



CONNECTING THE DOTS:

Policy Innovations for Food Systems Transformation in Africa



In the last two decades, Ghana has made major strides in poverty reduction, stability, democracy, and economic growth. It was one of the few countries that exceeded the Millennium Development Goal of halving poverty by 2013.¹ By 2015, it had reduced the number of hungry people by 50 percent and had witnessed significant reductions in the proportion of stunted, wasted, and underweight children.² These achievements were due in part to robust institutional design, bold policy-making, and creative programmatic interventions, often overseen at the highest levels of government. Indeed, Ghana's national contribution to the upcoming UN Food Systems Summit is being coordinated through the National Development Planning Commission (NDPC), which directly advises the President.

The country's agricultural sector has been central to its economic growth and development. Although productivity in Ghana's agricultural sector has historically been low due to a lack of usage of modern inputs, this has changed dramatically since the launch of the Planting for Food and Jobs campaign in 2017 (see the Programmatic Interventions



section below). Between 2014 and 2019, the sector grew at an average of 3.6 percent per year; it has contributed more than 20 percent to GDP and employs 36 percent of the labor force.^{3,4} Cocoa is Ghana's dominant crop; in 2018, it contributed 30 percent to GDP.⁵ The success of Ghanaian cocoa on global markets has been the driving force behind growth in the agricultural sector. At the same time, production of staple crops and vegetables has been increasing, especially rice and maize which, between 2009 and 2018, saw total production rise by an average of 5 and 8 percent, respectively. Indeed, maize is a principal staple crop for consumption in Ghana, accounting for over half of cereal yields.⁶ Efforts have also been in place to strengthen other aspects of Ghana's food systems, including processing and transformation of produce, food safety, nutrition (especially for school-age children), and trade. The sections below provide further details.

There remain significant challenges, however, in the country's ability to transform its food systems in order to create healthy, prosperous, and sustainable communities. Although Ghana has in recent years excelled at reducing hunger and undernutrition, some northern regions experience as high as 40 percent malnutrition and stunting among children under 5, which is double the national rate of 19 percent.⁷ Ghana is also currently facing an obesity crisis. In 2016, it was estimated that a staggering 43 percent of Ghanaian adults were either overweight or obese.⁸ Children under five are also increasingly overweight and, in 2019, overweight children represented 1.4 percent of their cohort.

Climate change is also severely impacting food security and nutrition. Extreme precipitation and droughts, combined with the country's reliance on rainfed agriculture (with less than 1 percent of agricultural land irrigated),⁹ strain food production and contribute to price volatility. This is further complicated in the northern and rural parts of the country where road, electricity, and storage infrastructure are still under development.

Despite these challenges, the government is demonstrating a robust commitment to transforming the food sector into one which boasts high productivity, increased incomes, sustainable food production, and food security.

INSTITUTIONAL INNOVATIONS

Although the NDPC coordinates and oversees activities related to the United Nations Food Systems Summit (UNFSS) 2021, the Ministry of Food and Agriculture (MoFA) is one of the primary public

institutions in Ghana that is leading a food systems transformation through the development of the agricultural sector.

National coordination of policies and programs

The creation of the NDPC in 1993 marked a turning point in terms of coordinating economic and social development activities. With regard to food systems, for instance, the NDPC played an important role in the development of Ghana's Food and Agriculture Sector Development Policy (FASDEP) I and II.¹⁰ The NDPC also advises the President on development planning, policy, and strategy through its three technical divisions, the Development Policy Division (DPD), the Plan Coordination Division (PCD), and the Monitoring and Evaluation Division (MED). The DPD provides technical support to the government on policy formulation based on evidence, reviews, and analysis; the PCD oversees the coordination of all development policies, plans, programs, and projects between the national and local governments; and the MED ensures the monitoring and evaluation of government policies, programs, and projects at all levels with the help of its functional, decentralized, national monitoring and evaluation system.

National policies and programs are designed by cross-sectoral planning groups composed of representatives from various agencies, including the NDPC, relevant ministries, private sector organizations, and technical experts. Among these, the NDPC coordinates a Cross Sectoral Planning Group (CSPG) on nutrition. It was created in 2012 following Ghana's commitment the year before to scale up effective nutrition interventions to reducing stunting among young children. The CSPG convenes representatives from government (health and non-health sectors), UN agencies, the private sector, development partners, academia and civil society to support the implementation of a national nutrition policy.¹¹ A subgroup has recently been formed to support Ghana's contributions to the UN Food Systems Summit. This UN Food Systems Summit Dialogue National Technical Working Group is responsible for coordinating stakeholder consultations across the country to ensure that sufficient inputs have been received from the broadest group of food system actors. It is led by Ghana's Technical Focal Point for the Scaling Up Nutrition Movement (SUN) and the director of the Women in Agricultural Development Directorate at the Ministry of Food and Agriculture.

The NDPC is also represented within several public bodies, including the National Council for Tertiary Education, the Council for Scientific and Industrial Research, the Local Government Service Council,



the Ghana Investment Promotion Centre, the Energy Commission, and the Institute for Statistical, Social and Economic Research which promotes synergy and fosters mutual learning.¹²

Decentralized service delivery to reach beneficiaries

The MoFA aims to modernize Ghana's agricultural sector to improve food security, create employment opportunities, and reduce poverty. It designs and implements policies and programs that promote sustainable agricultural production and flourishing agribusinesses through expansion of technology adoption, provision of effective extension services, and other support services such as training for farmers, processors and traders. The MoFA has seven technical directorates which conduct activities under the MoFA's mission to build sustainable food systems; these include: the Directorate of Crop Services (DCS), the Directorate of Agricultural Extension Services (DAES), the Plant Protection and Regulatory Services Directorate (PPRSD), the Veterinary Services Directorate (VSD), the Animal Production Directorate (APD), and the Women in Agricultural Development Directorate (WIAD). The Ministry thus has clear and delineated responsibilities for crop and livestock production; these are supported by cross-cutting departments which ensure that gender is mainstreamed across the Ministry. There is also a separate Ministry of Fisheries and Aquaculture Development.

