

Navigating the Complex Terrain of Food Security in Decentralised Systems: Insights from South Africa and Nigeria

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Abstract

Despite their substantial economies and populations, South Africa and Nigeria encounter significant challenges primarily due to constraints in accessing to agricultural input resources. The study adopts an interpretivist approach, which involves acknowledging reality and making meaningful contributions through qualitative research. As such, secondary data was collected and analysed thematically. This paper delves into the multifaceted nature of food insecurity, highlighted by historical factors, widespread poverty and unemployment, further exacerbated by escalating global food prices. The correlation between exorbitant input expenses and restricted agricultural yields and production, resulting in heightened food prices, is thoroughly explored. Additionally, the review critically examines the influence of climate change on the agricultural sector and its implications for the availability and accessibility of food in rural areas. The narrative in this paper emphasises the imperative of fairness, equity, transparency, and accountability in formulating sustainable strategies to combat these challenges. The paper advocates for contextually appropriate, evidence-based policy approaches, emphasising the significance of collaborations between research institutions and government entities. Such partnerships are crucial for developing efficacious responses to issues like drought, which necessitate comprehensive monitoring systems and mitigation strategies. The role of local government in fostering the growth of agro-based enterprises is underscored, illustrating how local processing of agricultural products can augment revenue, employment, and overall agricultural productivity. The paper also proposes policies to attract private sector



investment, such as subsidies for farming equipment and fertilisers, and the development of climate-resilient agricultural technologies that integrate local indigenous knowledge. Lastly, the paper addresses the critical imperative of enhancing the resilience of supply chains against unforeseen disruptions, encompassing natural disasters and market fluctuations. This entails implementing risk management strategies, investing in infrastructure, adopting advanced technologies, and fostering collaboration throughout the supply chain. The paper concludes that such measures are indispensable for ensuring a stable and consistent supply of agricultural products, ultimately benefiting both producers and consumers and contributing to the overarching goal of attaining food security in South Africa, Nigeria, and similar contexts.

Keywords: Food security, Rural livelihoods, Strategic policies, Vulnerable communities, South Africa, Nigeria

Introduction

Food is an essential and integral element for human survival, providing the necessary nutrients for both economic and human development (Obayelu & Orosile, 2015). In the current rapidly changing world, food systems in developing nations face increasingly complex and new challenges (Matemilola & Elegbede, 2017; Qaim, 2020). The fight against poverty, guaranteeing food and nutrition security, and safeguarding the environment require innovative approaches and re-examination, as rural communities' vulnerability is exacerbated by poverty and inadequate institutional support in the face of shocks and physical stressors (Connolly-Boutin & Smit, 2016). The consequences of these stressors could have catastrophic effects on people's ability to access food and secure their subsistence. A case in point is the COVID-19 lockdown, which jeopardised the world's food supply networks, economy, and means of livelihood, particularly in developing nations, resulting in a doubled number of people experiencing extreme food insecurity (World Food Programme, 2020). Widespread poverty, unemployment, reduced purchasing power, and obstructed access to reliable food supply are the primary sources of food insecurity in developing nations. Recent sharp increases in global food prices are likely to continue or become more erratic (Workie et al., 2020). Food security, however, exists when individuals are empowered to consistently access safe food containing the necessary nutrients for healthy and active living (Thow et al., 2018). Food insecurity is a result of intricate interactions between various environmental and socioeconomic stressors over extended periods, coupled with abrupt shocks (Tendall et al., 2015). Chronic drivers of food insecurity, such as scarcity, environmental strains, lack of land rights, and limited market access, make rural communities vulnerable. These drivers are exacerbated by short-term



drivers, such as rising food prices and could have unanticipated effects on people's quality of life (Connolly-Boutin & Smit, 2016).

