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EFFECTS OF BOKO HARAM INSURGENCY ON AGRICULTURAL PRODUCTION AND FOOD SECURITY IN NORTHEAST NIGERIA

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Abstract

This paper investigates the impact of the Boko Haram insurgency on food security in Northeast Nigeria, a region grappling with protracted conflict, displacement, and systemic fragility. Theoretically, it integrates Human Security Theory (emphasizing systemic vulnerabilities) and Rational Choice Theory (exploring individual survival strategies), offering a dual lens to analyse conflict-driven food insecurity. Methodologically, the qualitative systematic literature review, guided by the PRISMA framework was adopted, through which 47 peer-reviewed studies, institutional reports, and datasets (2009–2025) were synthesized, employing thematic and quantitative analyses. Key findings revealed that Boko Haram adopt a hybrid tactics, including burning farmlands, looting harvests, and controlling markets, which precipitated a 45.94% decline in crop yields, 300% food price inflation, and 15% child malnutrition rates. The insurgency's intersection with climate shocks (e.g., erratic rainfall) and governance failures has displaced 1.8 million people, destabilizing agricultural resilience and trapping communities in aid dependency. On the premise of these findings, the study concludes that Boko Haram's weaponization of food scarcity exacerbates poverty cycles, demanding holistic interventions. The study thus recommends establishing military-protected agricultural corridors to enable safe farming; scaling climate-resilient practices (drought-resistant crops, agroforestry); and deploying subsidized food networks and anti-extortion task forces to stabilize markets. These strategies underscore the need to align security, development, and human rights frameworks for sustainable recovery.

Keywords: Boko Haram Insurgency, Food Security, Northeast Nigeria, Climate Resilience, Agricultural Collapse, Humanitarian Crisis.

1. Introduction

Violent insurgencies, as a global phenomenon, have emerged as a critical destabilizing force to human security, with profound implications for socio-economic stability and development. Defined by the United Nations Development Programme (UNDP, 1994) as the protection of individuals from chronic threats such as hunger and repression, human security is fundamentally eroded in conflict zones where insurgent activities dismantle essential infrastructures. Among these threats, food security – encompassing availability, accessibility, utilization, and stability of food resources (FAO, 2021), has become a bellwether for measuring the socio-economic toll of protracted conflicts. The United Nations Security Council (2018) has underscored this nexus, condemning the deliberate

weaponization of starvation in conflicts as a crime against humanity. Globally, regions grappling with insurgencies, from Afghanistan's agricultural collapse under Taliban rule (FAO, 2021) to Colombia's rural destabilization by drug cartels, exemplify how violence disrupts food systems, displaces populations, and entrenches poverty.

In Africa, this dynamic assumes acute dimensions, with protracted conflicts in the Democratic Republic of Congo (DRC), South Sudan, and the Sahel region precipitating catastrophic food crises. The DRC's agricultural infrastructure collapse, which has rendered millions dependent on international aid (Reid, 2020), and South Sudan's cyclical famines, fuelled by ethnic violence and political instability (FAO, 2020), reflect systemic vulnerabilities exacerbated by insurgency. Yet, Nigeria's northeast,

besieged by the Boko Haram insurgency since 2009, presents a paradigmatic case of how localized conflict can unravel food security across all four dimensions. As Africa's most populous nation, Nigeria's Northeast crisis has displaced over two million people, decimated farmland, and destabilized markets, positioning the region among the world's most severe food-insecure zones (FAO, 2021; Statista Research Department, 2021).

The Boko Haram insurgency, rooted in Borno State as a radical religious movement, has evolved into a complex humanitarian catastrophe, claiming over 27,000 lives and crippling agrarian livelihoods (Falode, 2016). Agricultural production – the economic linchpin of rural communities, has suffered catastrophic declines, with insurgents destroying crops, seizing livestock, and rendering vast swathes of arable land unusable (Alhaji, 2023). While studies such as Ikemefuna (2022) and Oladipo and Oyinloye (2022) have quantified declines in crop yields and generalized economic impacts, critical gaps persist in understanding the insurgency's holistic erosion of food security. Existing literature often compartmentalizes analysis, focusing narrowly on food availability or macroeconomic consequences while neglecting interdependencies between accessibility, utilization, and stability. For instance, Yunusa *et al.* (2023) highlight rising food prices and market disruptions but offer limited insight into how displaced populations in Internally Displaced Persons (IDP) camps navigate nutritional deficiencies or adapt dietary practices under duress. Similarly, Agofure *et al.* (2022) document malnutrition trends but overlook the cultural and socio-economic adaptations communities employ to mitigate food utilization challenges.

