

THE EFFECTS OF COVID-19 ON FOOD SYSTEMS IN SUB-SAHARAN AFRICAN COUNTRIES AND PRECAUTIONARY MEASURES TO MITIGATE EFFECTS

CASE STUDY: GHANA

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Our world is on the verge of facing a massive, unrelenting hunger pandemic. According to the Reuters international news organization, the head of the World Food Program, David Beasley, recently said 135 million people already face acute food shortages (Win, 2020). Due to disruptions of local and national food systems caused by the emergent Coronavirus pandemic (COVID-19), this figure could nearly double to 265 million people by the end of the year (Win, 2020). In this worst-case scenario, three dozen nations could be ravaged by famine (Win, 2020).

We seek to understand the impact COVID-19 has on the frameworks of food systems in the sub-Saharan region of Africa. Once understanding the relevant food systems' configurations in sub-Saharan Africa and investigating the mechanisms by which COVID-19 suppresses existing food systems, we formulate precautionary measures that can reduce the disruptions these food systems may become subjected to by a similar global catastrophe in the future.

On March 11, 2020, the World Health Organization officially recognized the Novel Coronavirus Disease, COVID-19, as a pandemic (World Health Organization, 2020). To reduce the rampant spread of COVID-19, people were encouraged to self-quarantine and follow relevant social distancing measures. Governments established travel bans, imposed large scale lockdowns and forced brick and mortar businesses to quickly halt operations (World Health Organization, 2020).

The sacrifices individuals chose to endure (or were forced to make) in order to combat the spread of COVID-19 helped save countless lives. Nevertheless, choosing to quarantine and slow down the economy in order to prevent the spread of COVID-19 came with steep economic costs. Nations all over the world still face massive spikes in unemployment, large scale business closures, mass reductions in consumerism, and disruption in essential markets (World Health Organization, 2020).

Africa's agricultural industry is and continues to be severely disrupted by the Coronavirus pandemic. Before the outbreak of COVID-19, two-thirds ($\frac{2}{3}$) of the continent's working population had jobs that were directly related to the production and transportation of food. Agriculture also made up at least 20-60% of each nation's GDP (National Geographic Society, 2012). Given agriculture's large market share in Africa and the necessity of food for survival, security and proper social development (Barilla Center for Food & Nutrition, 2018), it is quite reasonable to expect disruptions to food systems can have severe consequences. To minimize these consequences, we must first understand what a food system is and which elements of local and regional food systems in Africa are most adversely affected by the Coronavirus pandemic.

In its most fundamental form and definition, a food system is a comprehensive pathway that accomplishes the challenge of feeding the masses. Food is harvested, processed, packaged, transported, marketed, and consumed (Oxford Martin Programme on the Future of Food, 2020). Each of these processes may be regulated via government policy and requires a multitude of inputs including labor, natural resources and access to or accumulation of capital goods.

We surveyed locals to understand how the COVID-19 pandemic has affected their food systems. There were a multitude of common issues other than the shortages of labor that we first predicted. Local markets failed to deliver food to consumers, even in areas where a sufficient amount of food was produced. Stockpiles of excess food remained, and the contents of these stockpiles eventually spoiled. This issue was compounded by the lack of international trade, caused by government-imposed shutdowns in countries such as Rwanda. As markets became even worse at distributing surpluses, individuals began stockpiling food, especially in areas where there was not much to go around. This in turn caused food prices to skyrocket, further decreasing its accessibility and perpetuating the cycle of hunger.

We first seek to alleviate the aforementioned issues by drafting policies that would strengthen food systems in Ghana—Chosen for its vibrant economy and political stability—if implemented. After doing so, we will tailor our suggestions to fit the needs of other sub-Saharan countries with food systems that are significantly disturbed by the COVID-19 pandemic.