Approximately 800 million individuals across the globe are purportedly afflicted with chronic hunger, as reported by Qingshi et al. (2020). The Sustainable Development Goal (SDG) to diminish the number of undernourished individuals and achieve zero hunger is proving to be a progressively challenging target for Africa, mainly due to the food security predicament plagues the continent, as Qaim (2020) noted. Among the world's nations, 21 countries currently experiencing food insecurity are situated in Africa. More than 300 million individuals residing in Africa endure chronic hunger, with at least 235 million located in Sub-Saharan Africa, thereby elucidating why this region has the highest prevalence of chronic hunger. Significantly, the most affected groups are indigent families, landless individuals, and female-led households. Most of these households rely on food purchases and are adversely affected by escalating food prices, as indicated by Otekunrin et al. (2020) and Tumushabe (2018). Due to these high prices, the impoverished are more prone to food insecurity and malnutrition. This situation disproportionately affects rural inhabitants due to the higher poverty rates in rural areas than in urban ones, as posited by Thornton et al. (2019). Despite Nigeria's reputation as the giant of the African continent due to its large population and status as an emerging market, its poverty rate is alarming. At least 70% of Nigerians subsist on less than \$1 per day, and 79% and 71% of low-income urban households and rural areas, respectively, encounter food insecurity (Matemilola & Elegbede, 2017).

Furthermore, although South Africa produces sufficient food to meet the needs of its populace, food insecurity remains a significant concern for many households, particularly in the country's rural regions, as stated by Raidimi and Kabiti (2019) and Masipa (2017). Masipa (2017) acknowledged that many South African households in rural areas are at risk of experiencing food insecurity. Consequently, this study scrutinises the salient realities of food security in deprived communities of Matatiele, Alfred Nzo District Municipality in South Africa, and Shiroro local government of Niger State in Nigeria. It examines the ramifications of the current state of food security on rural livelihoods in the selected communities. It proposes ensuing strategies for effective food security policies and sustainable rural livelihoods in Nigeria and South Africa.

Motivation for the Study

The population's rapid growth and soaring crop prices have prompted emergent concerns about a worldwide food crisis. Recent worries have been exacerbated by price fluctuations in food crops, particularly in nations like Nigeria, which heavily rely on food imports to meet consumer demands (Barrett, 2021). Furthermore, given that the agricultural industry accounts for 70% of all water withdrawals worldwide, the recent susceptibility of regions



to climate change has resulted in droughts, pest outbreaks, and flooding, which have adverse impacts on food security (Majeed & Luni, 2019; Kumar et al., 2018). Despite efforts to ensure regional and national food security and provide sustainable livelihoods for millions of people, many African countries' agricultural sectors continue to struggle. The Food and Agricultural Organization (FAO) has cautioned that severe food shortages could lead to an impending food crisis in some African countries (Peterson, 2022). Climate change projections indicate that warming, altered rainfall patterns, increased droughts and floods will exacerbate water scarcity, particularly in semi-arid and desert countries like Southern Africa (Nhemachena et al., 2020). Nigeria and South Africa are facing challenges concerning food access and availability, given their reported substantial population growth, dependence on imports, and the influence of climate change (Masipa, 2017; Matemilola & Elegbede, 2017). Notably, most households affected by food insecurity occur in rural areas, where poverty is rampant, according to Du Toit (2017), who reported that over 60% of the South African population lived in rural areas in poverty in 2015. Inadequate nutritional consumption, deficient infrastructures, and a lack of finances have led to rampant malnourishment in Kwa-Zulu Natal (KZN) (Govender et al., 2017). Similarly, Eme et al. (2014B) found that rural areas in the North-central of Nigeria, particularly, are more vulnerable to unbalanced nutrition, poor-quality foods, and chronic food shortages, revealing food insecurity in the country.

