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Climate Change, Crises, and Food Security in Africa

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Abstract

Africa is the region with the lowest total and per capita greenhouse gas emissions in the world, but it bears the brunt of the adverse effects of climate change. Due to its special geographical location, spanning north and south of the equator, Africa has a vast territory, a large population, and a diverse climate, and its economic and social development is relatively lagging behind, especially the low urbanization and industrialization rates, a large agricultural population, and huge inter-regional climate differences. The existing research mainly focuses on climate change, crises, and food security in Africa. The research theme of this paper is the impact of climate change on food security in Africa; using the literature research method, we study the impact of climate change situation on food security in Africa; the purpose of the research is to draw the attention of the international community to climate change and food security; increase the attention and support to Africa, so that Africans can enjoy a better livelihoods. Amartya's Entitlement Failure Theory was adopted for this research. The paper relied on secondary data and personal observations. We adopted Amartya's Entitlement Failure Theory for a better explanation in this paper. The paper relied so much on secondary data and personal observations. Food sufficiency in Africa will solve to a large extent, the problem of food shortage and hunger across the globe because of the natural advantage the continent has over other continents of the world. The challenge is the incessant political instability and the level of poverty in Africa.

Key Words: Food Crisis, Covid-19, Climate Change, Russia-Ukraine War, and Sub-Saharan Africa.

Introduction

In recent years, in the history of the entire world, series of challenges have enveloped humanity. There are challenges that threaten human existence to the point of extinction, especially the COVID-19 pandemic. Others have been those challenges that have impacted negatively on the livelihoods of citizens of the world, as a result of hunger and starvation. Countries around the world have grappled with the challenges of food security, some resulting from violent conflicts, others from desertification and effects of climate change. There are yet challenges emanating from massive flooding across the globe. However, in the midst of this governments have to synergize with research institutions and the academics for chatting the way out. Food security apart from human security should be the paramount reasons or objectives for human governance. Insecurity as a result of communal clashes, insurgency and wars has a telling effect on food production. The war between Russia and Ukraine has enormous impact on the livelihoods of several countries as does the implications of climate change. If prompt actions are not taken immediately, the lives of about 7 billion people will be at greater risk. Global challenges are more prevalent in Africa for several reasons.

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Following from this, the world's existing food supply cannot sustain the needs of the populace without sacrificing the welfare of future generations. Therefore, a catastrophe for humanity is imminent. Governments, scientists, and agriculturalists are debating on how to accomplish the enormous job of feeding 2 billion extra people by 2050. Vaughan (2020) notes that unlike the 2007/2008 food crisis, when the root problem was a scarcity of food, the big issue this time is economic downturns hitting the ability of millions of people to be able to afford food. Massive food shortages in several African nations have been brought on by the confluence of the COVID-19 pandemic, climate change, and conflicts like the ongoing Russia–Ukraine war. Food prices have increased, according to the FAO's index of widely traded food commodities, which includes cereals and dairy products. For instance, the Agricultural Price Index was 34% higher as of 30 June 2022, compared to January 2021. In comparison to January 2021, the price of maize was 47% higher, the price of wheat was 42% higher, and the price of rice was around 8% lower.

An alarming figure of 193 million people experiencing severe food insecurity across 53 countries has once again been highlighted by the 2022 Global Report on Food Crises (GRFC; FAO, IFAD, UNICEF, WFP and WHO, 2022). The fact that the number represents an increase of 80% from the 108 million people who were acutely food insecure in the GRFC 2021 study, which shows an exponential rate of hunger, is more worrying. In particular, 40 million people in 36 countries reported emergency or worse (IPC/CH Phase 4 or above) conditions, while more than 500,000 individuals, primarily from Ethiopia, Sudan, Madagascar, and Yemen, faced a catastrophe (IPC/CH Phase 5)—starvation and death in 2021 (FAO, IFAD, UNICEF, WFP and WHO, 2022). In West Africa, food prices have increased by 20–30% over the past 5 years (Iacobucci, 2022).

