

COVID-19 and Food Insecurity: A view on Africa

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Abstract— COVID-19 pandemic poses significant challenges to the already strained health, food and nutrition security and broad socio-economic conditions in Africa. The growing direct impact of the pandemic is affecting health, in terms of morbidity and mortality, quickly overburdening health care services with negative repercussions for non-COVID-19 related health problems. The decline in demand and production from the most economically developed countries where contagion had initially hit hardest is causing a global recession, with direct repercussions in Africa. With the spread of the virus in the continent, containment measures, including social distancing and lockdowns, closing of schools, the prohibition of public gatherings and the closure of non-essential businesses and economic activities, will have far-reaching consequences. This study is sought to understand how the COVID-19 will pose a threat to food security in Africa. The study starts with the basic understanding of what food security is and its effects, the existing crisis in Africa, the study of various pandemics and epidemics and its effects on food security and finally COVID-19's effect on china where it was first discovered. The condition in Africa was worse before the pandemic hit the world and countries with better economy barely surviving due to restrictions in movement, the only way to avoid a hunger epidemic is with a better understanding of the threat the pandemic poses and where and working through it. We survived before and we will survive this one too.

Index Terms— Africa, COVID19, Food Insecurity, Food crisis, Food system, Health, Pandemic

1 INTRODUCTION

The number of cases of COVID-19 (Coronavirus disease) have grown globally ever since its first occurrence in Wuhan, China. Although China has seen a comeback to the world, the world is yet to see the light at the end of the tunnel, far from it in fact. The studies shown by Harvard T.H. Chan School of Public Health has pointed us to a place that is long away from what we can hope. In their report published on April 14, 2020 it is very evident that we may have to live with the virus through intermittent social distancing. With industries shutting down and people kept away from their workspace, what will happen to us when the most important commodity is scarce.

Food security is a major concern during this time. Food is a fundamental human right. A little over 820 million people suffer from hunger, corresponding to about one in every nine people in the world. Access to quality, nutritious food is fundamental to human existence. Secure access to food can produce wide ranging positive impacts, including:

1. Economic growth and job creation
2. Poverty reduction
3. Trade opportunities
4. Increased global security and stability
5. Improved health and healthcare [13]

After initial reassurances that COVID-19 posed no concerns to global food security, as the world's silos were well stocked [16], the tone has now changed. We are now being warned that global hunger could double due to food supply disruptions caused by the pandemic, especially in poor nations and in Africa [5].

The three key elements of food security are [10]

- **Food availability:** the amount, type and quality of food available, which depends upon production, distribution and exchange mechanisms (such as retail).

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- **Food accessibility:** the ability to access the food required, which depends on households' purchasing power and the price of food, the various market and non-market mechanisms through which food is allocated, and the "social or cultural norms and values that influence consumer demand for certain types of food"
- **Food utilization:** the nutritional value of the food that is accessed, and food safety.

According to Food and Agriculture Organization (FAO), a person is food insecure when they lack regular access to enough safe and nutritious food for normal growth and development and an active and healthy life. Food insecurity leads to incorporating various negative coping strategies which leads to lowered dietary quality & negative eating behaviors and reduced bandwidth. This then can later lead to chronic diseases such as diabetes, HIV/AIDS, which increases healthcare expenditures, decreases employability which reduces the household income and increase in spending tradeoffs which again brings us back to where we started. Food insecurity also brings in another word into play "stress" which has a role throughout the entire process, physical stress and mental stress are just parts of an endless cycle [14]. Food insecurity can provoke a stress response that may contribute to anxiety and depression. Furthermore, acquiring foods in socially unacceptable ways can induce feelings of alienation, powerlessness, shame, and guilt that are associated with depression [11].

SARS, the avian influenza and other pandemics led to food price hikes and market panics in affected areas. If history is to be our guide in this outbreak then with the onset of the pandemic should we expect a hike or even more? Can countries in Africa bear it? With no possibility of vaccinations, the existence of pandemic could go on for an interminable time and not every nation can hold the same as the others.

The focus of this study is to understand the possible impact COVID-19 will have on the food security in Africa through the study of the existing condition of food insecurity in Africa, the impact of previous pandemics and epidemics on

food security in Africa and the impact COVID-19 on food security in countries that have already witnessed the pandemic.