The municipality of Matatiele in South Africa exhibits an unemployment rate of 38.7 per cent, rendering it one of the most destitute local municipalities in the country (Cronje, 2014). Despite the presence of established economic enablers such as agriculture and tourism, their underdevelopment has left many without a source of income. As a result, numerous citizens have had to rely on social grants and pensions. The municipality's livelihood activities have been severely affected by droughts and climate change-related issues, which have been compounded by the COVID-19 pandemic, causing restrictions that hinder access to healthcare, water, and food (Mubangizi & Mubangizi, 2021). Similarly, the Shiroro local government in Niger State predominantly relies on agricultural activities. However, it is identified as a poverty-stricken community (Sadiq & Kolo, 2015) and has been the epicentre of banditry since 2017. The COVID-19 pandemic has further exacerbated the situation, increasing banditry activities and adversely impacting rural occupants and their primary agricultural business, thus affecting their livelihoods and access to food (Mohammed et al., 2021). Consequently, this study aims to investigate the status of food security in the selected rural communities and highlight the complexities of its impact on rural livelihoods.

Contextualisation of Food Security

The second Sustainable Development Goal (SDG) aims to eliminate hunger and achieve food security by 2030, focusing on food and food security access. The Food and Agriculture



Organization of the United Nations defines food security as the state where individuals consistently have adequate food to meet their nutritional requirements for a productive and healthy life (Owoo, 2021). Food security encompasses more than just food availability, according to Connolly-Boutin and Smit (2016). It can vary in extent over time within families, households, or communities. The concept of food security has evolved. In the 1970s, food security was primarily seen as a function of food production, as demonstrated in the 1974 World Food Conference. The widely accepted definition of food security includes three pillars: food availability, food access, and food usage (Moffat et al., 2017).

Food availability refers to the production, exchange, and distribution of food and includes the quantity and variety of food offered for consumption. Food access is obtaining food in the required amount, quality, and categories, considering affordability, preference, and allocation. Food usage encompasses food's nutritional value, safety, and social worth and the ability to consume and derive dietary benefits from it. While food availability is necessary but not sufficient for access, access is not enough for usage (Connolly-Boutin & Smit, 2016; Moffat et al., 2017).

Food security is a complex phenomenon influenced by political, biophysical, social, institutional, and economic factors. These various stresses are integral to livelihood strategies, particularly at the household level. (Akbari et al., 2022). Therefore, food security is the ability of local livelihoods to ensure that households have access to sufficient food. Research on household-level food security focuses on understanding people's strategies to achieve food security, such as income diversification, technology adoption, or migration. Food security is part of a broader livelihood strategy encompassing sustainability, vulnerability, and access to food (Connolly-Boutin & Smit, 2016).

Food security as a multifaceted phenomenon reflects an intricate interaction of several political, biophysical, social, institutional and economic stresses.

Sustainable Rural Livelihoods

The Sustainable Livelihoods Framework (SLF) is a conceptual instrument developed by the Department for International Development (DFID) to comprehend and scrutinise poverty and sustainability in rural areas. The framework is comprised of five fundamental components: assets, livelihood strategies, institutions and organisations, vulnerability and risks, and transforming structures and processes. The initial component, assets, incorporates natural, physical, financial, human, and social resources that individuals and communities possess, ultimately determining the capability to pursue livelihood strategies. Livelihood strategies are the diverse range of activities and practices people engage in to secure their livelihoods, including agriculture, non-farm activities, or small-scale businesses. The framework also accentuates the significance of institutions and



organisations shaping livelihood outcomes through social capital and support systems (Natarajan et al., 2022; Sarker et al., 2019).

Moreover, the Sustainable Livelihoods Framework (SLF) addresses rural communities' vulnerabilities and risks, such as natural disasters or market fluctuations. It advocates for developing resilience and adaptive capacity to enable these communities to cope with these challenges. Additionally, the framework acknowledges the impact of broader political, economic, and social structures on livelihood outcomes. It underscores the importance of inclusive policies and governance to support sustainable rural development and poverty reduction (Natarajan et al., 2022). Although criticised for its limitation to handling sustainability within the ever-changing landscape of vulnerability, where livelihood assets are frequently affected by environmental factors, the SLF presents a comprehensive approach to designing interventions that foster sustainable livelihoods and long-term well-being in rural regions (Sarker et al., 2019). Sustainable rural livelihoods encompass practices and strategies that enhance the well-being and resilience of rural communities while safeguarding natural resources and the environment for future generations. These livelihoods are founded on social, economic, and environmental sustainability principles, seeking to balance current inhabitants' needs and the needs of future generations (Gibbens & Schoeman, 2020). A sustainable rural livelihood approach acknowledges the interconnectedness of various aspects, including agriculture, natural resource management, local economies, social cohesion, and community empowerment. By adopting sustainable practices, rural communities can improve food security, alleviate poverty, and promote long-term prosperity while preserving the ecological balance of their surroundings. Governments and institutions can significantly impact food security and sustainable rural livelihoods, both positively and negatively, through their policies, programs, and governance; a discussion of these in the context of the study areas now follows.

