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Global Food Insecurity – A Practitioner's Perspective

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Abstract

Global food insecurity has remained critical. About 30 per cent of the worldwide population (2.4 billion) are food insecure (moderate or severe). The projections show that almost 600 million people will be food insecure in 2030, pointing to the immense challenge of achieving the Sustainable Development Goal (SDG) target to eradicate hunger (by 2030). This paper aims to understand the current global food insecurity situation, key drivers, and ways forward. Conflict remains the main driver of food insecurity globally. Other key causes are economic challenges, climate-change shocks, and the lingering effects of the Corona Virus Disease (COVID-19), often interconnected, further compounding the severity. The number of the most food insecure people is in Asia. On the other hand, Africa has a higher prevalence of food insecurity, mainly the indigenous, women, poor, rural, socially and structurally disadvantaged communities. The exploratory research methodology and content analysis were used for this paper.

Keywords: food insecurity, conflict, COVID-19, inflation, climate change

INTRODUCTION

Averting global food insecurity is one of the key global Sustainable Development Goals (SDG) agenda items that are targeted to be achieved by the end of 2030. For two years in a row, the prevalence of global foodinsecurity (moderate or severe) has remained unchanged since increasing significantly from 2019 to 2020, largely due to the impact of COVID-19. In 2022, about 29.6 per cent of the global population (2.4 billion) were moderately or severely food insecure, of which about 900 million (11.3 per cent of peoplein the world) were severely food insecure (FAO et al., 2023). Women (and female-headed households)are more susceptible to food insecurity and malnutrition as compared to men (Kairiza & Kembo, 2019).The gender gap in global food insecurity, which had increased due to the COVID-19 pandemic, was reduced to 2.4% in 2022 from 3.8% in 2021 (FAO et al., 2023).

Moderate or severe food insecurity coupled with poverty is much more prevalent in rural than in urbanareas (FAO et al., 2023; World Bank, 2014). According to FAO et al. (2023), the latest projections show that almost 600 million people will be food insecure in 2030, pointing to the immense challenge of achieving the SDG target to eradicate hunger. This implies that there are about 119 million more people who are food insecure than in a scenario without both the Ukraine conflict and the COVID-19 pandemic, and around 23 million more than in a scenario in which the war had not happened.

This paper analyses the current global food security situation, the key challenges, and the solutions for improving global food security.

Theoretical FrameworkDefinitions:

Food security exists when all people always have physical, social, and economic access to sufficient, safe, and nutritious food that meets their dietary needs and food preferences for an active and healthy life. The four pillars of food security are availability, access, utilization, and stability. The nutritional

dimension is integral to the concept of food security. This definition was derived at the 1996 World Food Summit (FAO,2006).

Conflict

Conflict in this context of research is “armed conflict.” According to Solis (2022), armed conflict existswhen there is a resort to armed force between states or protracted armed violence between governmentalauthorities and organized armed groups.

Methodology

An exploratory research methodology was used. A secondary review of various literature on food security submitted by different authors was done. The studies were assessed to cover the period 2014 to2024 by websites especially Proquest, Springerlink and EBSCOHost. The analysis method of content analysis was used (Columbia University, 2024).

Findings and Discussions

Global hunger is still far above pre-pandemic levels, with about 122 million more people than before the COVID-19 pandemic. Nonetheless, the increase in global hunger has stalled. In 2022, there were about 3.8

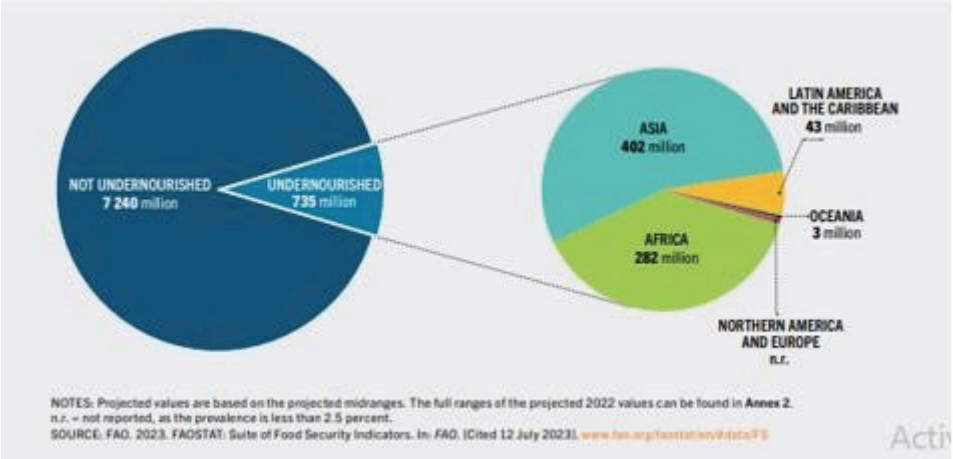
million fewer food insecure people than in 2021 (FAO et al., 2023).