The MoFA's institutional framework reflects the country's decentralized governance structure, which is designed to provide more effective services. The MoFA is represented at the regional level by Regional Agricultural Development Units (RADUs) and at the district level by District Agricultural Development Units (DADUs); these are responsible for the coordination and implementation of agricultural projects in their respective jurisdictions.¹³ Sixteen RADUs and 260 DADUs mirror the framework established for directorates at the national level. RADUs play an important role in "upward" communication of requirements from local levels; they also formulate effective short-, medium-, and long-term agricultural strategies such that local resources and agroecological conditions are optimized to improve farmer productivity and livelihoods. RADUs and DADUs are also central to the forging of linkages and coordination of activities among relevant stakeholders, including private sector and development partners.¹⁴

Crop value chains

The Directorate of Crop Services is responsible for the development of Ghana's crop subsector,

including food, horticultural, tree, and industrial crops. It guides interventions across the value chains for crops under its care, moving them from production and processing through to distribution, and from there to the marketing of food, including for export. With respect to production, the DCS collaborates with, among others, the Crops Research Institute, extension services providers, and the private sector. Through such collaborations, it facilitates the timely and affordable development and distribution of improved planting materials, such as seeds for farmers. In order to meet domestic demand, it recommends the issuance of permits and waivers for the importation of agricultural materials. The DCS also provides technical support to the regional and district agricultural development units on improved agronomic practices and on efficient use and management of soil and water resources. The DCS, in collaboration with relevant stakeholders including agricultural value chain actors, also shares information on the improved production, packaging, and marketing of crops.¹⁵

The core purpose of the PPRSD is to reduce crop losses caused by pests and diseases to 10 to 15 percent, from their current 30 to 50 percent. To do so, the PPRSD deploys a four-pronged approach: 1) it trains farmers and extension agents on timely identification of pests and diseases and on integrated control methods; 2) it monitors and certifies seed production; 3) it leads administrative and regulatory oversight of pesticide and fertilizer use; and 4) in partnership with the DCS, it conducts phytosanitary inspection for imported plants and plant materials. The PPRSD also runs inspections to ensure that food products such as fresh fruits and vegetables that are designated for export meet marketing quality standards.¹⁶

Livestock production and health

Within the MoFA, the Animal Production Directorate is broadly responsible for developing a successful livestock (including poultry) sector in Ghana. The APD provides technical support, enhances livestock support knowledge within extension services, and promotes agribusiness to prospective livestock sector entrepreneurs, especially to advance the dairy industry. Specific activities carried out by the APD include the promotion of appropriate technologies for livestock management, breeding, nutrition, and housing. The APD manages seven National Livestock Breeding Stations and also supports livestock farmers in intensive forage production, processing and marketing of livestock and poultry products, and the formation of water stock for livestock production in areas where water resources are scarce.¹⁷



The primary mandate of the Veterinary Services Directorate is to oversee the provision of quality animal health care services by both public and private sector veterinary practitioners for enhanced livestock production and productivity. In addition to contributing to policy development, the VSD also provides timely, reliable, and relevant information on animal health across the country. In 2018, for example, an alert was sent out to notify the public of an outbreak of bird flu in the animal population.¹⁸ The VSD complements this work with technical support for improved service quality. Working with the Food and Drugs Authority (FDA) and the Ministry of Health, the VSD contributes to the protection of public health by preventing zoonotic diseases and their transmission to humans, regulating slaughterhouses, and ensuring that imported and locally produced meat and other products of animal origin are safe for human consumption. It also improves the knowledge of farmers and the public on animal diseases and encourages them to participate in animal disease prevention and control activities.¹⁹

Gender mainstreaming

Gender mainstreaming has been part of the MoFA's activities since the 1970s. At that time, work on gender was carried out by what was then called the Women in Food and Agriculture Directorate; this has since been renamed the Women in Agricultural Development Directorate, or WIAD. The WIAD aims to enhance the livelihoods of women-in-agriculture value chains by ensuring that policies promoting the delivery of improved technologies and information on sustainable agricultural production and postharvest activities are not only gender inclusive but also actively benefit women. WIAD is responsible for implementing the Gender and Agriculture Development Strategy and contributes to nutrition education, value addition, food safety, and gender mainstreaming across policies, programs, and projects. The Directorate ensures that appropriate extension technologies and information reach women farmers, processors, and other value chain actors by coordinating operations with regional and district WIAD officers. WIAD also collaborates with research and extension services to identify challenges specific to women such as those related to integration into the food value chains. To overcome these challenges, WIAD offers training on food processing and preservation, as well as on safe production and handling of vegetables.²⁰

Agricultural extension services delivery

The Directorate of Agricultural Extension Services oversees agricultural technology diffusion through the management of extension services delivery. It identifies and selects appropriate equipment

and technologies for farmers and agro-processors such as primary-processing machinery and drying and storage facilities; it then provides training on their appropriate and sustainable use. DAES extension services also include soil and water conservation management training for farmers and the identification and selection of appropriate water conveyance systems for agricultural use. It envisions establishing efficient and demand-driven extension services in a decentralized system that provides quality service to beneficiaries through partnerships between government and the private sector. In the provision of extension services and the dissemination of information, the DAES collaborates with a range of organizations and agencies including NGOs and private service providers.²¹