Case study: Ghana

The Republic of Ghana is in Western Africa. It lies along the Gulf of Guinea and the Atlantic Ocean and directly borders the Ivory Coast, Burkina Faso, and Togo (Britannica,2020). The region of Western Africa is heavily dependent on agriculture as 35 percent of the region's GDP is from agricultural produce and 60 percent of the active labor force is involved with agriculture (Marras et al.). In this study, we will mainly focus on Accra, an urban region of Ghana.

Food production



(UNDP, 2018)

About 57% of the Country's total land area is considered arable. i.e. 136,000 km² of land (approximately 52,510 square miles) is considered "agricultural land area" (Marras et al). In Accra, 17% of the urban population 15 years and older by 2017 (equal to 2.2 million people),

worked in the agriculture, forestry or fishery industry, with 16.5% (2.2 million) skilled in agriculture or fishery (Marras et al.). In addition to that, 11.1% (1.5 million) were self-employed people engaged in agriculture and another 7.1% (930,000) were contributing to family agricultural activities (Marras et al.).

In Accra, with the food needs at hand, most Ghanaians opted for UPA (urban and peri-urban agriculture) which is a farm and non-farm activity adopted for livelihood and domestic food security improvements (Marras et al.).

Some of the crops grown by UPA farmers include cereals, vegetables, and tubers. With vegetables being the main grown crops, they are grown by seasonal crop farmers or backyard farmers mixed with cassava and maize (Marras et al.). In Accra, backyard farmers grow fruits, millet, beans grains, legumes, soya beans, and plantains.

(Marras et al.). Common inputs for almost all agricultural sub-systems include money, land, and water. The main source of capital for virtually all urban farmers in Accra is their own and a small portion of credit -- mostly owned through informal ways {i.e. private moneylenders} (Marras et al.). Due to the high cost of mineral fertilizers, farmers adopted new ways to fertilize their crops by using poultry manure, cow dung, and composts (Marras et al.). Farmers show poor knowledge of how to use fertilizers, which lead to pollution and degradation of the environment.

In the livestock industry, looking at the numbers published in (book citation), the most farmed animals in Ghana are chickens (350,000 heads), which account only for 1% of all chickens farmed in the country followed by goats (75,000 = 1% of domestic heads), cattle including calves (60,000 = 2.7%), pigs (25,000 = 2.2%), ducks (13 000 = 1.9%), and sheep (12,000 = 0.2%) (Marras et al.). Rabbits are the least-farmed animal in Ghana.

In Accra, Cattle, goats, and sheep are raised in peri-urban areas for commercial purposes whereas Pigs and poultry are raised in small farms located in both peri-urban and urban areas as well as backyards for household consumption (Marras et al.).

With the rampant COVID-19 spreading like wildfire and all the restrictive policies to stop it, scientists, political scientists, and economics ideate financial crises in most countries. With the pandemic at hand and a huge number of people depending on agriculture and agriculture-related activities as exemplified by the data above, the number of people living in extreme poverty is

expected to rise, and Africa as well as Ghana is at risk of facing an unprecedented hunger strike. In a few words, the food production component was tremendously affected as follows:

- The lockdown, by restricting movement, has adversely affected the availability of farm inputs and other farm services, which led to less yield and slowed down the food production (Abroquah, 2020).
- Rural farmers could not access city centers and tractor service providers were faced with challenges in obtaining spare parts and other mechanical repair services (Abroquah, 2020).
- For livestock owners, feed ingredients such as soybean meal, wheat bran, and layer/broiler concentrates (mostly from imported sources) are gradually becoming hard to find. In addition to that, the prices of those already available skyrocketed due to scarcity (Abroquah, 2020).

However, not only food production was affected by COVID-19 but also food processing and the supply chain.