Despite Africa's immense agricultural potential, the continent remains to be a net importer of food. The region's rich land, fisheries, natural resources, and biocultural environment have not succeeded in advancing the food system there. In sub-Saharan Africa (SSA), smallholder farmers who raise livestock and grow crops for their own consumption account for the majority of agricultural production (Hamann, 2020). Arguably, the status of food security in the region is faced with setbacks that make Africa's smallholding inadequate to meet the food demands of the growing population. The food production systems in the region have over time failed to cater for the people in terms of food demand of the region. In West Africa, there are currently 27 million hungry people and 11 million more are at risk of going hungry over the next few months (Iacobucci, 2022). In advanced economies, expenditure on food accounts for 17% of total spending, whereas in sub-Saharan Africa, that percentage rises to 40%, according to a recent Financial Times article citing IMF estimates. In an emergency meeting of African Ministers of Finance and Ministers of Agriculture on the looming food security crisis in Africa, the International Monetary Fund (IMF) Managing Director (Kristalina Georgieva)

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noted that growth in SSA was expected to slow to 3.8% in 2022 from 4.5 in 2021. Notably, the current economic crisis and the rise in food prices may also have a considerable influence on people's nutrition and health, particularly in developing countries.

Quite a number of questions on how to maintain sustainable food systems loom large as food demand in Africa soars and the continent experiences rapid transformation. Thus, this study is motivated by the causes of looming food crisis in sub-Saharan Africa and we situate the impact of COVID-19 pandemic, climate change, and Russia–Ukraine war on the African food system so as to draw lessons for necessary policy response.

Methodology

This study adopted personal observation of global events and content analysis of both published and unpublished journals, articles, and books. A single primary systematic literature search was performed in the following databases: Google Scholar, Web of Science, Science Direct, RefSeek, and Scopus. Peer-reviewed scientific publications were searched using keywords, probable titles, and logical operators and filtering techniques. The researcher used search terms selected from the six main keywords, which are food crisis, Covid-19, climate change, Russia-Ukraine War and Sub-Saharan Africa.

Conceptualization of Climate Information

Climate information refers to the collection and interpretation of weather- and climate-related data. Climate information – including observations, analysis and forecasts at different time scales – is important for assessing impacts and planning associated adaptation in various socio-economic sectors. Indeed, climate information is becoming increasingly available, and the gap between climate providers and the information requirements of decision-makers is narrowing due to a number of programs across Africa and the sub region (Wallace, 2019).

The concept of Food Crisis

According to (Lee et al, 2012) food crisis refers to a situation when food security is abruptly threatened. The Integrated Phase Classification (IPC) gives a framework to understand a food situation among households and areas using a five-phase scale. Based on this framework, a food crisis situation falls under phase 3, where households experience food consumption gaps characterized by high and above-usual acute malnutrition (IPC Global Partners, 2008). More broadly, a food crisis exists when a household exhausts their livelihood assets to access and afford food.

Theoretical Explanation

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We adopted Amartya Sen's "Entitlement Failure" theory which challenged the prevailing "Food Availability Decline" hypothesis (1951). His disagreement was captured in his book titled, "Poverty and famines". This theory was propounded in 1981. However, according to FAD hypothesis, food insecurity is basically experienced by the decrease in the availability of food.

In his argument, Amartya stated that the more proximate cause of famines is the inability of people to exchange their entitlements for example labor for food, which can happen without necessarily experiencing decline in food production. He emphasized that government policies and prices of food items can affect entitlements of some people even when there is availability of food.

Deriving from Amartya's argument, climate change and extreme weather events affect agricultural production and food distribution, but the consequent food crises are basically motivated by entitlement failures rather than just food shortages. The theory of entitlement failure is situated in the complex relationship between socio-economic and political factors that mediate the effect of environmental shocks on food security. However, the basic assumption of the theory is that, famines are principally caused by the inability of people to establish control over food, rather than mere decline in aggregate food availability (Ravallion, 1997). The strength of the theory is hinged on analyzing people's effective control over food items and other basic commodities based on the rules and institutions that control access. The central thesis of the theory emphasizes on the centrality of power and enforceable rights in determining food security.