Expanding irrigation coverage

Alongside the technical directorates, the MoFA also works with a public agency to develop land and water resources in Ghana. The Ghana Irrigation Development Authority (GIDA) was established in 1977 to oversee the formulation and implementation of water development programs for crop production, livestock watering, aquaculture, and agricultural industries. Its board of directors and its Chief Executive report directly to the MoFA. Under its mission, GIDA designs irrigation infrastructure and facilities such as dams, ponds, tube wells, and conveyance structures, and it provides technical and managerial services to farmers for the effective use of this technology. Although GIDA is funded by the government, it can also borrow money on the open market for the development of some programs. GIDA ensures that its interventions safeguard the health and safety of all people living within and around its irrigation project areas; it was reported, however, that a lack of maintenance under several projects rendered some of the schemes unproductive.²²

Providing a lucrative market for farm produce

In 2010, the MoFA set up the National Food Buffer Stock Company (NAFCO) to guarantee a minimum—and more remunerative—farm gate price for produce, protect farmers from price volatility, and provide access to a market, particularly when production exceeds demand. To achieve this, NAFCO engages in purchasing, selling, preserving, and distributing stocks of cereals. In 2009, for instance, the total domestic production of maize amounted to 1.62 metric tons (mt), with a demand of 1.2 mt; a surplus of 0.4 mt thus had to be stored to avoid the surplus being wasted.

NAFCO sets a minimum farm gate price that takes into account the production costs of farmers



plus 10 percent as profit. The profitable prices motivate farmers to increase their production and encourages others, including young people, to go into farming.²³ NAFCO forms three types of stocks from the purchased harvest; these include operational stocks, an emergency government stock, and food safety net stocks. Operational stocks can be sold and distributed to the market at appropriate times to ensure a continuous food supply at stable prices. Emergency government stocks belong to the government, which uses them to assist vulnerable people during food shortages and crises; such shortages are often caused by sudden supply shocks such as natural disasters. The food safety net stock provides food for the impoverished and the chronically food insecure.²⁴ Through NAFCO, agro-processing factories can access raw materials such as cereals for their operations. As most farms in Ghana are located in remote areas, NAFCO has partnered with more than 70 companies which operate on its behalf. These companies are licensed and mandated by NAFCO to reach out to farmers to buy food raw materials at the farm gate and a margin is added to the farm gate price by the licensed buying company. The committee that fixes the prices and margins takes into account factors such as transportation, drying, bagging, sewing, and handling.²⁵ In 2020, a study found that NAFCO's operations increased the incomes of participating smallholder maize producers by more than 12 percent.²⁶

Centralizing youth employment

In 2006, Ghana began the process of institutionalizing

its efforts to address youth unemployment. At that point it initiated the National Youth Employment Programme (NYEP) under the Office of the President. In 2012, the NYEP was replaced by the Ghana Youth Employment and Entrepreneurial Agency (GYEEDA), which was subsequently, in 2015, renamed to the Youth Employment Agency (YEA). YEA oversees the development, coordination, and facilitation of youth employment generation through a job center that is housed within the YEA. The job center also provides technical skills, training for job seekers, and connections to employers, and it funds youth business plans including those in the agricultural sector. It accepted two proposals, one for Maize Farming in Brong Ahafo and another for Aquaculture in the Volta Region; the two projects were set to begin in early 2019 and to create 3,000 jobs for young people. Other proposals from other regions included poultry farming and hatcheries.²⁷

POLICY INNOVATIONS

It is evident that Ghana already has a vibrant and dynamic institutional framework that can—with some fine-tuning—lead a food systems transformation. Doing so will also require well-crafted policies that guide transformations. Here too, Ghana has a strong history of creating impactful and comprehensive policies to advance its food and agricultural sectors.

Main national policy objectives

The Government of Ghana (GoG) has developed multiple strategic plans and policies across sectors which demonstrate their robust commitment to





improving the country's complex food systems. The draft Long-Term National Development Plan (LTNDP) (2018-2057) is the GoG's flagship national policy for transforming Ghana into a nation that is "beyond aid" and is industrialized, inclusive, sustainable, politically stable, and globally influential. Ghana's trajectory is one which is expected to accelerate economic development and reduce poverty, and thereby improve living conditions for Ghanaians. It follows Ghana Vision 2020: The First Step (1996-2000), Ghana Poverty Reduction Strategy (GPRS) I and II (2003-2009), and the Ghana Shared Growth and Development Agenda (GSGDA) I, II, and III (2010-2017).²⁸ Strategically, the LTNDP's implementation over 40 years ensures that the political agenda is structured and continuous and that it transcends short-term changes and challenges. In the medium and short term, the LTNDP will be divided into 10 medium-term policies and will be accompanied by corresponding sector policies that are prepared by successive governments under LTNDP guidelines. **The LTNDP and previous growth strategies in Ghana have integrated objectives that are consistent with international targets, notably building on the frameworks of the Comprehensive Africa Agriculture Development Programme (CAADP), the African Union's Agenda 2063, and the United Nations' Sustainable Development Goals (SDG).**²⁹