Asia has the highest number of food-insecure people (402 million), followed by Africa (282 million).

However, Africa has the highest prevalence of food insecurity globally (60.9%), followed by Latin America & the Caribbean (37.5%), Asia (24.2%), Oceania (10%), and North America and Europe at 8%.

The prevalence of food insecurity (moderate or severe) increased slightly in Africa, Europe, and Northern America, but decreased non-significantly in Asia, from 2021 to 2022.

Figure 1:Showing global food insecurity and nourishment at continental levels.



Adapted from FAO et al. (2023, p.12).

The only regions showing encouraging progress were Latin America and the Caribbean, mainly in South America, although the food security situation deteriorated in the Caribbean subregion (FAO et al., 2023).

Figure 2: Prevalence of food insecurity at a severe level only and at a moderate or severe level, based on the food insecurity experience scale, 2015–2022

	Prevalence of severe food insecurity (%)						Prevalence of moderate or severe food insecurity (%)					
	2015	2017	2019	2020	2021	2022	2015	2017	2019	2020	2021	2022
WORLD	**7.6**	**8.2**	**9.3**	**10.8**	**11.7**	**11.3**	**21.7**	**23.9**	**25.3**	**29.4**	**29.6**	**29.6**
AFRICA	**17.2**	**20.0**	**20.2**	**22.4**	**23.8**	**24.0**	**45.4**	**51.5**	**52.3**	**56.0**	**59.9**	**60.9**
Northern Africa	9.0	10.5	8.7	9.5	11.2	12.0	26.2	33.1	28.8	30.2	34.0	32.4
Sub-Saharan Africa	19.1	22.2	22.8	25.4	26.6	26.6	49.8	55.8	57.7	61.8	65.7	67.2
Eastern Africa	22.0	26.1	25.0	28.1	28.7	27.7	56.8	64.6	63.5	66.5	66.8	69.2
Middle Africa	n.a.	n.a.	n.a.	36.0	37.8	39.1	n.a.	n.a.	n.a.	70.1	75.4	78.4
Southern Africa	9.0	9.4	9.3	11.0	11.0	12.5	21.7	22.1	22.1	24.7	24.7	25.9
Western Africa	11.4	14.3	16.6	19.9	21.7	22.0	39.8	46.2	51.7	59.0	66.7	66.4
ASIA	**6.6**	**6.5**	**8.1**	**9.6**	**10.4**	**9.7**	**17.7**	**18.9**	**21.2**	**25.7**	**24.5**	**24.2**
Central Asia	1.4	2.8	2.3	4.8	5.0	4.6	9.1	13.9	13.5	17.8	20.1	17.4
Eastern Asia	0.8	1.7	1.3	2.0	1.0	1.0	5.9	10.0	7.4	7.8	6.1	6.2
South-eastern Asia	1.9	2.0	1.8	2.1	2.6	2.6	14.5	15.7	14.5	15.5	16.9	16.8
Southern Asia	13.2	11.8	16.3	18.8	21.0	19.4	27.7	26.1	34.3	43.1	40.6	40.3
Western Asia	9.0	9.6	8.9	9.6	10.2	10.3	30.9	30.9	29.9	35.1	38.7	35.5
Western Asia and Northern Africa	*9.0*	*10.0*	*8.8*	9.5	*10.7*	*11.1*	*28.7*	*31.9*	*29.4*	*32.8*	36.5	*34.1*
LATIN AMERICA AND THE CARIBBEAN	**7.3**	**9.7**	**9.7**	**12.5**	**13.9**	**12.6**	**27.3**	**33.0**	**31.5**	**39.3**	**40.3**	**37.5**
Caribbean	n.a.	n.a.	n.a.	32.4	25.7	28.2	n.a.	n.a.	n.a.	65.4	59.5	60.6
Latin America	5.5	8.1	8.2	11.1	13.0	11.5	24.8	30.9	29.4	37.5	38.9	35.9
Central America	6.7	6.3	7.3	7.3	8.0	8.6	30.3	27.9	28.2	34.2	34.1	34.5
South America	5.0	8.9	8.5	12.7	15.1	12.7	22.6	32.1	29.9	38.8	40.9	36.4
OCEANIA	**2.6**	**4.1**	**3.8**	**2.6**	**4.5**	**3.4**	**10.0**	**14.4**	**13.6**	**12.1**	**13.0**	**13.0**
NORTHERN AMERICA AND EUROPE	**1.4**	**1.2**	**0.9**	**1.2**	**1.5**	**1.5**	**9.3**	**8.4**	**7.1**	**7.8**	**7.7**	**8.0**
Europe	1.6	1.4	1.0	1.4	1.9	1.9	8.8	8.3	6.9	7.5	7.8	8.2
Eastern Europe	1.5	1.1	0.8	1.4	1.7	2.0	11.7	10.3	8.3	10.2	10.5	10.9
Northern Europe	1.8	2.2	1.0	1.2	1.8	2.0	6.8	6.0	5.1	4.2	4.5	6.6
Southern Europe	1.7	2.0	1.6	2.4	2.8	1.6	9.6	10.6	8.7	9.3	8.6	7.5
Western Europe	1.4	0.9	0.7	0.8	1.7	1.8	5.0	4.6	4.3	3.9	4.9	5.7
Northern America	1.0	0.8	0.8	0.7	0.7	0.7	10.3	8.6	7.6	8.3	7.5	7.7