2 GLOBAL FOOD CRISIS

According to The Global Report on Food Crisis (GRFC), 2019 saw 135 million people in crisis or worse which was also the highest in the existence of the same. When comparing the 2019 and 2020 reports it was found that 50 countries were prevalent in both the reports and that the number increased from 112 to 123 million in them. This reflected worsening acute food insecurity in key conflict-driven crises, notably the Democratic Republic of the Congo and South Sudan and the growing severity of drought and economic shocks as drivers in countries such as Haiti, Pakistan and Zimbabwe. An estimated 75 million stunted children were living in the 55 food-crisis countries analyzed [7].

Integrated food security Phase Classification (IPC), on acute food insecurity, classifies the following as differentiation between different levels of severity of acute food insecurity:

1. Minimal/None
2. Stressed
3. Crisis
4. Emergency
5. Catastrophe/Famine.

These are the classifying units of analysis in five distinct phases [8].

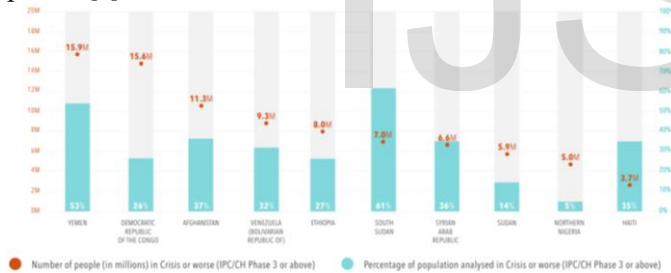


Fig. 1. The 10 worst food crisis in 2019 by number of people in crisis or worse (IPC/CH Phase 3 or above). Source: FSIN, GRFC 2020.

From the above fig. 1 we can understand that the worst hit countries are in Africa, and Asia. With the ongoing pandemic 130 million more could go hungry in 2020, said Arif Husain, chief economist at the World Food Program, a United Nations agency. Which brings a total of 265 million people living in food insecurity by the year end.

2.1 Factors affecting the food security in Africa [7]

1. Weather extremes
2. Conflict/insecurity
3. Economic shocks
4. Displacement (except in West Africa and the Sahel, and Cameroon)
5. Nutrition

2.2 Existing Food insecurity in Africa

Among the acutely food-insecure people in Crisis or worse, the continent of Africa houses more than half the number of affected population, accounting for 54 percent of the global total number. The number in Southern Africa was the highest at 30.4 million, increasing from 23.3 million in 2018. The six East African countries in the Intergovernmental Authority on Development (IGAD) region accounted for 27.5 million people in food crisis, representing a slight increase from 2018 (26.7 million), mainly due to weather-related shocks in Kenya, conflict and persistent economic challenges in South Sudan and the refugee influx and weather extremes in Uganda. Countries in West Africa and the Sahel, and Cameroon accounted for more than 12 million people in Crisis or worse (CH Phase 3 or above). This represents a slight rise from 11 million in 2018 due to a notable increase in acute food insecurity in Burkina Faso, Cameroon and the Niger. Although there was a year-on-year decline in Chad and Senegal, and a stabilization in northern Nigeria and Mali, the situation deteriorated towards the end of 2019 in all these countries [7].

In 2019, around 182.6 million people were classified in Stressed (IPC/CH Phase 2) conditions across 47 countries, with 71 percent of them concentrated in 32 countries in Africa [7].

2.2.1 Kenya

In the analysis period of February 2020, 1.3 million people (9 % of the population analyzed) are estimated to have faced Crisis (IPC Phase 3) or worse acute food Insecurity, of which 296,500 people faced Emergency (IPC Phase 4) acute food insecurity in Isiolo, Kilifi, Kwale, Turkana, Mandera, Marsabit, Samburu and Wajir; 1,022,500 people are faced Crisis (IPC Phase 3) mainly in 19 counties out of the 23. In the projection period of April-July 2020, 980,000 people (6% of the population analyzed) will likely face Crisis (IPC Phase 3) or worse acute food insecurity, with 112,500 people in the counties of Kwale, Turkana and Marsabit estimated to be in Emergency (IPC Phase 4) [9].