The latest LTNDP outlines the government contributions that are necessary for improving food security and agricultural growth. This, paired with the current Medium-Term National Development Policy Framework (MTNDPF) (2018-2021), presents a clear policy framework and guiding principles to construct successful policies that will help Ghana achieve food security and agricultural modernization and growth. The new policies build on the progress achieved and lessons learned from previous policy documents. Introduced in 2007 by the MoFA, the second Food and Agriculture Sector Development Policy (FASDEP II) is the current long-term agricultural policy that aims to combat food insecurity and improve rural development in Ghana. The Medium-Term Agriculture Sector Investment Plans (METASIP) I, II, and III are complementary plans introduced to support FASDEP in funding the implementation of Ghana's agricultural priorities and achieving sustained agricultural GDP growth. FASDEP II takes a value chain approach to increased production (particularly of staples), improved market access, technology adoption, institutional coordination, and sustainable land management, as necessary changes to stimulate improved livelihoods and food security in rural areas. Between 2005 and 2015, MoFA's focus on raising crop and livestock productivity and output by

modernizing and intensifying agricultural methods resulted in an overall surge in food production; maize saw an increase in production of 40 percent, rice of 190 percent, and cassava of 80 percent.³⁰ Furthermore, from 2017 to 2019, rice and maize productivity rose by 23 percent and 27 percent, respectively, while the livestock subsector grew by an annual average of 5.5 percent.^{31,32} Despite FASDEP II having no official termination date, discussions are currently taking place on a possible third FASDEP. Building on interventions and impacts to date, discussions are focused on incorporating agroecology research and development into national objectives for the next generation of agricultural development.³³

Developed according to the guidelines of CAADP and the Economic Community of West African States (ECOWAS), the updated Investing for Food and Jobs (also known as METASIP III) investment plan—covering 2018 to 2021 and with a budget of over US\$ 1.65 billion—seeks to modernize the agricultural sector and accelerate national growth. METASIP III is divided into four programs: management and administration, crops and livestock development, agribusiness development, and sustainable utilization of resources. These are then split into specific subprograms and are supported by unique policy tools. METASIP III policy tools seek to leverage private sector investment, build cooperation and collaboration across stakeholders engaged in the agricultural sector, and facilitate the implementation of wider programs and subprograms.

Climate resilience in agriculture and food security

In 2013, the Ministry of Environment Science, Technology and Innovation (MESTI) introduced the National Climate Change Policy (NCCP).³⁴ The NCCP looks to integrate a response to climate change, build resilience, and harness the opportunities of green growth across five focus areas: agriculture and food security; disaster preparedness and response; natural resource management; equitable social development; and energy, industrial, and infrastructure development. Updated in 2015, the NCCP outlines specific policy actions for 10 multisectoral areas in order to address the multifaceted impacts of climate change across the country and to operationalize the effective development of NCCP objectives. MESTI works on sectoral climate issues with the Ministry of Trade and Industry, MoFA, metropolitan, municipal, and district assemblies, the Ministry of Fisheries and Aquaculture Development, and the Council for Scientific and Industrial Research (CSIR); together they lead the implementation of the NCCP's eight specific sector programs. The Climate-Smart Agriculture and Food



Security Action Plan (CSAFSAP), for example, is led by MoFA. It outlines the implementation framework necessary to mainstream climate resilience and adaptation planning into agriculture and food development activities. Totalling US\$ 950 million of both government and international donor funding, the CSAFSAP outlines eight programs and activities: strengthening national climate research and educational services, developing innovative and climate-smart production techniques and systems for agriculture and fishing, supporting smart water management, de-risking the food and agricultural sector, and improving the productive capacity of farmers and rural communities. Proposed activities include developing extension services; financing research on climate-smart agricultural technologies and processes; expanding sustainable water harvesting, storage, and irrigation systems; and establishing insurance schemes. The CSAFSAP's focus on ensuring that institutional systems are collaborative and consistent in their approach to the impacts of climate change across all activities demonstrates the policy's ability to strengthen multiple elements of Ghana's food systems and ensure sustainable agricultural development.^{35,36}

The 2011 National Irrigation Policy (NIP) aimed to improve crop production and sustainable rural development in Ghana through the expansion of irrigation across the country.³⁷ The MoFA and GIDA, with support from the FAO and the International Water Management Institute (IWMI), developed a policy to address the challenges presented by climate change and irregular rainfall patterns. The NIP seeks to facilitate investment in irrigated crop production by implementing public and private initiatives that improve existing irrigation systems and build new ones. It also advocates for an inclusive environment for women and vulnerable groups in land and water management and works to enhance the sustainability of irrigation and agricultural practices and to provide effective services to support irrigation development. The MoFA and GIDA work with local governments and the private sector to ensure inclusive participation in the financing and management of policy activities. The policy has also contributed to wider food security and agricultural growth objectives through the commercialization of agriculture for rural growth and poverty reduction. In 2017, there were over 56 irrigation initiatives reported across Ghana covering a total area of 10,380 hectares. These different schemes, facilitated by the NIP, have been evaluated as primarily benefitting smallholders in rural communities.³⁸ A study conducted to identify the impact of irrigation initiatives in Ghana found that irrigated rice cultivation following from irrigation

management schemes increased yields by 40 percent and farmers' incomes by 25 percent.³⁹

Bridging the gender gap

Ghana's past and current national agricultural plans consider the importance of integrating women and youth into promoting agricultural growth. In 2015, the MoFA released the updated Gender and Agricultural Development Strategy (GADS) II to improve gender equity in the agricultural sector. The MoFA's Women in Agricultural Development Directorate, or WIAD (see Institutional Innovations above) is responsible for the implementation and evaluation of the policy. The updated GADS aligns with FASDEP II and METASIP III in addressing inclusivity in the agricultural value chain and a private sector-led approach to agricultural growth. METASIP II (2014–2017) saw over US\$ 11 million invested in the provision of subsidies to women in agriculture for technology adoption; this included subsidies on the purchase of tractors and combines, and assistance in developing the skills for their operation.⁴⁰ Since 2014, over 115,000 women and children have also received training on the importance of nutrition in production techniques and food consumption. Notably, the success of the previous GADS (2004–2013) is seen in the improved institutional capacity of MoFA and its directorates in mainstreaming gender into policy and program planning, and successfully improving accountability to gender sensitivity in state agricultural initiatives. As such, FASDEP II recognizes the challenges women in Ghana face in agricultural activities and consequently has made efforts to promote women's rights and to mainstream gender in MoFA activities through sector training and knowledge sharing.⁴¹ GADS II continues to guide public and private stakeholders and development partners to build an equal, nondiscriminatory, accessible and just agricultural sector. The policy's nine objectives address challenges in access to innovative technologies, markets, inputs, extension services, and land; low female representation in on-farm decision-making; institutional capacity and coordination; and research failing to consider gender as a significant variable in development.⁴² By 2018, six women-in-agriculture platforms had been established in Northern Ghana, providing technical support, knowledge sharing, training, and access to seed and fertilizer initiatives. Further, the coordination across different district women-in-agriculture platforms in conducting rice value chain research to detect shared challenges and develop solutions, saw subsequent increases in incomes and rice yields.⁴³