NOTES: n.a. = not available, as data are available only for a limited number of countries, representing less than 50 percent of the population in the region. The estimates for Latin America and the Caribbean from 2014 to 2019 include Caribbean countries whose combined populations represent only 30 percent of the population of that subregion, while the 2020, 2021 and 2022 estimates include Caribbean countries whose combined populations represent between 60 percent and 65 percent of the subregional population. The countries included in the 2022 estimate for the Caribbean subregion are: Antigua and Barbuda, Bahamas, Barbados, Dominica, Dominican Republic, Grenada, Haiti, Jamaica, Saint Kitts and Nevis, Saint Lucia, Saint Vincent and the Grenadines, and Trinidad and Tobago.
SOURCE: FAO. 2023. FAOSTAT: Suite of Food Security Indicators. In: *FAO*. [Cited 12 July 2023]. www.fao.org/faostat/en/#data/FS

Adapted from FAO et al. (2023, p.12).

The main causes of global food insecurity

Various factors contribute to food insecurity. Herrera et al. (2021) summarize them as agricultural andsocial economic factors. This paper focuses on the major global drivers of food insecurity, which have intensified in recent years and will remain a threat. These include conflict, climate extremes, and economic shocks (FAO et al., 2021) & (FAO et al., 2022). The paper will highlight COVID-19, a pandemic whose lingering effects still exist.

a) Conflict and global food insecurity

Exposure to armed conflicts results in strongly adverse and often irreversible short- and long-term effects on food security and systems, which may be transmitted across generations. Armed conflicts directly cause food insecurity and starvation by disrupting and destroying food systems, reducing farming populations, destroying infrastructure, reducing resilience, increasing vulnerabilities, disrupting access to markets,

increasing food prices, or making goods and services unavailable altogether (Weldegiargis et al., 2023).

The Russia - Ukraine war resulted in abrupt food security and energy supply chain disruptions on a large scale, substantially increasing prices for both fuel and food (Ihle et al., 2022)

Globally, forceful displacement due to conflict has continued to increase, with the number of forcefully displaced people reaching 108 million in 2022. The displaced mainly live off humanitarian assistance with limited to no access to income, livelihoods, or land for production due to insecurity or displacement, yet most are rural and dependent on agriculture as their major livelihood (Belay, 2014; Schmidt et al.,2019; United Nations High Commissioner for Refugees (UNHCR), 2022; UNHCR, 2019;Adebisi et al., 2016; Research Institute (IFPRI, 2020).

More than half of all undernourished people live in countries affected by conflict (IFPRI, 2020). The 2022 State of Food Security and Nutrition in the World indicates conflict as the major cause of food insecurity, among other shocks (IFPRI, 2020; Sewenet & Abitew, 2019). The countries that have been on the brink of or faced famine in the recent past have largely been due to conflict and displacements, including Yemen, Somalia, South Sudan, and most recently Palestine - Gaza (WFP, 2024). According to the WFP and FAO (2023), other countries of deep concern regarding food insecurity in 2024 include Afghanistan, the Democratic Republic of Congo, Ethiopia, Haiti, and the Syrian Arab Republic, all of which conflict as a key cause of food insecurity.

According to (Onaedo et al., 2017), because of the conflict, “the food industry in the northern region of Nigeria has experienced an enormous setback.”

Most conflicts (especially civil wars and other forms of in-country conflict) around the world are causedand facilitated by governance, socioeconomic, and development challenges, including marginalization& social injustice, mismanagement of resources, and land disputes. (Heyi, 2023) & (Idris Erameh et al.,2021).

b) Climate change and global food insecurity

Climate change is another threat to the production of key food commodities. Macauley (2015) quotes astudy by Nelson et al. (2009), which indicates that the annual costs of adapting to climate change in theagricultural sector are over USD 7 billion.