2.2.2 Tanzania

Between November 2019 and April 2020, nearly one million people, 20% out of a population of 4.8 million in 16 analyzed districts of Tanzania, were estimated to be experiencing severe food insecurity (IPC Phase 3 and 4). An estimated 224,700 people (5%) were classified in IPC Phase 4 (Emergency) and around 760,600 people (16%) in IPC Phase 3 (Crisis). Around 1,655,600 people (34%) were classified in IPC Phase 2 (Stress) [9].

2.2.3 South Sudan

In the analysis period of January 2020, 5.29 million people (45.2% of the population) are estimated to have faced Crisis (IPC Phase 3) or worse acute food insecurity, of which 1.11 million people faced Emergency (IPC Phase 4) acute food

insecurity. About 40,000 people were classified in Catastrophe (IPC Phase 5) in the counties of Akobo, Duk and Ayod in Jonglei State. Compared with the same time last year, the January 2020 levels of food insecurity reflect a 9% reduction in the proportion of the population facing Crisis (IPC Phase 3) or worse acute food insecurity.

In the projection period of February to April 2020, 6.01 million people (51.4% of the population) will likely face Crisis (IPC Phase 3) or worse acute food insecurity, with 20,000 people in the counties of Akobo and Duk estimated to be in Catastrophe (IPC Phase 5). In the projection period of May to July 2020, 6.48 million people (55.4% of the population) will face Crisis (IPC Phase 3) or worse acute food insecurity, which is 5% lower than was projected for the 2019 lean season [9].

2.2.4 Somalia

Despite above-average national cereal crop production and improved livestock production following a largely favorable Deyr (October-December) rainy season, up to 1.3 million people across Somalia are expected to face food consumption gaps or depletion of assets indicative of Crisis (IPC Phase 3) or worse outcomes through mid-2020 [9].

2.2.5 Central Africa republic

In the period from September 2019 to April 2020, corresponding to the post-harvest period in most of the country's agro-climatic zones, it is estimated that despite planned food assistance, the sub-prefectures of Obo, Zémio, Bria, Ndjoukou, Ippy, Kouango, Batangafo and Kabo are in Emergency (IPC Phase 4), while 47 sub-prefectures are in Crisis (IPC Phase 3). 1.6 million people, representing 35% of the population analyzed (4.6 million), are severely acutely food insecure, including 375,000 (nearly 10%) in Emergency situations. During the lean season, between May and August 2020, in the absence of food assistance, it is estimated that 2.1 million people, representing 47% of the population analysed, will be severely acutely food insecure, including more than 675,000 people in Emergency situations [9].

2.2.6 Ethiopia

Food security analysis conducted in six regions of Ethiopia indicates that, despite ongoing assistance, an estimated 8 million people (27% of the 28.7 million people analyzed) were severely food insecure in IPC Phase 3 (Crisis) or worse between July and September 2019. Of these, about 6.1 million people were classified in IPC Phase 3 (Crisis) and about 1.9 million people in IPC Phase 4 (Emergency) [9].

2.2.7 Democratic republic of Congo

Between July and December 2019, 15.6 million people faced severe acute food insecurity (IPC phase 3 and more) including 11.7 million people in Crisis (Phase 3) and more than 3.9 million in Emergency (IPC Phase 4). For the projected period (January – May 2020), 13.6 million are expected to be in severe acute food insecurity with more than 3.6 million in Emergency (Phase 4).

The population most affected by severe food insecurity (Phase 3 and more) live in the Grand Kivu (the provinces of Maniema, North and South Kivu), the Grand Kasai (provinces of Kasai, Kasai Central, Kasai Oriental, Lomami and Sankuru), the Grand Katanga (provinces of Haut Katanga, Haut Lomami, Lualaba and Tanganyika) and the former Eastern provinces (Tshopo, Ituri, Bas Uélé and Haut Uélé). The situation is however the most critical for the provinces of Ituri, Kasai, Kasai-Central, Eastern Kasai, South Kivu and Tanganyika where 12% to 15% of the population are classified in Emergency (Phase 4) [9].

2.2.8 Madagascar

By the end of July 2020, corresponding to the harvest period, the number of people in Crisis (IPC Phase 3) in the nine districts analyzed will likely reach approximately 527 000 (23% of the population analyzed, an increase of almost 10% compared to the estimate made in October 2019). As for the number of people in Emergency (IPC Phase 4), it is estimated at 27,400, or 1% of the population analyzed.