Overview of Relevant Food Security Policies in the Study Contexts

In 1995, after the release of the White Paper on Agriculture in South Africa, endeavours were initiated to establish a national food security policy. Nevertheless, an absence of legislative mechanisms presently exists to implement the constitutionally guaranteed right to food (Hendriks, 2014). The South African government has accorded priority to diverse national strategies and programs, such as school feeding schemes, public works programs, and community food garden initiatives, among others, to enhance conditions to realising food security (Hendriks, 2014). However, potential threats to commercial food production could have deleterious repercussions on South Africa's impoverished populace, who are more vulnerable to inflation and have limited job and income prospects, notwithstanding the need for land restitution and equitable communal land tenure rights (Dodd and Nyabvudzi, 2014).



The South African government acknowledged that food security is achieved when everyone has constant access to sufficient, nutritious food that meets their dietary needs and food preferences for an active and healthy physical, social, and economic life (Dodd and Nyabvudzi, 2014). Nevertheless, most rural households are becoming unable to purchase food in the country. Only 45.6% of South Africa's families are food secure, 28.3% are in danger of food insecurity, and 26% are food insecure, as reported by the Human Sciences Research Council and the Medical Research Council in 2014. In the Eastern Cape, where more than 30% of households face hunger, food-insecure households have the highest concentration (Hendriks, 2014).

Nigeria is the most populous nation in Africa and the eighth most populated nation in the world, with a population of over 200 million. Nigeria is currently ranked 38 out of 100 countries in terms of food security. This low ranking reflects the nation's difficulties in ensuring food security (Owoo, 2021). The government had initially focused on industrialisation policies with the First National Development Plan (NDP) (1962-1968), which emphasises exploiting the country's abundant resources. Subsequent development plans from the 80s, however, strived to revitalise the rapidly dwindling food production. The government's efforts were criticised for inadequate funding, major dependence on the import of agricultural items, corruption and poor governance, which affected the effective implementation of the projects and programs of the NDP (Matemilola & Elegbede, 2017).

From the return of the civilian government in 1999, a number of initiatives were introduced to ensure food security and face-out hunger. Initiatives like the Special Program for Food Security, Root and Tuber Extension Program and Community-based agricultural and development schemes among other policy instruments such as the provision of funding and fertilisers for farmers and restrictions on the importation of food or agricultural products that are producible locally, reaffirmed the government's commitment to ensuring adequate food supply (Matemilola & Elegbede, 2017). According to Ogbonna et al. (2013), the government's determinations at increasing food production, especially for rural households, are hampered by insufficient funds. This emphasises the significance of the component of food security – accessibility, availability, stability and utilisation, as a panacea for ensuring it is attained.

Given this background, this paper sheds light on issues affecting food security and the effect of food insecurity on rural livelihoods.

Research Methods

The study utilised current literature to perform qualitative research on food security in two areas. The approach focused on secondary data and non-numerical information to



understand perceptions and experiences related to human behaviour (Saunders et al., 2019). The study used general search engines to find relevant literature and employed text analysis methods in presenting findings.

Results and Discussion

This section presents the results from the investigation on the eminent realities of food security in Nigeria and South Africa and the implications of the current status on rural livelihoods, having reviewed the prospective significance of ensuring the existence of food security on individuals, nations and at the global level.