Furthermore, the cyclical nature of violence in Northeast Nigeria has destabilized long-term food planning, undermining resilience and perpetuating dependency on humanitarian aid (Mukhtar, 2020). Despite international frameworks like the Sustainable Development Goals (SDGs) prioritizing Zero Hunger, the region's food systems remain trapped in a paradox: short-term relief interventions address immediate needs but fail to foster sustainable adaptation strategies. This paper thus sought to bridge these gaps by interrogating the insurgency's multidimensional impact on food security, analysing the operational patterns of Boko Haram in Northeast Nigeria, as well

as assessing how Boko Haram insurgency has affected the food security, in Northeast Nigeria.

This paper sought to provide answers to the following research questions:

- i. What are the operational patterns of Boko Haram in Northeast Nigeria?
- ii. How has Boko Haram insurgency affected the food security, in Northeast Nigeria?

2. Literature Review

2.1 Conceptual Review

Insurgency

Insurgency, as a form of violent conflict, represents a systemic challenge to state legitimacy and authority, characterized by protracted, asymmetric warfare waged by non-state actors seeking to reconfigure socio-political orders. Rooted in a crisis of governance, insurgencies emerge when disaffected groups perceive the state as incapable of addressing entrenched socio-economic inequities, political exclusion, or historical injustices (Adeboye, 2020; O'Neill, 2005). This phenomenon transcends mere rebellion, embodying a deliberate strategy to erode state control through subversion, psychological manipulation, and violence, often framed as resistance against systemic oppression (Metz & Millen, 2004; Kilcullen, 2006).

Scholars conceptualize insurgency as a dynamic interplay of structural grievances and strategic action. Mitchell's (1989) triangular typology – encompassing goal incompatibility, polarized attitudes, and conflict behaviour, provides a framework for understanding how latent societal tensions escalate into organized resistance. When marginalized populations perceive the state as indifferent or hostile to their welfare, insurgent groups exploit these grievances, positioning themselves as alternatives to state authority (Kwaja, 2011; ICG, 2014). For instance, socio-economic deprivation, as seen in Northern Nigeria's chronic poverty and unemployment, often serves as fertile ground for radicalization, transforming ideological dissent into violent mobilization (Kukah, 2012; Adeboye, 2020).

Insurgent strategies are inherently asymmetric, leveraging terrain, propaganda, and psychological warfare to offset state military superiority. Mao's notion of "protracted people's war" underscores the temporal dimension of insurgency, emphasizing

endurance and attrition over conventional military victories (Adeboye, 2020). Tactics such as sabotage, attacks on infrastructure, and coerced civilian compliance aim to delegitimize the state's capacity to provide security and services, fostering public disillusionment (Kilcullen, 2006; Metz & Millen, 2004). The British Army's counter-insurgency manual highlights this dual approach: insurgents combine physical disruption with ideological persuasion to fracture state-society trust (Adeboye, 2015).

The Boko Haram insurgency exemplifies these dynamics. Emerging from socio-economic marginalization in Nigeria's Northeast, the group evolved from a non-violent Islamist movement into a lethal insurgency following state repression and leadership radicalization (Walker, 2012; Adeboye, 2020). Its transition to violence, marked by suicide bombings, kidnappings, and territorial control reflects a strategic shift to exploit governance vacuums and communal grievances (Agbibo, 2013; HRW, 2012). Boko Haram's ideological narrative, which frames Western education and secular governance as corrupting forces, resonates with populations alienated by systemic neglect and economic stagnation (NIPSS, 2012; ICG, 2014).