Despite the humanitarian aid provided since January 2020 and planned until July 2020, eight districts will likely remain in Crisis (IPC Phase 3) and Tulear 2 in Stress (IPC Phase 2). Almost all the districts of the Great South were affected by the drought that occurred between January and March 2020. Ampanihy and Tsihombe Districts are the most affected, with 25% of households expected to be in IPC Phase 3 (Crisis) and 5% in IPC Phase 4 (Emergency) [9].

2.2.9 Zimbabwe

Currently, 45% of the rural population is in Crisis or Emergency (IPC Phase 3 and 4) while 29% is Stressed (IPC Phase 2). This is a deterioration from the last analysis conducted in June 2019, when 38% of the total population was in IPC Phase 3 and higher [9].

2.2.10 Namibia

Between October 2019 and March 2020, an estimated 430,000 people are facing severe acute food insecurity (IPC Phase 3+) and require urgent humanitarian action. The most affected regions are Hardap, Kavango West, Khomas, Kunene, Ohangwena, Omaheke, Omusati, and Zambezi, which are classified as IPC Phase 3 (Crisis). Crisis conditions are mainly due to the poor rainfall in the previous planting season which led to a significant decline in cereal production in 2019. Water shortages also contributed to significant livestock deaths in the northwestern and southern regions. In the projection period between April and September 2020, an estimated 360,000 people are expected to experience severe acute food insecurity. The most affected regions are Hardap, Khomas, Kunene, Omusati and Zambezi, which are classified as IPC Phase 3 (Crisis) [9].

2.2.11 Malawi

Nearly 1.9 million people in Malawi are in a food crisis (Phase 3), in the period November 2019 to March 2020, which is the peak of the hunger season. These people require urgent

action to prevent significant food consumption gaps and use of negative livelihood coping strategies. The food security situation in Malawi has significantly deteriorated since the projection undertaken in June for most of the country owing to changes in availability of maize grain stocks, the price of maize and alternative food commodities, the decrease in the winter harvest, below average rainfall forecast for the southern districts, and consequent reduction in agricultural labor opportunities [9].

2.2.12 Angola

In the current period (July to September 2019), about 422,000 people are classified in IPC Phase 3 (Crisis) and 4 (Emergency). Households in these phases are facing difficulties in accessing food or are only able to meet their minimum food needs through Crisis and Emergency coping strategies [9].

In the projection period (October 2019 to February 2020), it is estimated that about 562,000 people will be in IPC Phases 3 and 4, and households will face difficulties in accessing food or will only be able to meet their minimum food needs through Crisis and Emergency coping strategies. (IPC, 2020) The southern part of Angola, where the three provinces analyzed (Cuando Cubango, Cunene and Huila) are located, was severely affected by the drought, driving the current situation of acute food insecurity. As a result, poor agricultural production, loss of animals, water scarcity for human consumption and watering of livestock, loss of assets, displacement of people and animals have affected livelihoods [9].

2.2.13 Zambia

In the current period (May to September 2019) around 1.7 million people are estimated to be in IPC Phase 3 or worse. In the projection period, covering the lean season between October 2019 and March 2020, the number of people in need of urgent action is expected to rise to about 2.3 million people. The devastating effects on agriculture production of erratic rains, dry spells, water logging, false and late starts to the 2018/2019 rain season were the main causes of reduced crop production, contributing to the acute food insecurity conditions across the country [9].

Mozambique

Multiple and consecutive shocks have caused the current acute food insecurity situation in Mozambique. While drought and pests affected much of the country, the central area was severely hit by cyclones Desmond and Idai, and the northern area by Cyclone Kenneth as well as insecurity [9].

2.2.14 Lesotho

Nearly a quarter of Lesotho's population (around 349,000 people) is facing severe acute food insecurity (Phase 3 and 4) between May and September 2019, and requires urgent humanitarian action. These include around 68,000 people being in Emergency (Phase 4) and nearly 280,000 people being in Crisis (Phase 3). Households in these phases have moderate to large food consumption gaps and above usual

acute malnutrition or are only marginally able to meet minimum food needs by depleting essential assets or employing crisis and emergency coping strategies. Almost 470,000 people are also in Stressed conditions (Phase 2) and require livelihood support [9].