Kalilou (2021), in a study done in the Sahel, concluded that agricultural yields and water supplies for humans and livestock alike have come under severe threat from climate change, which increases the incidence of floods, heatwaves, droughts, and land degradation. As a result, there are now between fourand twelve severe droughts every decade. A study by a Finnish research institution shows that about 30% of global food will enter a zero-yield state by the end of the 21st century if greenhouse gas emissions are not controlled (Zhang & Yu, 2021).

In combination with political and governance challenges, climate change aggravates starvation, unemployment, poverty, and rural-urban migration, with some youths attempting to join the various non-state armed groups while others risk crossing the Mediterranean to Europe in search of better livelihoods.

Changes in temperature and precipitation timing affect the behaviour of the fauna and flora, including in the indigenous communities, which are more prone to food insecurity. This implies more uncertainty

around the availability and stability of food (Zavaleta et al., 2018). Some of the wild fruit that the indigenous community relied on during “difficult hunger times” was destroyed by mudslides that camebecause of excessive rainfall that had destroyed their crops as well, according to a key informant in theindigenous communities in the Amazon (Zavaleta et al., 2018).

c) Inflation (high food prices) and global food insecurity

Historical examples of colonial and commercial interests that led to food inflation include the Bengal Famine of the 1700s and the failed food price control “Pullen Scheme” in Nigeria in the late 1930s and 1940s, where production for export was prioritized over domestic food for consumption. Bengal-based landlords hoarded food commodities to limit supply and increase prices at the expense of others (Shiva,2015; Ajayi, 2014; Afolabi, 2016). Similarly, the Great Ethiopian Famine of the late 1980s was also dueto outward-looking policies.

The World Bank's food price index weakened throughout 2023, 9 per cent lower than in 2022, due to robust harvests, despite the non-renewal of the Black Sea Grain Initiative, some trade restrictions, and the ongoing El Niño. Global food prices are expected to ease further in 2024 and 2025 (2 and 3 per cent,respectively) as the global supply outlook continues to improve. Despite recent declines, inflation-adjusted food prices in 2023 will remain at levels comparable to the food price spikes of 2007-08 and 2011-12 (World Bank, 2023). Despite the recent drop in food prices in some countries, such as the U.S.,where food price inflation dropped to 2.2% in February 2024, the lowest since May 2021, down from 2.6% in the prior month, food price inflation is still high in many parts of the world (U.S. Bureau of Labour Statistics, 2024). For instance, food inflation in Nigeria increased to 37.92 per cent in February 2024 over the same month in the previous year, largely due to conflict and insecurity, hence low food supply and removal of fuel subsidies by the government. Food Inflation in Nigeria averaged 13.18 per cent from 1996 until 2024, reaching an all-time high of 39.54 per cent in September 2001, and a record low of -17.50 per cent in January of 2000 (National Bureau of Statistics, 2024).

High food prices can lead to political turmoil, as witnessed in the 1970s and 2011 as ‘bread riots’ in association with high wheat prices.

Existing literature focuses heavily on the price of food as a key indicator of food affordability (Guan & Wang, 2024). Wendimu et al., (2018), Skinner et al., (2013) and Burnett et al., (2017) reveal that peoplewith lower incomes in remote areas are also concerned about the high prices of food.

Solutions for Global Food Insecurity

a) Conflict

Tackling the root causes of violent conflict in the region to attain sustainable peace is critical (Kalilou, 2021). A lot has to do with governance and resource sharing. A shared natural resource specific to the region can be a tool with which to build confidence among and within disputed local communities. Consequently, the environment and its natural resources have peace-building potential; but they can also, conversely, be a source of conflict, depending on how they are shared and managed.

While delivering food security support to food insecure communities, the humanitarian-development-peace nexus approach should be taken into consideration, as it provides an opportunity to contribute to addressing the root causes of both conflict and underdevelopment.

Ideology is a contributory factor to armed conflict, but economic issues, status, and respect are more substantial reasons why young people join armed groups. Investment in education and poverty eradication is one way of reducing recruitment, as the illiterate and impoverished are more likely to jointerrorist groups (Kalilou, 2021).

b) Climate change

Among the key solutions, the selection of the right crops for each ecological zone will be critical. For example, studies have found that climate warming enhances corn and soybeans' drought tolerance (Yuet al., 2021). Supporting industrial-based food systems may not be inclusive of the poor and may be unsustainable in terms of waste and environmental impacts (Moseley, 2017; Gengenbach et al., 2018). Some of the "foreign crops" that are not feasible for the local ecosystems and are propelled by international institutions have also contributed to reducing food for self-sufficiency. Historically, for instance, Shiva (2015) and Cesarino (2015) identified sugar cane and cotton, which are water-consuming crops yet promoted for foreign export, as done by the British East India Company in India and other colonial territories around the world.