Poverty and Socioeconomic Inequities

Matatiele is located in the Alfred Nzo District, one of the poorest in the Eastern Cape Province (Mubangizi & Mubangizi, 2021). Low employment opportunities, low education levels and weak infrastructure characterise the area. The district is primarily rural, with households living on communal land, and most agricultural production is for subsistence (Kekana & Maponya, 2017). Due to inadequate resource endowment and various socioeconomic constraints, access to safe and nutritious food is eroded. A similar situation is evident in Shiroro LGA, where more than half of the population is in dismal poverty, which consequently affects their access to food and livelihoods (Yisa et al., 2018). Yisa et al. (2020) confirmed the existence of severe poverty among the farmers in Shiroro compared to other LGAs in Niger State. Although the state has one of the most fertile agricultural lands in the country, the low productivity recorded is largely due to poverty that results in poor storage services, poor market, poor road network and lack of essential agrochemical inputs (Nmadu et al., 2014).

According to Ngumbela et al. (2020), the Eastern Cape (EC) province has remained largely rural despite having a highly rich socioeconomic and political history. Land and human capital are among the significant natural resources that the residents of this province can access but the population requires a boost to enter the wealth-creating sector where financing for rural development and economic empowerment are made possible. Although the right to food is established in the nation's constitution in 1996 and food security has been a priority to the South African government since 1994, attempts to address the problem of food insecurity are hampered by the fact that acquiring access to food security depends on a variety of variables and is constantly changing. For example, in the EC province, the issue of food insecurity has a gender component, evident in their limited access to and ownership of land. Therefore, women are typically more at risk of food insecurity than males are. For instance, 48% of women and 43% of men live in poverty in the province. At the same time, rural areas are home to about 67% of disadvantaged female-headed households (Ngumbela et al., 2020). This further underscores the issue of



land claims that adds complexity to the primary livelihood activities of many households in the region, which are closely linked to land and agriculture (Mubangizi, 2021).

Mujuru & Obi (2020) attested to the existing relationship between poverty and food security, emphasising that a low farm output poses a threat to endeavours aimed at reducing poverty and ensuring food security. Therefore, it is generally accepted that poverty and food insecurity are two related issues (FAO, 2019). Raising the poor's income or productivity is believed to reduce the population's level of food insecurity. Studies resonate the strong link between poverty at the household level and calorie intake particularly in rural settings (Bocoum et al., 2014; Moncada et al., 2022; Mahadevan and Hoang, 2016). Therefore, the prevailing poverty at Shiroro and Matatiele has continued to hinder food security as the agricultural sector is the basis of livelihood of the rural communities.

Food Security and Climate Change

A corpus of knowledge exists regarding the impact of climate change on food security in South Africa (Akpalu et al., 2009; Masipa, 2017). There is a general consensus that climate change, particularly global warming, affects food security through food availability, accessibility, utilisation and affordability. Some writers like Beddington et al. (2012), Franke et al. (2013), and Masipa (2017) suggest changes in the variety of crops, and substitution of crop farming with livestock rearing or aquaculture. Other writers call for appropriate policies and legislation to respond to changes in water demand and changes (Zimmermann, 2018) while yet others call for decentralisation and greater inclusivity of those most affected by climate change (Candel, 2014; Maluleke, 2021)

Droughts are among the most common climate extremes threatening economic, natural and human systems. It is attributed to one of the factors of extreme food scarcity that threatens food security (Ngcamu & Chari, 2020). It is widely acknowledged that climate change is a developing stressor that will significantly impact food security and livelihoods through changes in climatic norms and the prevalence and harshness of extreme weather events (Campbell et al., 2018). Severe droughts in Sub-Saharan Africa already make it difficult for people to raise cattle and cultivate food. Hence, pastoralists must adapt to changing water regimes to maintain their well-being and food security (Richardson et al., 2018).

