will continue to do so in the conceivable future, exceeding 3% per year through 2025. Population growth at the rate of about 3% per year, per capita income growth and urbanization, and changing consumer preference toward processed foods and more nutritious and higher caloric foods are the major drivers of demand. Today, Africa is a net food importer, at an annual cost of $35 billion. And as climate change progresses, food security concerns only grow.

Adapting Africa’s food system to climate change will be crucial if it is to achieve food security and lift people out of poverty. About 277 million of Africa’s population (22%) are undernourished, and the number could increase to 350 million by 2050 if appropriate adaptation measures are not taken. Crop productivity declines by 5% for every degree of warming above historical levels. From devastating droughts in Southern Africa and West Africa to cyclones and intense flooding in East Africa, extreme weather is putting millions of Africans at risk of food insecurity. At the same time, climate change is predicted to reduce the income of people in the bottom 40% by more than 8% by 2030, further constraining their ability to respond to climate shocks and adapt to climate change. This only grows more worrying in light of the coronavirus pandemic that is highly disrupting the food market and exacerbating food price inflation. Climate impacts will continue to deepen existing vulnerabilities and low capacities, leading to poverty, fragility, conflict, and violence. For Africa to be prepared for this troubling and uncertain future, it is vital that resilience is built into its food systems.

**Malabo Declaration, Climate Change, and Food Security**

In response to the climate and food security challenges, members of the African Union met at Malabo in June 2014. The resulting “Malabo Declaration” provides the direction for Africa’s agriculture transformation for the period 2015–2025, within the Framework of the Comprehensive Africa Agriculture Development Programme (CAADP). Among its goals were pledges to enhance investment finance in agriculture, boost intra-African trade in agricultural commodities and services, end hunger, and halve poverty. It also explicitly aims to enhance the resilience of livelihoods and production systems to climate variability.

However, the 2019 Biennial Review of progress indicated that Africa’s food system is severely off track. While 36 out of 49 reporting African Union member states improved their overall agricultural transformation scores compared to 2017, only four countries surpassed the 2019 benchmark. Similar trends are seen throughout the report, with few countries on track to meet specific targets.

However, there are exceptions. Boosting intra-African trade in agricultural commodities and services is on track in 29 countries. Regional trade helps to maintain farm gate prices and safeguard farmers’ incomes while serving as an important buffer to offset production shortfalls in a country and helping to stabilize food prices for consumers. In addition, 26 countries are on track for increasing the total area of land under irrigation. However, this is only 7 million hectares, less than 5% of Africa’s potentially irrigable lands. Only 11 countries are on track in implementing policies to enhance resilience to climate variability, indicating more needs to be done in meeting this goal.

**Creating Momentum for Resilience**

Current progress toward achieving the Malabo Declaration’s targets reveals the pressing need to accelerate progress toward food systems’ resilience in Africa. But it also reminds us that Africa has vast agricultural potential. Throughout Africa, there exists over 200 million hectares of uncultivated land that can be brought to productive use in climate-smart ways. The expansion of irrigation can help intensify the use of farm labor by facilitating year-round cultivation, improving crop response to fertilizers and improved seeds, and promoting the adoption of higher-value crops such as fruits and vegetables. Developing the agricultural sector is also a pathway toward reducing poverty. On average, growth in agriculture is two to three times more effective in reducing poverty than the same amount of GDP growth elsewhere in the economy. Africa’s food and beverage markets are expected to top $1 trillion in value by 2030 compared to $313 billion in 2010. African agriculture is also energized by entrepreneurial youth and an engaged private sector that is taking note of its potential. Young Africans are making agriculture a viable business, creating opportunities for farmers as well as themselves. If Africa is to build a resilient food system and lift agricultural workers out of poverty, it is essential that this potential is unlocked.

For agriculture in Africa to not only persist but to flourish in an uncertain future, improved policy responses are
Foster Policies for Enabling Climate Action

The starting point for a more enduring agricultural transformation in Africa is to implement policies that enable effective climate action. Such policies are needed across a wide variety of domains, including agricultural research and extension, market information systems, and development and maintenance of rural roads. Policies must also eliminate agricultural, trade, and macroeconomic regulations that reduce farmers’ incomes, which could increase agricultural output by 4.7%. Investments in international and agricultural research can result in the development of varieties that are tolerant to harsh conditions. Publicly financed agricultural research should focus on emerging problems faced by farmers, designing inclusive knowledge management systems to strengthen farmers’ knowledge of climate-smart agricultural practices, facilitate sharing of improved techniques, and support the integration of indigenous knowledge systems with modern science. Doubling agricultural research spending could increase agricultural output by 3.4%–4.1%. Doubling irrigated land area can increase agricultural output by 2.9%, while public spending to increase average schooling level of agricultural labor force to 6 years will increase output by 1.3%. Better policies are also needed to improve land governance to ensure equitable access to land. Small and commercial farmers must also have access to input and credit and product markets, and receive similar prices for their products, and policies should create the opportunities for rural labor force to migrate to access rural employment.