Insurgency's transformative potential lies in its capacity to reshape socio-political landscapes. While Marx (1910) viewed conflict as a catalyst for systemic change, contemporary scholars caution that its destructive consequences – displacement, infrastructure collapse, and social fragmentation, often outweigh transient gains (Scheper-Hughes & Bourgois, 2004; Cohen & Nordås, 2014). In Northeast Nigeria, Boko Haram's insurgency has not only destabilized governance but also decimated agrarian livelihoods, exacerbating food insecurity and displacing millions (FAO, 2021; Statista Research Department, 2021). This underscores the symbiotic relationship between insurgency and human security: the erosion of state authority directly imperils essential systems, including food production and distribution. In sum, insurgency is both a symptom and a driver of systemic fragility. Its persistence hinges on the interplay of structural vulnerabilities, strategic violence, and ideological mobilization. By examining Boko Haram through this conceptual lens, this study illuminates how insurgencies transcend localized violence to disrupt foundational pillars of human security, necessitating holistic interventions that

address root causes while mitigating immediate humanitarian crises.

Food security

Food security, a cornerstone of global development discourse, transcends mere food availability to encompass equitable access, nutritional adequacy, and systemic resilience against disruptions – a paradigm crystallized in the 1974 World Food Summit and refined through decades of scholarly and policy engagement (FAO, 2008; Love *et al.*, 2024). At its core, food security is a multidimensional condition where individuals, across all temporal and spatial scales, possess physical, social, and economic access to sufficient, safe, and nutritious food that aligns with dietary needs and cultural preferences (FAO, 2017; Ani & Mutambara, 2021). This definition, anchored in the four pillars of *availability*, *accessibility*, *utilization*, and *stability*, underscores the interdependence of agricultural systems, socio-economic structures, and governance frameworks—a complexity magnified in conflict-affected regions like Northeast Nigeria, where the Boko Haram insurgency has precipitated a catastrophic erosion of food systems.

The *availability* of food, contingent on domestic production, imports, or reserves, is the foundational dimension of food security (FAO, 2008). Yet, in Northeast Nigeria, Boko Haram's systematic targeting of agricultural infrastructure – burning farmlands, looting harvests, and displacing farming communities has crippled local production, transforming once-productive regions into zones of scarcity (OCHA, 2018; Maigari *et al.*, 2021). The insurgency's disruption of supply chains mirrors the FAO's (2017) assertion that political instability and violence destabilize food availability, rendering regions dependent on external aid—a precarious solution that often undermines long-term agricultural resilience (Ojo & Adebayo, 2012). *Accessibility*, the second pillar, hinges on economic capacity and infrastructural integrity. Here, the insurgency's socioeconomic fallout, skyrocketing food prices, collapsed rural markets, and widespread poverty exacerbates inequities, leaving households unable to procure even basic staples (Otekunrin & Otekunrin, 2020). The World Food Summit's emphasis on affordability as a determinant of hunger finds stark validation in Nigeria's northeast, where over 70% of households allocate more than half their income to food, yet remain chronically undernourished (GHI, 2022).

Utilization, the third dimension, extends beyond caloric intake to encompass nutritional quality, food safety, and the biological capacity to metabolize nutrients – factors inextricably linked to clean water, sanitation, and healthcare (FAO, 2014). In Northeast Nigeria, the destruction of health infrastructure and contamination of water sources by conflict has precipitated a dual crisis: acute malnutrition rates exceeding 15% among children and pervasive diseases like cholera, which further diminish nutrient absorption (UNICEF, 2022; Olanrewaju *et al.*, 2019). This aligns with Firdaus *et al.*'s (2020) argument that conflict-induced environmental degradation and resource scarcity undermine utilization, perpetuating cycles of ill health and food insecurity. Finally, *stability* – the resilience of food systems to shocks, is rendered illusory in a region where Boko Haram's persistent violence and climate variability (prolonged droughts, erratic rainfall) compound vulnerabilities, leaving households in a perpetual state of precarity (Adegami *et al.*, 2013; Mbow *et al.*, 2020). The FAO's (2008) warning that stability requires "resilience against disruptions" resonates acutely here, as farmers abandon fields due to fear of attacks, and pastoralist-farmer conflicts over dwindling resources escalate (Olanrewaju *et al.*, 2019).