Ensuring a healthy food system

In 2012, the Ministry of Health introduced the



Public Health Act (PHA) to ensure the prevention of disease and the promotion of good health before products reach human and animal consumption.⁴⁴ This legislation includes specific regulations on disease control, healthcare provision, food and drink quality and distribution, tobacco control, institutional responsibility, and sanitation. It also outlines the legal framework to which all stakeholders in the food system must adhere. These regulations were brought about to ensure access to safe and nutritious food for Ghana's population and to challenge undernutrition and obesity through access to quality food. The Food and Drugs Authority is mandated to conduct the enforcement, registration, and quality control of food and feed standards for domestic and imported goods in Ghana. The clear regulations found in the PHA, together with enforcement from the FDA, has increased overall food quality in Ghana. In 2019, over 2,896 products were tested, of which 78 percent passed the strict regulations; this constituted an increase of 2.9 percent from 2018.⁴⁵

Furthermore, it is noteworthy that Ghana's Ministry of Health led in the development of a national policy to combat non-communicable diseases (NCDs) resulting from inadequate diets, including heart disease, obesity and cancer. Launched in 2012, Ghana's National NCD Policy outlines actionable declarations to minimize salt, fat, trans fats, and added sugars in processed foods, including in food available in supermarkets and restaurants.^{46,47} The NCD policy is also supported by stringent legislation, included in the Public Health Act of 2012, that helps

identify the accuracy of declared nutritional content thereby regulating declarations made about food that are aimed at protecting food safety and consumer health. The legal framework checks the claims of origin, ingredients and the date of processing and manufacturing for products.⁴⁸

Additionally, the 2015 Food Safety Policy, as part of the wider National Health Policy, was adopted in order to integrate the importance of food safety into other national objectives for food systems, including that of FASDEP and METASIP. The policy includes strategies to increase research, education, and regulation on food safety across food systems for both domestic and exported food. This policy facilitates the process of updating and monitoring food safety and strengthens knowledge on food safety for a range of different stakeholders. This approach supports wider national goals of improving food security and public health and decreasing poverty levels. It aims to do so through ensuring that the improved nutritional values of food complement the different initiatives that seek to transform the food system. Importantly, to ensure the integration of food safety into cross-sectoral targets, the policy established a coordination mechanism for the Food and Drugs Authority and the Ministry of Local Government and Rural Development, to ensure adherence to all laws on food safety for production, storage, distribution, sale, and handling. The policy aims to bring together stakeholders from multiple sectors, including agriculture, trade, and health, to ensure that the national standards support access to quality and nutritious food.



Ghana covers several aspects of food systems transformation through the policy interventions outlined above. These interventions, overall, have been focused, far-reaching, and reflective, having learned from past experience. The country's policymakers have also complemented the policy innovations with programmatic interventions, ensuring that the impact and efficiency of their efforts is optimized.

PROGRAMMATIC INTERVENTIONS

Planting for Food and Jobs

The Planting for Food and Jobs (PFJ) program is one of five modules of a national flagship agricultural campaign of the same name. PFJ (the module, and henceforth the focus of this case study) was launched directly by His Excellency President Nana Addo Akufo-Addo in 2017. It aimed to tackle low agricultural productivity, low use of agricultural inputs and weak market linkages. The four-year program is founded on five pillars: provision of subsidized and improved seeds, fertilizer subsidies, agricultural extension services, establishment of markets, and expanded use of e-agriculture. PFJ aspires to modernize the sector, improve food security, create employment opportunities across food value chains, and reduce poverty. Importantly, the program envisions a growing role for the private sector in supporting agricultural growth.⁴⁹ In the first year, the program was directed at the maize, rice, sorghum, soybean, and vegetable (onion, tomatoes, and chili peppers) value chains. This was then expanded to include groundnuts, cowpeas, various root crops, and several additional vegetable crops.

The PFJ is implemented by the MoFA through a three-tier structure made up of a National Technical Committee (NTC), a Regional Technical Committee (RTC), and a District Technical Committee (DTC). The NTC, chaired by the Deputy Minister of Agriculture, is responsible for major national-level decisions on the strategic direction of the program. Other members of the NTC include the directors of the Directorate of Crops Services (DCS), the Directorate of Agricultural Extension Services (DAES), the Plant Protection and Regulatory Services Directorate (PPRS), and other directorates within the MoFA. The RTC, chaired by regional ministers, reports to the NTC on day-to-day implementation and monitoring at the regional level. The DTC is chaired by metropolitan, municipal and district chief executives and reports to the RTC; it also feeds operational and seasonal plans upward to the RTC and mobilizes local public and private sector actors to support implementation.⁵⁰