Scale Up Digital Solutions

Technologies for collecting, storing, analyzing, and sharing information digitally, including mobile phones and the internet, have great potential to improve efficiency, equity, and environmental sustainability of the food system. From video-based agricultural advice to the Internet of Things-enabled climate-smart irrigation tools to agroweather advisories that provide personally relevant information on weather and impending disasters and help farmers capitalize on changing conditions, digital solutions could be a game-changer in boosting agricultural productivity and resilience in a sustainable way in Africa. The technologies enable actors within the food system to make informed decisions, improve productivity and incomes, and achieve better nutrition, health, and resilience outcomes. Furthermore, digital technologies can be applied for agriculture e-commerce, thereby helping to match buyers with sellers, shorten agricultural value chains, provide access to new markets, reduce transaction costs, and create new business opportunities for actors within the food system.

In addition, digital agriculture can successfully leverage Africa’s youth bulge. About 10 to 12 million youth enter the workforce each year, but only 3.1 million jobs are created, leaving several million youths unemployed. Rural youth are well-placed to benefit from jobs created by digital agricultural innovation since they are more likely to own mobile phones. However, increasing the adoption of digital technologies in the food system will require expanding mobile internet coverage, currently at 24% of the population, and promoting the availability of relevant digital applications tailored to different actors within the food system. As network coverage increases, so do potential users of digital solutions, which increases the incentives for digital solution providers to develop relevant applications. Additionally, farmers and aggregators require the knowledge and skills to use digital technologies. For example, farmers must know that a certain technology exists, believe it will solve a problem, and then learn how to apply the technology. To encourage adoption more broadly, digital technologies should be user friendly and require low-level skills and literacy for its use, for example, with interactive voice response functionality.

For current and new generations to make use of digital technology and engage profitably in agriculture, they need entrepreneurial programs that provide a package of services to overcome the multiple constraints they face. These services include trainings, access to land, inputs, finance and markets, and mentoring. Producer organizations, nongovernmental organizations, and social enterprises can be instrumental in designing and delivering effective entrepreneurship programs. Another strategic approach is to upgrade skills in agriculture universities and training institutes by revamping training curriculum to include the application of information and communications technology (ICT) tools, as well as improved techniques of food storage and processing, and the application of renewable energy in agricultural value chains.

Develop Innovative Financing Instruments

The agricultural financing gap in many African countries surpasses government budgets and available donor funding. To maximize finance, it is important to leverage private sector resources and minimize the burden of public debt. Innovative financing leverages all sources of financing to support agricultural growth and resilience, crowding in private investment to optimize the use of scarce public resources. Sources of private finance for the food system are growing and include farmers’ own-savings, local and international banks, microfinance institutions, value chains actors, impact investors, development finance institutions, private sector foundations, and agricultural investment funds. Because the agricultural sector is prone to considerable production, market, and enabling environment risks, blended finance can be used to support high-impact projects where perceived risk is higher than actual risk. This is especially true for new projects with which investors are unfamiliar.

High levels of direct public participation in markets leave little space for private sector activities in the agricultural sector in many African countries. Public sector dominance needs to be reduced, and public sources instead need to be used to increase the flows of capital to enhance resilience in Africa. This should focus on enhancing farmers’ access to tailored and demand-driven financial services, building the capacity of financial institutions to manage exposure to specific agricultural risks, and supporting financial institutions in reducing transaction costs. It should be noted, however, that reduced public sector dominance is not a sufficient condition to increase productivity and
resilience; there is still a crucial need for public resources to finance essential agricultural public goods and services as discussed above.

Final Thoughts
Food system resilience is an unfinished agenda in Africa, compounded by the coronavirus pandemic. Several countries are lagging in terms of efforts to meet food security, poverty reduction, and climate change goals. African governments need to improve the enabling environment for the food system to thrive by increasing investments in agricultural public goods, supporting smallholders to benefit from digital revolution, and developing innovative financing instruments through public-private partnerships. These measures could do much to transform African agriculture, increase food security, reduce extreme poverty, and boost shared prosperity in the region.

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