Ecological degradation, including due to climate change, damages the livelihoods of people who dependon natural resources. The sound management and conservation (through soil and water-conservation mechanisms) of those natural resources is likely to regenerate wealth, which contributes to the peacebuilding process by creating jobs, revenues, and local infrastructure.

c) Inflation

Food sovereignty is a priority and sustainable solution against inflation, not price controls. Price controlssuch as the failed "Pullen Scheme in Nigeria" in the 1940s will not work and probably could only leadto civil unrest instead. A country must be able to scale up inclusive and nutrition-sensitive production of most of the food they need, especially where they have an advantage (Wolfson & Leung, 2020).

As an argument for less export-oriented farming, local food sovereignty should be a priority. For instance, in Bangladesh, where growing rice is more advantageous, shrimp farming has taken over. As documented by Shiva (2016), in Bangladesh, where shrimp farming is widespread, the amount of rice production has dropped considerably. In 1976, the country produced 40,000 metric tons of rice; by 1986, production had plummeted to 36 metric tons. Similarly, in Ethiopia, the famine of the early 1980s resulted from the dedication of good land to export crops, with food crops forced into more and more unsuitable soil, exacerbating food insecurity.

Access plays a major role in food insecurity in rural areas and gets more critical for perishable and nutritious vegetables and fruits (Kapadia, 2022). Establishing infrastructure is critical to exploiting the productive potential of a country particularly creating road networks connecting rural farms to markets.Other key investments to increase food availability include warehousing, cold storage, electrification, access to digital tools, and water supply.

Conclusions

Hunger at the global level did not worsen between 2021 and 2022, but there are many places in the world

where hunger is on the rise, where people are still struggling to recover income losses in the wakeof the COVID-19 pandemic or have been hit by climbing food and energy prices, or whose lives and livelihoods have been disrupted by conflicts or extreme weather events.

Global food insecurity is a complex issue that intertwines all the causes and must be addressed simultaneously to achieve global success. These main drivers of acute food insecurity above reinforce each other and often occur jointly, hence the deep impact. For instance, in Sahel, there is a combination of conflict, climate change, and, additionally, the recent COVID-19 policy impact and inflation. Chronic food insecurity also has a strong link with structural causes such as chronic poverty, development challenges such as poor infrastructure, and poor governance. While addressing the food security challenges above, the process for developing the solutions, the process must include various such as rural, urban, women, men, and native groups while also includingthose from poor socio-economic backgrounds and disadvantaged ethnic groups to ensure equity and sustainability of the solutions, mitigating any potential conflicts. In particular, the active participation of women in decision-making is critical. Food sovereignty is key to averting inflation. This includes the production of the key foods required inthe country as a priority and ensuring that they are the right resilient varieties for the different climatic and ecological zones.

REFERENCES

World Bank (2024). *Food prices mirroring past peaks despite continuous drop*s. (also available at https://blogs.worldbank.org/opendata/food-prices-mirroring-past-peaks-despite-continuous-drop

https://tradingeconomics.com/united-states/inflation-cpi

UNICEF & WHO (2020). *Joint child malnutrition estimates — levels and trends – 2020 edition.* (also availableat https://data.unicef.org/resources/jme-report-2020/

World Food Programme (WFP). 2020b. *Responding to the development emergency caused by COVID-19. WFP's medium-term programme framework.* June 2020. Rome, WFP. (also available at https://www.wfp.org/publications/responding-development-emergency-causedcovid-19-wfps-medium-term- programming).

Yeshanew, S. 2018. *Regulating labour and safety standards in the agriculture, forestry and fisheries sectors.*

Rome, FAO. (also available at http://www.fao.org/3/CA0018EN/ca0018en.pdf).

World Bank. 2020b. *Potential Responses to the COVID-19 Outbreak in Support of Migrant Workers.* (alsoavailable at https://openknowledge.worldbank.org/handle/10986/33625).

Clapp, J. 2017. *Food self-sufficiency: Making sense of it, and when it makes sense. Food Policy*, 66: 88-96.

HLPE. 2020b. *Food Security and Nutrition: Building a Global Narrative towards 2030. Report 15. Rome, HLPE*. (also available at http://www.fao.org/3/ca9731en/ca9731en.pdf).