Food Processing and Supply



About 1,800 types of industrially processed food products were recently reported to be sold across all different types of outlets in Accra; more than half were cereal and legume products (Marras et al.). Other processed products retailed are fruit and vegetable juices and chopped fruit, dairy and cocoa beverages, canned fish, starchy staples, and palm oil (Marras et al.). Food processing is largely carried out at household level or in small to medium-size plants, which account for 70% of the national agro-food business. The few medium and large industries focus on regional and international markets (Marras et al.). In GAMA (Greater Accra Metropolitan Areas), 13.2% of households both, agricultural and non-agricultural, are involved in some form of food processing, either for household consumption or for sale (Marras et al.). Studies have shown that processed fish contribute to the increment of food security in Ghana, but due to its unsanitary processing, it was shown to be bad for one's health (Marras et al.). Large cattle and pigs are usually sold through intermediaries, whereas the trade of small ruminants, poultry, and grass cutter seldom does not involve intermediaries, as farmers sell directly to neighbors, butchers, chop bars, and consumers at markets (Marras et al.).

From the above data, it is irrefutable to mention that most of the people involved in the processing and supply chain in Ghana especially the urban and peri-urban areas were adversely impacted by COVID-19. Some of the ways they suffered include:

- Job losses. The supply chain employs a lot of people. When the government propounded restrictions on movement and deployed military personnel into towns and cities to enforce the partial lockdown, the activities of food supply participants took direct hits (Abroquah,2020).
- At the beginning , there was a drastic reduction in the number of fresh food retailers in the markets and the decision of some managers to close restaurants, hotels, and other local eateries has massively reduced the bulk purchase of fresh food and led to food spoilage (Abroquah,2020).
- For animal farmers like those in the poultry industry, festive seasons are a moment for peak sales. Unfortunately, the Easter season and Ramadan have not given poultry farmers the spotlight they normally receive during those celebratory times (Abroquah,2020).

By looking closely examining the above problems that resulted from the outbreak of the COVID-19, this pandemic disrupts the agricultural sector and more particularly food security. This said it is urgent to reflect on how to mitigate the effects of this pandemic on agriculture so as not to fear the worst. With the data and problems at hand, what should governments do to alleviate the effects of COVID-19 on its citizens, especially those whose citizens depend greatly on agricultural and agriculture-related activities?

Though there is no clear answer to the above question, some policies and recommendations can be implemented to solve the issues of food insecurity, unemployment, etc permeating the greater region of sub-Saharan Africa.

I. An alternative source of imports

Most countries, currently, due to travel bans established to stop the spread of the Coronavirus, face an increase in demand that exceeds the supply, thus, causing emptying shelves. If that's the

case then, if anything, distracts the source of imports for any other country, then that nation descends in food shortage. However, finding an alternative source of imports can not only alleviate the food shortage but also keep the economy and other activities working. The situation of French retailers is a compelling example of this. According to the Organization for Economic Co-operation and Development, in its article, *Food Supply Chains and COVID-19: Impacts and Policy Lessons*, when Indian exports of rice became temporarily unavailable, French retailers found an alternative source of imports, and Pakistan was readily accessible to them (OECD, 2020). So, what can African countries learn from this? African countries should establish a coalition between themselves whose aim is to supplement each other's food production. This will not only alleviate the hunger problem. It will help people gain their jobs since the food system will continue to operate.

However, a critic might say that since most African produce or grow the same products, there will be not that much trade going on between themselves. With that said, governments should not limit themselves to creating a coalition between nearby countries. They should base on various factors such as cost, quality of the product, and the country's food needs when creating or entering a coalition deal. This will not only serve as a solution to the emptying of shelves but also will boost the economy in the long run.