Hence, in the Eastern Cape Province where a substantial proportion of agriculture is subsistence farming, the societal effects of droughts are the most severe (Walz et al., 2020). Matatiele Local Municipality is becoming a water-scarce municipality due to multiple dam water levels falling below 30 per cent due to drought (ANDM IDP, 2019). This could be because the province is considered a drought-prone area (Orimoloye, 2022). Although the province is an important water source, factors such as invasive alien plants,



climate change and inappropriate spatial planning are reasons for unpredictable water supply and extensive soil erosion, which exacerbate the already precarious water access in Matatiele and impact the municipality's ability to provide water (Loza et al., 2023).

Ngcamu & Chari (2020) noted the relationship between drought and food security and notably established the existing drought in the northern part of the country, where Niger is located. The study admitted that drought reduces agricultural production, which hampers food security, poverty alleviation and economic expansion. It was observed that climate variability and natural disasters like unpredictable rainfall and floods have a variety of impacts on rural community's reliance on subsistence economies for food security. Idonije & Umar (2022) identified the emerging evidence of extreme temperatures and drought, which upset agriculture, trade and market and resulted in internal displacement of individuals and food insecurity in Shiroro.

Conflict and Security Challenges

Conflicts of all kinds, like civil wars, electoral crises, military insurgencies, racial tension, religious intolerance, and border disputes between communities and nations, among others, have sadly resulted in significant losses of life and property as well as environmental degradation with disastrous effects on agricultural production and food shortages (Kah, 2017). The Boko Haram insurrection and religious clashes in the Northern part of Nigeria have had a detrimental effect on agricultural production and the distribution of goods from the North to the South and vice versa. The security concerns have stopped many people from cultivating crops during the appropriate season, harvesting what was planted, and going to the market to buy or sell goods, and they have displaced many farmers (Umaru, 2020; Mohammed et al., 2021; Kah, 2017). Similarly, Breakfast (2019) acknowledged an existing relationship between national security and food security in South Africa. Conflict and national insecurity significantly impact food security, with notable variations in severity between Nigeria and South Africa. Nigeria's situation is markedly more acute, with ongoing conflicts severely undermining food security. These conflicts disrupt agricultural activities and the distribution of food supplies, directly threatening the livelihoods and survival of vulnerable rural communities.

In contrast, South Africa experiences sporadic service delivery protests, which, while impactful, do not match the intensity or frequency of the conflicts in Nigeria. Instances of intense protest in South African provinces such as Eastern Cape, Gauteng, and KwaZulu-Natal have led to shortages of essential goods, including food. However, these are typically localised and stem from deficiencies in municipal services, unresponsive local governance, and a lack of crucial livelihood resources. Such demonstrations, though significant, are less frequent and generally less disruptive to national food security compared to the persistent and widespread conflicts in Nigeria.



Inadequate Implementation of Food Security and Agricultural Policies

Due to ineffective policies, particularly regarding agriculture, economics, and other related areas, food insecurity has persisted in South Africa and Nigeria (Boatemma et al., 2018; Matemilola & Elegbede, 2017). Improper administration of projects and laws related to food and nutrition has inevitably resulted in continued or worsening hunger. It is claimed that public interests are not given enough consideration when policies, institutions, objectives and structures are designed. Therefore, some policies are designed to be uninclusive, and the excluded population often becomes powerless (Matemilola & Elegbede, 2017; Termeer et al., 2018). A recent study by Maluleke (2021) concluded that issues faced by rural districts in implementing food security programmes relate to flaws in political interference, day-to-day planning and coordination, and the one-size-fits-all approach to project execution, which hinders efficiency and responsiveness. Eme et al. (2014) underscored the challenge of continuity with implemented programs such as the Directorate for Food, Road and Rural Infrastructure (DFRRI) and the National Accelerated Food Production Programme (NAFP), among others Scheme in Nigeria in realising their purposes. Other issues attributed to the unsuccessful realisation of formulated and implemented agricultural policies in Nigeria include policy instability, weak institutional framework, poor supervision and monitoring of implemented policies and inconsistency in policies (Olaoye, 2014).