Kay, S. et al. 2014. *Connecting Smallholders to Markets: Analytical Guide. Civil Society Mechanism (CSM).*(also available at http://www.csm4cfs.org/wpcontent/uploads/2016/10/ENG-ConnectingSmallholdersToMarkets_web.pdf).

Moseley, W.G. 2017. *A risky solution for the wrong problem: Why GMOs won't feed the hungry of the world.*

Geographical Review, 107(4): 578–583.

National Bureau of Statistics (2024). *Nigeria Food Inflation February*. (also available at https://tradingeconomics.com/nigeria/food-inflation)

Weldegiargis, A. W., Abebe, H. T., Abraha, H. E., Abrha, M. M., Tesfay, T. B., Belay, R. E., Araya, A. A., Gebregziabher, M. B., Godefay, H., & Mulugeta, A. (2023). Armed conflict and household food insecurity: Evidence from war-torn Tigray, Ethiopia. *Conflict and Health*, *17*(1), 22.

https://doi.org/10.1186/s13031-023-00520-1
Schmidt, J. D., Kimathi, L., & Owiso, M. O. (Eds.). (2019). *Refugees and Forced Migration in the Horn andEastern Africa: Trends, Challenges and Opportunities*. Springer International Publishing. https://doi.org/10.1007/978-3-030-03721-5
The U.N. Refugee Agency (UNHCR). (2022). *Global Trends Report 2022*. https://www.unhcr.org/global-trends-report-2022
Research Institute (IFPRI), I. F. P. (2020). *2020 Global Food Policy Report: Building Inclusive Food Systems* (0ed.). International Food Policy Research Institute. https://doi.org/10.2499/9780896293670
Sewenet, Y., Gedifew, & Belay, A., Endalsasa. (2019). *CAUSES AND IMPACTS OF INTERNAL DISPLACEMENT IN ETHIOPIA*. https://www.ajol.info/index.php/ajsw/article/view/192193/181307
Belay, M. Z. (2014). *AN ASSESSMENT OF LIVELIHOOD AND FOOD SECURITY OF FARMERS DISPLACED DUE TO URBAN EXPANSION (The Case of Kombolcha Town in Amhara National Regional State, Ethiopia)*. https://www.semanticscholar.org/paper/An-Assessment-of-Livelihood-and-Food-Security-of-to-Muluwork/8427291656f54a8d052521e214bd2562416be454
Adebisi, S. A., Azeez, O. O., & Oyedeji, R. (n.d.). *Appraising the Effect of Boko Haram Insurgency on theAgricultural Sector of Nigerian Business Environment*.
Onaedo, E., Samuel, O., & John, S. (2017). *An Assessment of the Impact of Internal Displacement on HumanSecurity in Northern Nigeria*.
(United Nations High Commissioner for Refugees (UNHCR). (2022). Global Trends. (also available at https://www.unhcr.org/global-trends
Gengenbach, H., Schurman, R., Bassett, T., Munro, W. & Moseley, W. 2018. *Limits of the New Green Revolution for Africa: reconceptualising gendered agricultural value chains. The Geographical Journal*, 184(2):208-214.
Moseley, W.G. 2017. *A risky solution for the wrong problem: Why GMOs won't feed the hungry of the world.Geographical Review,* 107(4): 578–583.
Bertoldo, J., Wolfson, J. A., Sundermeir, S. M., Edwards, J., Gibson, D., Agarwal, S., & Labrique, A. (2022). Food Insecurity and Delayed or Forgone Medical Care During the COVID-19 Pandemic. *American Journal ofPublic Health*, *112*(5), 776–785. https://doi.org/10.2105/AJPH.2022.306724
Bidegain Ponte, N., & Enríquez, C. R. (2016). Agenda 2030: A bold enough framework towards sustainable,gender-just development? *Gender & Development*, *24*(1), 83–98. https://doi.org/10.1080/13552074.2016.1142227
Burnett, K., Skinner, K., Hay, T., LeBlanc, J., & Chambers, L. (2017). Retail food environments, shopping experiences, First Nations and the provincial Norths. *Health Promotion and Chronic Disease Prevention inCanada*, *37*(10), 333–341. https://doi.org/10.24095/hpcdp.37.10.03
Clapp, J., & Moseley, W. G. (2020). This food crisis is different: COVID-19 and the fragility of the neoliberalfood security order. *The Journal of Peasant Studies*, *47*(7), 1393–1417. https://doi.org/10.1080/03066150.2020.1823838
Columbia University, C. U. (2024). *Content Analysis*. https://www.publichealth.columbia.edu/research/population-health-methods/content-analysis
Committee on World Food Security, C. on W. F. S. (2020). *Impacts of COVID-19 on food security and nutrition: Developing effective policy responses to address the hunger and malnutrition pandemic*. https://www.fao.org/3/cb1000en/cb1000en.pdf
Das, S., Rasul, Md. G., Hossain, M. S., Khan, A.-R., Alam, M. A., Ahmed, T., & Clemens, J. D. (2020).