3 MIGRANT LABOURS IN AFRICA

It is also important to talk about the intra-African migrant workers in various sectors, whose demand for labor is the key driver of migration. Contemporary economic migration in Africa predominantly involves low-skilled migrants and is largely concentrated in sectors such as agriculture, domestic service and information trade. Under low skilled migrants, demand in agricultural and domestic work drives internal and intra- African migration. Intra-African migration is a catalyst for economic growth and structural transformation; it contributes to gross domestic product, employment, trade, poverty reduction and inclusive growth [16]. The figure shows share of migrants in agriculture, domestic service and information trade in Africa.

	IN ORIGIN COUNTRY	IN DESTINATION COUNTRY
Burkina Faso (2010)	90.6	52.9
Ethiopia (2014)	40	57
Ghana (2013)	59.5	49
Senegal (2010)	6.7	11.2
South Africa (2010)	20.3	17.8
Zimbabwe (2015)	41.2	40.8

Share of migrants in low-skilled occupations (agriculture, domestic service and informal trade) in origin and destination countries. (Percentage). Source: UNCTAD calculations based on university of Sussex, 2018 and World Bank, 2013.

4 PANDEMICS AND FOOD SECURITY

4.1 AIDS Pandemic- 1981

Late 20th Century, Acquired immune deficiency syndrome (AIDS) was declared a pandemic by WHO. Approximately 10% of the world population lives in sub-Saharan Africa, but the region is home to approximately 64% of the world population living with human immunodeficiency virus (HIV) in 2006. Southern Africa is the epicenter of the AIDS epidemic; all countries in the region except Angola have an estimated adult (aged 15--49 years) HIV prevalence exceeding 10%. In Botswana, Lesotho, Swaziland, and Zimbabwe, the estimated adult HIV prevalence exceeds 20%. South Africa, with an HIV prevalence of 18.8% and 5.5 million persons living with HIV, has, along with India, the largest number of persons living with HIV in the world [2].

4.1.1 The impact of HIV/AIDS on food security

1. Decrease in the agricultural labor force: Decrease in the area cultivated, in weed-ing, pruning and mulching, resulting in a decline in crop variety, yields and ultimately soil fertility, Increase in fallow land returning to bush, Less labor intensive cropping patterns and animal production, Decrease in women's productive activities due to

their role as care providers, Missed planting seasons.

2. Change in household nutritional status: Increase in the malnutrition of people living with AIDS and other household members due to the increasing impoverishment of the household
3. Loss of agricultural knowledge, practices and skills and their transmission from one generation to the next: Decrease in the availability of skilled labor and essential agricultural knowledge for orphan-headed households, Loss of gender-specific agricultural knowledge [4].

The food situation in low income countries, especially but not only in Africa, shows no improvement and continues to cause grave concern. Despite sizable crops of coarse grains in some African countries in 1981, per capita food production in this region declined further by 0.4% in 1981 and was about 10% lower than a decade earlier. Since then, the situation in southern Africa has sharply deteriorated [3].

4.2 Ebola Virus - 2014

Although Ebola virus is different from COVID-19 be it transmission, progression, severity. The food system disturbance it is causing is quite similar, especially during the 2013-2016 outbreak in West Africa, Sierra Leone and Liberia. Its effect caused reduced household income levels in Liberia both directly and indirectly. It was also found that a community level incidence had negatively affected crop production of farm households which worsened the problem of food insecurity in the country. The Ebola virus outbreak and the responses in Sierra Leone had led to wreckage of the food chain and had impacts on food security and nutrition. Just like what we are witnessing in real time, the government restricted movement of people due to border shut downs, road blockages and community quarantines which led to economic downfalls, less availability of food, purchasing power etc. [12].

5 IMPACT OF COVID-19 ON FOOD SYSTEMS

5.1 China

As the first epicenter of COVID-19 that was hit the hardest during the initial outbreak period with evidence pointing towards the wet markets functioning in China as the possible source of the virus outbreak. The production and distribution are the two elements that were affected the most. The lockdown and mobility control on population has led to problems in transportation of food produce and labor shortage, which led to disruptions in the production. The distribution means of products and produce was affected. The reduced demand for agricultural produce in restaurants and canteens due to shutdown led to seasonal vegetables and fruits being left to rot.