Seeds

To enhance the uptake of improved seed varieties, PFJ seeks to boost both the production and distribution aspects of Ghana's seed market. The program provides technical and financial support to credible and existing private sector seed producers to augment imports and eventually build self-sufficiency. The private sector, in partnership with the National Seed Trade Association of Ghana (NASTAG), distributes improved seeds at a 50 percent subsidy. Within the first year of the program, the subsidized cost to the farmer was further spread over the entire growing season, such that farmers would only pay half of the subsidized value (25 percent of the total cost) before planting, with the balance (25 percent of the total cost) due after harvest. Following low repayment by farmers, however, this system was terminated.⁵¹ Although in the first year of the program Ghana imported seeds, by the second year—despite increased demand, which was also induced by the PFJ—domestic seed production overtook demand. In the third year, however, national demand again outstripped supply. Seeds distributed through PFJ were all sourced domestically, except for hybrid maize which was still being imported. Studies published in 2021 concluded that seeds produced through the PFJ supplied 54 percent of the country's total maize production, 40 percent of its rice production, and 80 percent of its soya production.⁵²

Alongside this growth in seed production, distributors also experienced significant benefits. A survey conducted among NASTAG's members and non-members in 2020 concluded that through PFJ the overall availability, accessibility, quality, varietal suitability, marketing, and distribution of certified seeds had improved. Input dealers, including private seed distributors, have benefitted from increased visibility and new markets, and from the opportunity to build staff capacity within the industry.⁵³

PFJ has notably revitalized Ghana's seed sector. Sustaining this new dynamism with a view to eventually scaling back government support, however, requires careful fine-tuning of the system. In the short term, this includes timelier payments to distributors and enhanced monitoring of seed quality to build trust among suppliers and farmers. Over the long term, stronger connections with national research institutions and greater access to finance for seed companies—perhaps through a specially designed fund for them and capacity enhancing among conventional financial institutions— would cement the growth of the sector.⁵⁴



Fertilizers

Much like the intervention for seed provision, the PFJ pillar on fertilizers is also founded upon subsidization. Although Ghana had already implemented a national fertilizer subsidy program from 2008, its impact on productivity was limited due to logistical challenges, weak targeting, systemic inefficiencies, low uptake by farmers due to high costs, and the burden on the national budget. The former fertilizer subsidy program was folded into the PFJ and was also streamlined. Eligible farmers are only entitled to cover a maximum of 2 hectares,* thereby ensuring that the program reaches only very small and asset-poor farmers; nevertheless, the rate of subsidy rose from about 26 percent in 2016 to 50 percent in 2017, and the cost to the MoFA rose by 73 percent over the same period. The quantity of subsidized fertilizer thus more than doubled, rising from 134,000 mt in 2016 to 296,000 mt in 2017.⁵⁵

By 2020, this pillar showed positive outcomes for productivity, total output, downstream activities in the agricultural sector, and overall household welfare. Despite a brief lag at the start of the program, total factor productivity for maize rose by nearly a third in comparison to a business-as-usual scenario. Similarly, total factor productivity for rice and sorghum increased by 24 percent and 15 percent, respectively. The food processing industry also benefitted from forward linkages, with value added in the food industry growing to 15 percent in 2020. This has also supported job creation, particularly among skilled rural labor. Although imports for these crops did not fall significantly, exports did rise, especially for maize. Finally, the subsidized fertilizer pillar led to an increase in household spending for the consumption of maize, rice, sorghum, and food products, indicating an improvement in overall household welfare and nutrition.⁵⁶

Simulations estimate that, if continued, the fertilizer pillar in PFJ will contribute to a rise in productivity and overall production, and to higher employment, especially among skilled rural residents. It is expected that, compared to 2017, average annual productivity in 2024 will be 20 percent, 21 percent, and 13 percent higher for maize, rice, and sorghum, respectively. In addition, average annual production is also set to rise by 15 percent, 14 percent, and 11 percent for rice, maize, and sorghum, respectively. Importantly, the broader food industry will also grow by 14 percent annually until 2024.⁵⁷

* A maximum of six bags of bio-fertilizer for soya bean production, ten bags of NPK, and five bags of urea or sulfate of ammonia for other crops.

Agricultural extension services

To support the uptake of improved seeds and subsidized fertilizers, the PFJ program also included a pillar to boost the country's extension capacity. In addition to an aggressive recruitment plan to hire 2,700 new extension agents—over 800 of whom were recruited within the first year⁵⁸—the program has also offered expanded training programs for agents, and support for logistics so that they can visit farmers more frequently. In 2018, 216 new pickup trucks were purchased for the Departments of Agriculture at district level and 3,000 motorbikes were purchased for extension agents.⁵⁹ Studies in the Talensi District of Ghana showed that the modernized extension services provided through PFJ were extremely successful. During the 2019 production season, beneficiary rice farmers were able to produce 140 kg/acre (345kg/hectare) more than non-beneficiaries.⁶⁰

Marketing

In addition to developing inputs markets as above, the marketing pillar in PFJ aspires to reduce the seasonal volatility of prices by strengthening linkages between farmers and farmer-based organizations, and with aggregators and agribusinesses. The marketing pillar has also been the driving force behind the rehabilitation and construction of new warehouses. By February 2020, as declared by the President of Ghana, 46 warehouses had already been constructed across the country; of these, 35 were funded by the Ministry of Special Development Initiatives and 13 by the Ministry of Agriculture. A further 27 were being considered by the same ministries, with the goal of adding 80 warehouses, each with a capacity of 1,000 mt, to the national storage capacity.⁶¹

e-Agriculture

The e-agriculture pillar established a database of PFJ beneficiaries to boost the responsiveness, efficiency, transparency, and accountability of all actors involved in the program. Deploying real-time cloud computing services, the database is used to validate the profiles of beneficiaries, record their land use and cropping patterns, and record the extension visits they receive.⁶² Although it has been one of the lesser-known pillars among beneficiaries, it plays an important role in long-term sustainability and continuation of the program as resource planning and allocation by the government becomes more targeted, prompt and efficient. Farmers also benefit as they can leverage the information held in their e-agriculture profiles to access financial products and services including savings, credit, and insurance. The e-agriculture pillar draws upon, and builds on, a nationwide e-agriculture program that was implemented in 2011, with support from the World