Acutefood insecurity and short-term coping strategies of urban and rural households of Bangladesh during the lockdown period of COVID-19 pandemic of 2020: Report of a cross-sectional survey. *BMJ Open*, *10*(12), e043365. https://doi.org/10.1136/bmjopen-2020-043365

Dubowitz, T., Dastidar, M. G., Troxel, W. M., Beckman, R., Nugroho, A., Siddiqi, S., Cantor, J., Baird, M., Richardson, A. S., Hunter, G. P., Mendoza-Graf, A., & Collins, R. L. (2021). Food Insecurity in a Low-Income,Predominantly African American Cohort Following the COVID-19 Pandemic. *American Journal of Public Health*, *111*(3), 494–497. https://doi.org/10.2105/AJPH.2020.306041

FAO, F., IFAD, I., UNICEF, U., WFP, W., & WHO, W. (2023). *The State of Food Security and Nutrition in theWorld 2023*. FAO; IFAD; UNICEF; WFP; WHO; https://doi.org/10.4060/cc3017en

FAO, F., WFP, W., IFAD, I., UNICEF, U., & IFAD, I. (2022). *The State of Food Security and Nutrition in theWorld 2022*. https://www.fao.org/documents/card/en?details=cc0639en

FAO, F., WFP, W., UNICEF, U., WHO, W., & IFAD, I. (2021). *The State of Food Security and Nutrition in theWorld 2021*. FAO, IFAD, UNICEF, WFP and WHO. https://doi.org/10.4060/cb4474en

Gerard, F., Imbert, C., & Orkin, K. (2020). Social protection response to the COVID-19 crisis: Options fordeveloping countries. *Oxford Review of Economic Policy*, *36*(Supplement_1), S281–S296. https://doi.org/10.1093/oxrep/graa026

Guan, J., & Wang, J. C.-H. (2024). Food budget ratio as an equitable metric for food affordability and insecurity:A population-based cohort study of 121 remote Indigenous communities in Canada. *BMC Public Health*, *24*(1), 289. https://doi.org/10.1186/s12889-023-17385-x

Haley, E., Caxaj, S., George, G., Hennebry, J., Martell, E., & McLaughlin, J. (2020). Migrant Farmworkers FaceHeightened Vulnerabilities During COVID-19. *Journal of Agriculture, Food Systems, and Community Development*, 1–5. https://doi.org/10.5304/jafscd.2020.093.016

Hamadani, J. D., Hasan, M. I., Baldi, A. J., Hossain, S. J., Shiraji, S., Bhuiyan, M. S. A., Mehrin, S. F., Fisher,

J., Tofail, F., Tipu, S. M. M. U., Grantham-McGregor, S., Biggs, B.-A., Braat, S., & Pasricha, S.-R. (2020). Immediate impact of stay-at-home orders to control COVID-19 transmission on socioeconomic conditions, foodinsecurity, mental health, and intimate partner violence in Bangladeshi women and their families: An interruptedtime series. *The Lancet Global Health*, *8*(11), e1380–e1389. https://doi.org/10.1016/S2214-109X(20)30366-1

Herrera, J. P., Rabezara, J. Y., Ravelomanantsoa, N. A. F., Metz, M., France, C., Owens, A., Pender, M., Nunn,

C. L., & Kramer, R. A. (2021). Food insecurity related to agricultural practices and household characteristics inrural communities of northeast Madagascar. *Food Security*, *13*(6), 1393–1405. https://doi.org/10.1007/s12571- 021-01179-3

Heyi, N. D. (2023). Federalism as a state form to overcome violent conflict in Ethiopia. *Cogent Social Sciences*,*9*(2), 2282450. https://doi.org/10.1080/23311886.2023.2282450

Idris Erameh, N., Ojakorotu, V., & Odu Obor, D. (2021). The Malian state, social exclusion, political marginalisation and the Tuareg rebellions: A war with no end in sight? *African Renaissance*, *18*(1), 27–52.https://doi.org/10.31920/2516-5305/2021/18n1a1

Ihle, R., Bar□Nahum, Z., Nivievskyi, O., & Rubin, O. D. (2022). Russia's invasion of Ukraine increased the synchronisation of global commodity prices. *Australian Journal of Agricultural and Resource Economics*, *66*(4),775–796. https://doi.org/10.1111/1467-8489.12496