The Impact of Climate Change on Food Security in Africa

Climate variability and change are a significant threat to food security in Africa and many regions of the developing world, which are largely dependent on rain-fed agriculture. Climate change affects all dimensions of food security (food availability, food accessibility, food utilization, and food system stability), thus, impacting human health, livelihood assets, food production and distribution, and markets (FAO, 2008). The food crisis in the sub-Saharan continent has its underlying cause in the prolonged periods of drought, floods, other natural hazards, and man-made climate change stemming from the overexploitation of nature (WFP, 2022). Environmental disruptions have contributed to the region's inability to feed its populace as demonstrated by the rising levels of undernourishment, with one out of three of the 155 million under-five-year-old children affected by stunting being found in sub-Saharan Africa (Global Nutrition Report, 2020).

Climate change threatens to wreak havoc on food production by increasing the frequency and severity of extreme weather events and depressing agricultural yields. Floods are inundating agricultural land, drought is making crop cultivation impossible, and pests and insects are wiping out entire crop fields. The World Meteorological

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Organization (WMO) in its Status of the Climate in Africa Report points out that 2019 alone was one of the worst years for Africa having been hit by extreme weather and climate events. For example, Tropical Cyclones Idai and Kenneth made huge destruction with a resultant humanitarian crisis. For some regions, especially Southern Africa, the situation was direr given a previous protracted drought in 2014–2016. In other parts of the region within Eastern Africa, erratic rains and heavy rains in 2019 triggered widespread floods in Somalia, Kenya, and Sudan, displacing people and damaging crops and killing livestock (WMO, 2021).

Arising from such events, it is obvious that the direct impact of climate change on food crop production will worsen with on-going weather shocks. Africa's food system is caught in this dilemma. In fact, strengthening Africa's food system is inextricably linked to environmental sustainability. The systemic vulnerabilities in the food systems call into question appropriate strategies that can be implemented for environmental sustainability given the widespread impact of climate change in the region (Morelli, 2011). In areas, especially developing countries, reliance on low-farming technologies, and carbon-intensive industrial technologies, and poor energy production have put the countries on a rough path in reversing the associated pollution effects. According to (Khan et al., 2021) energy consumption is the main source of environmental degradation, thus countries should shift from carbon-laden to carbon-free technologies both at the industrial and domestic levels.

Food Insecurity in Sub-Saharan Africa under Covid-19

The COVID-19 pandemic created one of the worst production shocks to the food economy especially in the region. The highly contagious COVID-19 virus compelled the World Health Organization to mobilize nations to get ready for historically unprecedented pandemic events that could endanger lives (WHO, 2020). Soon after, countries effected measures to suppress and mitigate the spread of the contagious virus where travel restrictions and border closures were implemented. It can be noted that measures to contain the spread of COVID-19 have had deep implications on household food and nutrition security in low-income regions. The mitigation and suppression efforts of the infection have created both direct and indirect effects on Africa's food systems to a large extent (Dado, 2020).

Russia–Ukraine war and food crisis in Africa

Globally, the debate on the impact of war/conflict on food security and food crisis remains a policy issue. Therefore, understanding the relationship between food security

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and war through monitoring food security status in countries affected by peace instability is very important in making informed policies (Martin-Shields & Stojetz, 2019). Global food prices have increased nearly 52% since 2019, driven by the global COVID-19 pandemic and shortages caused by the war in Ukraine (Okou et al., 2022). Russia's invasion in Ukraine has led to historically sharp increases in the prices of staple food items (McGuirk & Burke, 2022). Ben Hassen and El Bilali (2022) note that the war has the tendency of jeopardizing the implementation of the Sustainable Development Goals (Sustainable Development Goals), notably Sustainable Development Goal 1 which lays emphasis on no poverty, Sustainable Development Goal 2 (Zero hunger), and Sustainable Development Goal 12 (Responsible consumption and production). The Russia-Ukraine war has a ripple effect on the prices of staple food items because Ukraine is the major exporter of agricultural products like wheat, corn and sunflower oil which are consumed around the globe. Russia is known to be a major exporter of agricultural products and supplier of farm inputs such as fertilizers. These two countries have strategically played special roles in supplying these products and inputs across several countries in the world.