Bank, to enhance the uptake of digital technologies and solutions in Ghana's agricultural sector. Indeed, as shown in the Malabo Montpellier Panel's report, *Byte by Byte: Policy Innovation for Transforming Africa's Food System with Digital Technologies: Ghana*, the country has invested significantly in developing a strong environment for digitalization, particularly for its agrifood sectors.⁶³

When launched in 2017, it was expected that the total budget allocated to PFJ would amount to GHC 3.3 billion over four years (US\$ 825 million). Rising exponentially from GHC 190 million (US\$ 47.5 million) in 2017, the budget allocation for 2020 was set at GHC 1.6 billion (US\$ 277 million). Considering that the entire budget allocation for MoFA in 2016 was only GHC 501 million (US\$ 125 million), Ghana's ambition concerning the PFJ is clear. Although this budget allocation was not met and, by 2020, the total cost (only) added up to about GHC 2.2 billion (US\$ 550 million), the program remains an extraordinary undertaking.⁶⁴

In 2020, out of an estimated 2.6 million agricultural households, 1.74 million farmers received inputs. In fact, beneficiary numbers exceeded those planned for 2018, 2019, and 2020. Although fertilizer distribution fell short of budgeted amounts (423,000 mt in 2020, compared to the over 663,000 mt which was expected), the positive impacts on productivity and total output were strong. Over the four years, total output for maize, rice, sorghum, and soybeans grew at an annual average rate of over 10 percent. Among these, maize output overshadowed the others by growing at nearly 19 percent annually, while growth in sorghum output measured nearly 15 percent per year. Notably, before the COVID-19 pandemic, Ghana saw imports of maize fall by over 89 percent, from 81,708 mt to 8,819 mt between 2018 and 2019.⁶⁵ Growth in PFJ vegetable crops was more muted,[†] but the later additions showed promise, with groundnut output growing at over 9 percent and cassava at 7.5 percent. An environmental cost is hidden within these output figures, however, as much of this growth is founded on the expansion of farmed land; in other words, although productivity did rise, it did not meet the targets.⁶⁶ The PFJ has nevertheless proven to be a widely successful program and has demonstrated that clear, well-funded and unwavering support for programmatic interventions can result in significant improvements in food security. The program has also been reported to have been instrumental in keeping

† Tomatoes grew at 3.8 percent, onions at 2.8 percent, and chilies at 3.2 percent per annum.

down food prices, particularly for maize between 2017 and 2019, thereby improving the accessibility and affordability dimensions of food security.⁶⁷

Although the remaining four modules of the wider Planting for Food and Jobs campaign are still relatively young and have undergone few evaluations, the campaign has also shown Ghana's capacity for transforming food systems as it implements interventions beyond crop production.

Agricultural Mechanization Service Centers

In 2007, the MoFA and the Agricultural Engineering Services Directorate embarked on a program to jointly create Agricultural Mechanization Services Centers (AMSECs). The program was designed to boost the use of machinery in agriculture and reduce drudgery. Within the first year, 17 AMSECs were established, while another 72 opened between 2009 and 2011. The centers were designed as private entities to avoid direct government management. The government received the machinery through concessional loan agreements with Brazil, Japan, and other partners.⁶⁸ Each AMSEC was provided with five to seven selected tractors with implements for land preparation at highly subsidized loans.⁶⁹ The centers then offered the machinery to private sector players for onward hiring, or directly to farmers. It was expected that each AMSEC would serve about 500 small-scale farmers per season, each with average landholdings of 2 hectares.⁷⁰

This first phase of the AMSEC program increased the availability of mechanization services by 8 percent. Further, farmers in AMSEC areas also perceived a significant reduction in drudgery and a rise in yields.⁷¹ The government estimated that the area under mechanization increased from about 13 percent per hectare in 2008—the first year of the program—to 19.3 percent per hectare in 2010.⁷² The original format came under pressure, however, as machines broke down and few options for repairs and maintenance were available. The loan repayment rate was also extremely low, and, without appropriate training, the uptake was lower than expected. The second phase of AMSEC, which resumed in 2016 and is currently being implemented, was therefore modified to accommodate the lessons learned from the first phase.⁷³

In this second phase, the Government of Ghana secured a concessional loan facility through a South-South Cooperation Program to import agricultural machinery from Brazil. The new phase required a full down payment from AMSECs even though the



highly subsidized rates were retained, thus reducing the risk and cost burden to the government. The beneficiary categories were also widened to include any would-be buyers whether they were AMSECs or individual farmers, and the requirement to purchase a minimum number of machines was lifted. This single change appeared to have been effective in the short term, as 69 percent of purchases in the first year were undertaken by individuals who bought only one tractor.⁷⁴ An individual farmer could, in fact, be classified as an AMSEC if they purchased two or more machines which they then hired out. This was also made more attractive as the variety of implements offered was extended beyond land preparation to include shellers, multi-crop threshers, planters, harvesters, seed drills, and boom sprayers. Most importantly, the new phase offered 1,000 hours of maintenance service to anyone who purchased a tractor, in the form of 12 government-subsidized and mobile workshops that were operated by private individuals. The Brazilian suppliers were also contracted to provide spare parts for two years following delivery of the tractor. The new phase also included training for operators, which was mandatory for first-time buyers.^{75,76}