Kairiza, T., & Kembo, G. D. (2019). Coping with food and nutrition insecurity in Zimbabwe: Does householdhead gender matter? *Agricultural and Food Economics*, *7*(1), 24. https://doi.org/10.1186/s40100-019-0144-6

Kalilou, O. (2021). Climate change and conflict in the Sahel: The acacia gum tree as a tool for

environmentalpeacebuilding. *International Affairs*, *97*(1), 201–218. https://doi.org/10.1093/ia/iiaa178

Kapadia, F. (2022). Confronting and Ending Food Insecurity During and Beyond the Pandemic: A Public Healthof Consequence, July 2022. *American Journal of Public Health*, *112*(7), 962–964. https://doi.org/10.2105/AJPH.2022.306922

Klassen, S., & Murphy, S. (2020). Equity as both a means and an end: Lessons for resilient food systems fromCOVID-19. *World Development*, *136*, 105104. https://doi.org/10.1016/j.worlddev.2020.105104

Laborde, D., Martin, W., Swinnen, J., & Vos, R. (2020). COVID-19 risks to global food security. *Science*,*369*(6503), 500–502. https://doi.org/10.1126/science.abc4765

Macauley, H. (2015). *Background paper Cereal Crops: Rice, Maize, Millet, Sorghum, Wheat*. https://www.afdb.org/fileadmin/uploads/afdb/Documents/Events/DakAgri2015/Cereal_Crops-_Rice__Maize__Millet__Sorghum__Wheat.pdf

Perry, R., Reid, L., & Henry, F. (2021). Impact of COVID-19 on Food Security in the Caribbean. *Journal ofFood Security*, *9*(3), 101–105. https://doi.org/10.12691/jfs-9-3-2

Samputra, P. L., & Antriyandarti, E. (2024). Food insecurity among female farmers in rural West Sleman, Indonesia. *Agriculture & Food Security*, *13*(1), 2. https://doi.org/10.1186/s40066-023-00453-1

Singh, D. R., Sunuwar, D. R., Shah, S. K., Sah, L. K., Karki, K., & Sah, R. K. (2021). Food insecurity during COVID-19 pandemic: A genuine concern for people from the disadvantaged community and low-income families inProvince 2 of Nepal. *PLOS ONE*, *16*(7), e0254954. https://doi.org/10.1371/journal.pone.0254954

Skinner, K., Hanning, R. M., Desjardins, E., & Tsuji, L. J. (2013). Giving voice to food insecurity in a remote indigenous community in subarctic Ontario, Canada: Traditional ways, ways to cope, ways forward. *BMC PublicHealth*, *13*(1), 427. https://doi.org/10.1186/1471-2458-13-427

Solis, G. D. (2022). The Law of Armed Conflict: International Humanitarian Law in War. *Journal of Conflictand Security Law*, *27*(1), 123–129. https://doi.org/10.1093/jcsl/krac004

Wendimu, M. A., Desmarais, A. A., & Martens, T. R. (2018). Access and affordability of 'healthy' foods in northern Manitoba? The need for Indigenous food sovereignty. *Canadian Food Studies / La Revue CanadienneDes Études Sur l'alimentation*, *5*(2), 44–72. https://doi.org/10.15353/cfs-rcea.v5i2.302

World Bank, W. B. (2014). *80% of the extreme poor live in rural areas*. https://ieg.worldbankgroup.org/sites/default/files/Data/RNFEbrochureweb.pdf

Wuilbercq, E., & Bhalla, N. (2020). *No bed of roses: East Africa's female flower workers lose jobs as coronavirus hits exports*. https://www.reuters.com/article/us-health-coronavirus-africa-women/no-bed-of-roses-east-africas-female-flower-workers-lose-jobs-as-coronavirus-hits-exports-idUSKCN21T0AW/

Zavaleta, C., Berrang-Ford, L., Ford, J., Llanos-Cuentas, A., Cárcamo, C., Ross, N. A., Lancha, G., Sherman, M., Harper, S. L., & the Indigenous Health and Adaption to Climate Change Research Group. (2018). Multiple non-climatic drivers of food insecurity reinforce climate change maladaptation trajectories among Peruvian Indigenous Shawi in the Amazon. *PLOS ONE*, *13*(10), e0205714. https://doi.org/10.1371/journal.pone.0205714

Zhang, X., & Yu, X. (2021). Short supply chain participation, and agrochemicals' use intensity and efficiency:Evidence from vegetable farms in China. *China Agricultural Economic Review*, *13*(4), 721–735. https://doi.org/10.1108/CAER-05-2020-0108