Hendriks (2014) and Ngumbela et al. (2020) have posited that the food security measures in South Africa lack effectiveness due to their inadequate reliance on food insecurity assessment and monitoring systems, as well as insufficient comprehension of the household-level conditions that breed vulnerability and food insecurity. This underscores governmental authorities' need to identify the most vulnerable individuals and their coping and survival mechanisms to design effective relief and development intervention measures. Furthermore, food security is a multifaceted phenomenon that demands a multifaceted response, as exemplified by South Africa's Integrated Food Security Strategy (IFSS). Nonetheless, the successful implementation of the IFSS has been marred by allegations of the Department of Agriculture's preference for commercial agriculture, which undermines the purchasing power of the poor and heightens their susceptibility to food insecurity (Hendriks & Olivier, 2015). Despite several policies and programs prioritising food security at the national level, there has been no formal assessment of their impact on food security. Moreover, there is a glaring lack of coordination and reporting and no enforceable policy to guarantee food security (Hendriks, 2014).

The Nigerian government has prioritised the agricultural sector through one of its programs, namely the Agricultural Transformation Agenda (ATA). This initiative mainly focuses on providing farmers loans to reduce dependency on food imports. However, the ATA plan from 2011 to 2016 did not adequately address the challenges faced by farmers in rural areas. Furthermore, the most recent strategy neglects the specific issues farmers



and pastoralists, who are particularly vulnerable, face in conflict zones. Despite the government's efforts to enhance food security and improve the ability of farmers and pastoralists to adapt to climate change, these endeavours have not yet yielded positive results (Obayelu & Orosile, 2015). Consequently, food security remains both a goal and a problem for nations in terms of achieving it. The insufficient implementation of agricultural policies and programs has resulted in food scarcity, both in terms of quantity and quality, due to years of disregard or indifference on the part of institutions responsible for promoting food security for the general population.

A Lack of Supportive Infrastructure for Food Security Systems

Insufficiencies in infrastructure can potentially hinder the transportation of agricultural inputs, including seeds, fertilisers, and tools, to remote, rural areas. This, in turn, constrains farmers' capacity to incorporate modernised farming methods, elevate production levels, and augment their adaptability to the effects of climate change. The scarcity of access to extension services, irrigation systems, and reasonably priced finance only compounds small-scale farmers' predicaments (IFPRI, 2019; Mubangizi, 2021). Moreover, Morokong (2016) highlights that farmers' lack of governmental support has led to adopting a continuous grazing system, resulting in low levels of productivity in grazelands. Recently, Baqwa et al. (2022) determined that deficient water infrastructure and limited equipment to perform various cattle functions, such as scaling, loading, separating, clamping and sorting of cattle, all contribute to insufficient farmer yields in the Matatiele area and food insecurity.

Conclusion and Recommendations

Achieving comprehensive food security remains a formidable challenge in developing nations, particularly South Africa and Nigeria, which possess large economies and populations. Primarily, the principal factor contributing to food insecurity in these chosen countries is the inability to obtain food due to poverty. Food insecurity in households is distinguished by prevalent poverty and unemployment, exacerbated by the global price escalation. The price surge will render productivity advances futile unless a consistent supply accompanies them throughout the year. High input costs, which restrict yield and production levels due to high production costs, are connected to high food prices. Ultimately, the primary cause of food insecurity in rural communities and a reflection of their low livelihood level is the population's incapacity to access food due to widespread poverty and unemployment, which diminishes purchasing power and impedes reliable access to the food supply. It is anticipated that the recent sharp increases in global food prices will persist or, at the very least, become more erratic.

Additionally, the agricultural sector and other developmental initiatives that could ensure food availability and accessibility in rural communities are also grappling with the effects



of climate change. Fairness in climate action and a just outcome must be provided when formulating plans to realise sustainable strategies. Systems must integrate equity, transparency, and accountability, which are vital in informing country-specific support and activities for diminishing food insecurity and enhancing the livelihoods of rural communities.