II. Increasing the pool of essential workers and ensure the implementation of best practices for safety and hygiene

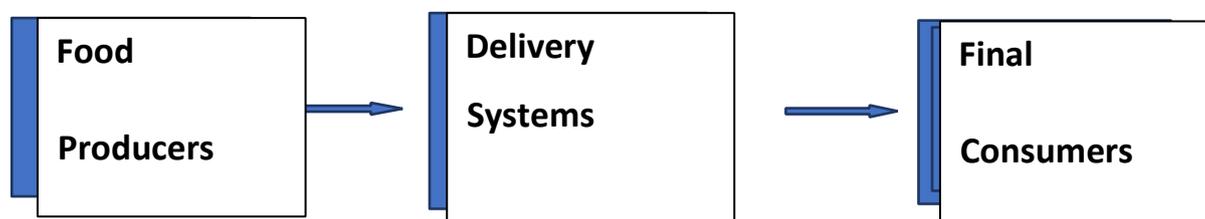
For most countries, the immediate response to COVID-19 outbreak was to strictly shut down the economy and pass the stay home order. However much effective is this order to stop the spread of the virus, it has had a great impact on the economy. With Africa, greatly depending on agriculture, this essential sector as well as the food system in general were severely affected by this proclamation. However, some countries like Rwanda and most countries in the Western part of the world, expanded the categories of essential workers to include people who work in the food industry instead of shutting down the economy. In addition, they enforced wearing a mask for personal and public safety in addition to social distancing protocols. Though this is not as effective as the stay home order, data shows the reduction in COVID-19 and the rising again in the economy in most European countries (OECD, 2020). According to The Organization for Economic Cooperation and Development, some other policies implemented by the European

countries are loosening visa restrictions to attract foreign seasonal workers and administrative flexibility (OECD, 2020). If most African countries could implement this policy through expanding the pool of essential workers and educating the public about the importance of wearing a face mask and social distance, countries would see the reduction in contact traces and the spread of the virus as well as economic growth.

Furthermore, in case history repeats itself, policy protecting food workers as essential workers would still be in place and the food sector will not affect as seen in 2020.

III. Shifting to more online services

In the past decades, there was a sharp increase in the technological sectors on the continent of Africa. Countries like Rwanda started making their own smartphones and most activities digitized. Using different platforms to sell produce directly to consumers would not reduce the contact traces but also help farmers and other producers stay in business. As seen above in Ghana, one of the problems is the drastic reduction in the number of fresh food retailers in our markets and the decision of some managers to close down restaurants, hotels, and other local eateries has massively reduced the bulk purchase of fresh food and led to food spoilage. With this option of using online delivery services and restaurants switching to providing take-out and delivery will both limit human interaction as well as keeping the food system and the supply chain robust. This would be implemented by supporting businesses that offer services and act as supply chain liaison. For instance, it would not be necessary for farmers and final consumers to interact, and food would be sold through an online delivery system.



In the food production category, there are big and small farm holders and any individual or institutions involved in food production. The delivery systems could be the government, a delivery company, or any individual or entity dedicated to offer such services. Finally, the final consumer category consists of the public, hotels, processing plants, etc.

However, a critic might say that most of Africa does not have access to the necessary technology and education to carry out trade online. However, this recommendation is not primary. Instead, it supplements the two aforementioned policies. It goes without saying, during the pandemic, governments need all hands-on deck to solve problems that arose from the global catastrophe that is still plaguing much of the world today.

IV. Other solutions

In addition to the above solution, from a discussion with Marietta Gonroudobou, a master's degree in agriculture and bioproduction holder, suggested that, as long-term solutions:

- promote urban agriculture, to bring agricultural products closer to people in urban areas.
- Support and encourage the use of new technologies such as greenhouse crops (soilless crops or hydroponics), and adapt agricultural research to new living conditions in order to develop new techniques that aim to reduce the use of human labor and promote the mechanization of agriculture” (Gonroudobou, 2020).

With all uncertainties surrounding the COVID-19, these recommendations might not work in every country. What is known for a fact is that health of the people comes first, but policy makers should establish guidelines that do not comprise other facets of people's lives. In other words, avoiding irreversible economic damages that could arise from poor policymaking.

To summarize, it is crucial to note that this is not only a fight for governments' officials. It's a war on a costly concern that involves people themselves and how they live their daily lives. Knowing to socially distance, wearing a mask, and obeying experts' advice about the matter at hand is key to a healthy society. As the saying goes, “a healthy society is a wealthy society”.

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