By March 2018, AMSECs had been set up in 89 districts, with further support from various emerging economies such as Brazil, China, and India.⁷⁷ In the decade prior, approximately 3,000 tractors were imported by the MoFA.⁷⁸ Although the Ghanaian mechanization sector is still in its early stages, with comparatively low machinery growth rates, the government's commitment to mechanization is reflected by its support for the AMSECs and its push toward growing private sector involvement, particularly in the hiring services market. To achieve further progress, and as the Government of Ghana implements its AMSEC program within the context of the broader Planting for Food and Jobs campaign, more targeted interventions on agricultural mechanization will need to be developed and national research capacities further strengthened, for example through dedicated research institutions and courses on agricultural mechanization.⁷⁹

Ghana School Feeding Program

To address hunger and malnutrition, encourage healthy diets, increase school enrollment, and enhance national food production, in 2005 the GoG introduced the Ghana School Feeding Program (GSFP); it provided free cooked meals to school-age children in state run primary schools and nurseries for 195 days of the school year. The program was coordinated at the national level by the Ministry of Gender, Children and Social Protection, assisted

by the Ministry of Local Government and Rural Development, MoFA, Ministry of Education, Ministry of Health, and Ministry of Finance and Economic Planning.⁸⁰ The program centers on sourcing locally produced nutritious food from smallholder farmers, with 80 percent of the program's allocated food budget committed to securing local food.⁸¹

The GSFP school menus are designed with nutrition in mind and contain a broad range of produce. They aim for a balance of 150 grams of cereals, 40 grams of legumes, and 10 grams of vegetable oils, for a total of 760 calories, and they also try for an abundance of local and seasonal produce.⁸² In Northern Ghana, for example, where tomato farming is strong, GSFP menus commonly include a traditional tomato stew and rice dish which meets 6 grams of the daily protein requirement of children aged 4 to 8 and keeps costs low at US\$ 0.13 per meal.⁸³ The GSFP in that way capitalizes on the local agroecological conditions and benefits from cost-efficient implementation, while driving diversification in local production in order to achieve the wider objectives of the program.⁸⁴

The program also seeks to enhance local nutrition knowledge. In 2017, over 5,000 school caterers received training on the importance and application of food safety, hygiene, and nutritional values. In this way, caterers can focus on feeding students nourishing meals while teachers can concentrate on providing quality education, all within a cost-



effective framework. A further benefit is the market that smallholder farmers gain for their produce. Between 2008 and 2013, the school feeding program resulted in a 16 percent increase in school enrollment as well as positive health and nutrition outcomes for students, with GSFP beneficiaries showing a 10 percent reduction in the prevalence of anemia and a 6-gram increase in hemoglobin concentrations.^{85,86} In 2019, the program reached over 54.6 percent of school-enrolled pupils across Ghana, and it hopes to reach 74.8 percent by 2023.⁸⁷



To sustain these achievements, the GoG is maintaining its commitment to improving school enrollment and child nutrition. In 2018, the budget for the GSFP program was raised by 30 percent, totaling US\$ 61 million.⁸⁸ Within just one year of this increased funding, it was reported that the program had provided one hot meal a day to over 2.6 million students in 8,683 schools across all the districts of Ghana.⁸⁹ The program has also shown a marked improvement in the heights of students, particularly for girls aged five to eight years.⁹⁰ Moreover, reducing hunger in pupils saw improved concentration, understanding, and overall educational performance, and marginal increases in test scores.⁹¹

CONCLUSION

Through focused and resolute efforts, Ghana has demonstrated its capacity to reduce poverty and malnutrition. Institutional coordination run through the National Development Planning Commission is critical to promoting a clear mission for a sustainable food system and to facilitating the effective delivery of services and support to the different actors. Together with this, the MoFA's decentralized approach ensures that the process of a food systems transformation is inclusive and impactful. Investments in irrigation have strengthened the country's resilience against climate variability, while the establishment of NAFCO has significantly contributed to stabilizing food prices, ensuring continued food supply, and providing remunerative prices for agricultural produce. In addition, through the YEA, the government is also undertaking actions to facilitate youth employment in the food system. The extensive long-term nature of GoG's flagship strategies is recognized as being key to ensuring that short- and mid-term, as well as cross-sectoral, interventions achieve a common objective for sustained and inclusive growth. The Planting for Food and Jobs campaign, for instance, which consumes a large share of the agricultural budget, is

further evidence that the government is centralizing the agricultural sector to drive both economic growth and progress on health and nutrition. The PFJ's focus on enhancing capacity within the private sector is seen as a key ingredient of its success, one outcome of which has been increased private sector investment in food and agriculture. This in turn ensures the long-term sustainability of the program.

As Ghana moves forward, however, the increasing prevalence of overweight and obesity requires a more holistic approach to the transformation of food systems, in response to an overall deterioration in the health of the nation. Through careful policy-making and programming, greater emphasis must be placed on the production and consumption of more diverse foods, using nutrition information and regulation to drive change among consumers. Despite strong intentions to improve the food environment—including the plan in the NCD policy to ban the advertisement of unhealthy food and drinks to children and the proposed rollout of the GSFP to high school children under the School Feeding Bill—the GoG needs to strengthen implementation. Similarly, as climate impacts become more frequent and costly, it is becoming ever more necessary to enhance social protection schemes and to reduce vulnerability to climate shocks in the food system. While Ghana has seen an impressive transformation in its food systems, which has been coupled with a rise in public sector investments, the country still falls short of meeting its CAADP commitment to allocate 10 percent of national expenditure to the agricultural sector. As it continues its efforts, and particularly in light of the UN Food Systems Summit 2021, the government must consider scaling up school feeding programs and increasing support for agribusiness and storage infrastructure, all of which will truly harness the benefits of the raised productivity resulting from the PFJ campaign.



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