On 21st of January 2020, the state council in china set up the joint prevention and control mechanism, it comprised thirty two departments on various scales to help control the effects

of the pandemic on the nation and its people. Forty policy documents were released so far and the one focusing on food and agriculture demonstrated strong support on production and distribution of agri produce during the pandemic.

Along with this various measures were taken to ensure production in low, medium and high risk regions. In low-risk regions, production is required to completely resume while measures to prevent imported cases are conducted. In medium-risk regions, production is resumed step by step with necessary epidemic control measures in place. In high-risk regions, resuming production is carefully organized by requiring farmers to go to their fields separately at different times while main efforts are focused on epidemic control. The labor shortage issue was mitigated by the government advising the farmers to make use of the migrant workers who had returned from the cities with precautions taken such as social distancing, provision of masks, sanitizers etc. Measures to match the supply, demand and logistics were taken.

Various actions were taken during the 77 day lockdown in Wuhan city, Hubei province. Shouguang, one of the country's biggest hubs for growing, trading and shipping vegetables, donated produce by the truckload to the locked-down city, which houses 11 million people. Having a major food-production and distribution hub geographically separate from the epicenter of a disease outbreak was beneficial in this instance but if the tables had turned and Shouguang was the epicenter the whole country would have seen challenges on food availability [1].

Many lessons can be learnt from the responses in china: Multi-stakeholder collaboration and coordination at different levels is crucial for immediate and effective outcome, Diversification of distribution channels helps to improve food system resilience, Fostering local food production and strengthening linkages and effective synergies between urban centers and rural territories contribute to resilience of local food system and Innovation is key to deal with new situations and challenges [6]

6 CONCLUSION

Observing that dependence on extra-regional imports for food, in particular for the urban areas, makes African countries more vulnerable to disruptions in international logistics and distribution, in addition to production problems in other countries. This could result in food shortages and increases in food prices, particularly in countries highly dependent on food imports, as is the case of many low-income and landlocked countries and Small Island Developing States. These factors, combined with losses in consumer incomes, minimal savings and limited access to public safety nets, mean that COVID-19 also creates significant demand-side risks, particularly for the poor and vulnerable populations. Poor net food consumers in rural

and especially urban areas are in severe risk. These impacts further exacerbate a situation of already high rates of hunger, malnutrition and poverty due to challenges affecting rural areas, including the desert locust outbreak, fall armyworm impacts, droughts, conflict and insecurity. The disruption of traditional transhumance patterns and the creation of new ones may lead to tensions, social unrest, and local displacement, increased levels of poverty, food and nutrition insecurity.

China has already seen a hike in food prices, a whopping twenty percent increase from the year before and the highest since the last economic crisis. This may be due to factors such as panic purchasing and food chain imbalance. According to IFPRI, The lesson we can learn from china is that in Wuhan, where the virus was detected first, the situation was stabilized through "green channels". Having a decentralized food supply was proven to reduce food insecurity in locked down urban and rural areas.

In terms of food availability, especially those living in the existing crisis communities in the world have it worse because of the blockage of borders and transportation facilities. The relief that is brought to these countries will have a difficult time reaching their communities. It is not really an equalizer, at least when it comes to food and those living in poverty and malnutrition.

The one thing we look past when we talk about the food system is the role that the migrant workers play, their importance is immeasurable as nations are falling apart from industries to farm lands. Without the labor force planting and harvesting, could lead to shortage and increase in food prices.

It seems that while the pandemic created new challenges in the food system, it also revealed existing challenges. The lack of diversification of distribution channels, lack of local food production, and weak linkages between urban centers and rural growers already existed, COVID-19 just highlighted them.

It is also important to acknowledge that food systems often reflect challenges in other areas of the society; for example if there is a lack of housing or housing is too expensive, people spend more of their household income on housing and are not as easily able to afford food.

7 LIMITATIONS

The dynamics and impact of the COVID-19 on nations is not yet fully understood. The way a country, its government and communities respond to the current pandemic is quite difficult to predict.

8 ACKNOWLEDGEMENT

I would like to express my gratitude to Sylvia Kelly for her valuable suggestions and feedback.

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