From a policy standpoint, it is essential to have equitable, informed and practical strategies that are context-sensitive and solid based on the evidence of the existing food security status at the rural government levels. This emphasises the need for collaborations between research institutions and government institutions to identify the most vulnerable and their pertinent needs to inform policies and strategies. For instance, drought is mainly a result of inadequacy in local response, early warning, catastrophe planning, and external assistance. Hence, the government needs to collaborate with researchers to craft a comprehensive drought monitoring system. This identifies and highlights the underlying causes and actual effects of drought occurrences in the study area and surrounding environments by noting current climate economic and environmental implications and providing probable mitigation measures.

Policies relating to agribusiness necessitate a well-defined focus to enable the profitable exploitation of natural resources in South Africa and Nigeria. The government must prioritise the development of agro-based enterprises that can effectively process agricultural raw materials within local governments, with a special emphasis on processing raw crops for both domestic and international markets. This will result in an increase in revenue and employment opportunities and an overall increase in agricultural production.

To attract private sector investors, subsidies for mechanical equipment, farm tools, and fertilisers should be provided. Emerging policies should be designed to emphasise and support the role of the agricultural sector, including the development of climate-resilient technologies for seed cultivars and animal breeds. Introducing such technologies, considering local indigenous knowledge systems, is expected to yield favourable results.

The resilience of supply chains must be reinforced to withstand unexpected shocks such as natural disasters, price fluctuations, or transportation disruptions. This can be accomplished by implementing risk management strategies, investing in infrastructure, adopting advanced technologies, and promoting collaboration between various actors in the supply chain. By enhancing resilience, a more stable and consistent supply of agricultural products, benefiting both producers and consumers can be guaranteed.

Areas for Further Research

In the quest to address the formidable challenges of achieving comprehensive food security in developing nations, particularly in South Africa and Nigeria, our study has



illuminated a complex web of factors contributing to the current state of affairs. The nexus of poverty, unemployment, escalating global food prices, and the adverse effects of climate change on agriculture form a critical backdrop against which food insecurity unfolds. As our understanding of these interconnected issues deepens, it becomes increasingly evident that there is a substantial need for further research in various domains.

This need for expanded inquiry is not just academic but a practical imperative to guide effective policy-making and implementation. The areas for further research, as identified in this study, are diverse yet interconnected, spanning from the micro-level dynamics of household food insecurity to the macro-level policy and governance structures. They reflect the multidimensional nature of food security, encompassing availability, accessibility, utilisation, and stability of food systems.

The following sections detail specific areas where further research is necessary, highlighting their relevance and potential impact on improving food security in South Africa, Nigeria, and similar contexts. Each area presents an opportunity to contribute to the body of knowledge, inform policy decisions, and ultimately make strides towards alleviating food insecurity in these regions.

1. **Poverty and food access dynamics within decentralised systems:** Investigate how decentralised governance structures impact the relationship between poverty, unemployment, and food accessibility. This would involve studying the effectiveness of local versus central government interventions in addressing food security issues.
2. **Climate change, agricultural resilience, and organisational adaptation:** Focus on how public institutions and agricultural organisations adapt to the challenges posed by climate change. This involves studying organisational change, capacity building, innovation and indigenous knowledge regimes.
3. **Governance structures and food security policy effectiveness:** Evaluate the role of different governance structures in developing and implementing food security policies. This could involve analysing the coordination between various levels of government and the integration of policies across sectors.
4. **Local response to droughts within decentralised frameworks:** Research the effectiveness of local governments and community-based organisations in responding to droughts. This includes studying how decentralisation affects resource allocation, community engagement, and emergency response.

5. **Climate-resilient technologies and public sector innovation:** Investigate the role of public administration in promoting the development and adoption of climate-resilient agricultural technologies. This could involve exploring how public institutions support research and development, technology transfer, and innovation.
6. **Building resilient supply chains through public administration:** Examine how public administration can enhance the resilience of agricultural supply chains. This involves studying the role of government in infrastructure development, risk management, and the adoption of advanced technologies.

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