According to (Dongyu, 2022) Russia and Ukraine are recognized as major global food producers and exporters, even though they are not extensively the determinant powers in the global economy but they play crucial roles in specific commodities. Both Russia and Ukraine alone account for 14% of the global wheat production and provide nearly 30% of global wheat export (Paulson et al., 2022). Russia leads globally in the exportation of wheat while Ukraine is the fifth largest (Gabelli, 2019). Thus, Russia–Ukraine war has led to high prices of food all over the globe and exacerbated hunger in many countries in Africa (Nchasi et al., 2022). The economic fallout is imminent in Sub Sahara Africa with the continued Ukraine–Russia war since the two protagonists are key strategic trade partners to most countries in SSA through their grain and fertilizer exports. Of the 30% global wheat exported to the world's wheat market, Africa is the major destination. In regard to Africa, wheat is a hugely important food import, accounting for half of Africa's $ 4.5 billion trade with Ukraine and 90% of Africa's $4 billion with Russia (Paulson et al., 2022). Aside from this wheat products or flour added with a lot of fiber are good for people with underlying health challenges (e.g. diabetic patients), but because the Ukraine-Russia war these are in short supply. Russia and Ukraine also account for 12.5% of global maize supply and other items such as rapeseed, sunflower seed and oil (FAO, 2022).

The war in Ukraine—much like the COVID-19 pandemic—highlights the fragility of our current food system with its over-dependence on fossil fuel-derived chemical inputs and global commodities trade, and points to the need for a more resilient, local, and diverse food system. Out of the Russian war against Ukraine, a looming food crisis is already visible. In what has been termed "hunger and grain to wield power", Russia's perpetual bombing of grain warehouses, blockading of Ukrainian ships at the

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Black Sea, implies a global crisis that will take years to overturn. The crisis once again invites the discussion surrounding boosting domestic agricultural production versus the reliance on global trade to provide stable source of food (OECD/FAO, 2022). The road to regional food sustenance is far from achieved bearing that about 80% of African farmers are smallholders whose sole motivation is growing mostly cereals for self-use (Suri & Udry, 2022).

Other Economic Causes of Food Crisis in Sub-Saharan Africa

According to (Sambe et al., 2013) as a result of the impact of communal violence in Africa which destroyed arable land, forest and livestock reserves, access to food security and food availability became difficult for several households. According to (Adelaja & George, 2019) security risks occasioned by perpetual episodes of violent conflict could prevent farmers from leaving their villages and work in remote farm fields. This has a direct effect on timely planting and harvesting activities thus leading to disrupted agricultural planting calendar and low productivity.

Indeed, issues pertaining to food safety and quality during a crisis are critical in meeting people's health outcomes thus necessitating food governance. Formal and informal rules and regulations will continue to shape the food system, and they can be limiting in the quality of food, access to market and food supplies in the market. The interrelationship among several actors and their competing interests, if not properly managed, can turn chaotic and counterintuitive to promoting food systems. Apart from governance, the tax regime of different countries can limit cross-border trade, exposing some regions to food crises. Of course, the existence of trading blocs in the regions implies that free flow of goods is limited by the tax regimes.

Conclusion, Policy Implications and Recommendations

The paper concludes that the current looming "food crisis" is the consequence of many interacting factors that are simultaneously affecting the supply and demand functions of food systems. Indeed, the interdependence of the world's food markets, shocks in Russia and Ukraine, which are both significant exporters and producers of food, has an effect on food supplies and food systems. Increased oil prices have an impact on food production and transportation costs, especially in Sub-Saharan Africa. For African nations to stabilize their food supply and prices and ensure domestic food availability and affordability, they must maintain viable strategic food reserves in response to future pandemics like the COVID-19 global pandemic. In addition, African governments should support continuous climate change monitoring by intensifying early warning systems, and the dissemination of relevant information to farmers. The successful implementation of the African Continental Free Trade Area will promote greater economic diversity, jobs and revenue while at the same time combating poverty and food insecurity.

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The world's governments not only have a responsibility to work constructively for a global agreement to manage climate change, but should also provide an enabling policy framework covering management, planning and service delivery functions for adaptation that facilitate and support local institutions and other actors' efforts. They should also ensure that devolved administrative responsibilities are matched by resources and technical capacity. In addition, African governments need to invest more in climate and meteorological information; biophysical monitoring; and early warning, preparedness and response mechanisms, and integrate such data into their planning. In this context, reducing emissions from deforestation and degradation offers a promising mechanism for simultaneously delivering mitigation, adaptation and economic benefits while sustaining vital ecosystem services in rural Africa.

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