Food security's determinants further illuminate the crisis. Socio-economic factors such as income levels, asset ownership, and education, are pivotal. Cheema and Abbas (2016) posit that diversified income streams buffer households against food insecurity, yet in Northeast Nigeria, Boko Haram's disruption of livelihoods has eradicated off-farm opportunities, trapping communities in agrarian dependency. Similarly, asset ownership, particularly land and livestock, traditionally serves as a safety net (Karki *et al.*, 2021). However, the insurgency's forcible land seizures and cattle rustling have stripped households of these assets, eroding resilience (Udoh *et al.*, 2019). Demographic factors, such as the age and gender of household heads, also play critical roles. Older farmers' experiential knowledge, a potential asset in mitigating climate risks, is nullified by displacement, while women's role as nutritional gatekeepers is thwarted by insecurity limiting their access to markets and resources (Gundersen & Garasky, 2012; Fikire & Zegeye, 2022).

Political and environmental determinants compound these challenges. Nigeria's agricultural policies, the Agricultural Transformation Agenda (ATA) and National Social Investment Programme (N-SIP) aimed at boosting productivity and food access, have faltered in the northeast due to insurgent activities undermining implementation (Olomola, 2017; Ayinde *et al.*, 2020). Climate change exacerbates the crisis: erratic rainfall and desertification in the Sahel belt reduce arable land, while conflict obstructs adaptation strategies like drought-resistant crops (Adegami *et al.*, 2013; Mbow *et al.*, 2020). The FAO's (2017) rights-based framework, which enshrines food security as a human right, highlights the state's failure to protect vulnerable populations, as IDP camps overflowing with malnourished displaced persons become symbols of systemic neglect (Maigari *et al.*, 2021). Globally, Nigeria's plight mirrors trends in conflict zones where food insecurity is not merely a byproduct of violence but a weapon of war. Boko Haram's tactics of destroying granaries, extorting farmers, and disrupting markets, reflect a deliberate strategy to weaponize hunger, a phenomenon documented in regions from South Sudan to Yemen (GHI, 2022). The insurgency's impact on food security thus transcends local agricultural collapse; it exemplifies how non-state actors exploit systemic vulnerabilities, intertwining food scarcity with broader cycles of poverty and instability (Clapp, 2020).

Scholarly discourse on the impact of violent conflict on food systems and food security

Violent conflict, as a catalyst for systemic destabilization, fractures the pillars of food security (availability, accessibility, utilization, and stability), through multifaceted pathways that intertwine physical destruction, human displacement, and institutional collapse. The Boko Haram insurgency in Northeast Nigeria epitomizes this nexus, where protracted violence has transformed agrarian landscapes into zones of scarcity, displacing millions and unraveling the socio-economic fabric essential for food system resilience (Olaniyan & Okeke-Uzodike, 2020; FAO, 2018). This discourse examines the mechanisms through which violent conflict erodes food security, contextualizing global theoretical frameworks within the empirical realities of Northeast Nigeria, a region emblematic of the interplay between insurgency, environmental stress, and systemic vulnerability.

At the heart of this crisis lies the deliberate destruction of agricultural assets. Boko Haram's scorched-earth tactics such as burning farmlands, looting harvests, and contaminating water sources, have rendered vast tracts of arable land unusable, crippling local food production (Vos *et al.*, 2020). This aligns with global patterns observed in conflict zones like Afghanistan and Colombia, where armed groups repurpose land for illicit activities, diverting resources from staple crops and exacerbating food shortages (Messer & Cohen, 2007). In Nigeria's northeast, such asset destruction is compounded by forced displacement, which severs communities from their livelihoods. Over 1.8 million internally displaced persons (IDPs) have lost access to farmlands and livestock, relegating them to dependency on precarious humanitarian aid (OCHA, 2018; Holleman *et al.*, 2017). The insurgency's targeting of human capital – killing or conscripting skilled farmers, further diminishes agricultural productivity, forcing households to adopt less nutritious, short-cycle crops that prioritize survival over dietary diversity (Arias *et al.*, 2019; Gebre *et al.*, 2021).

The insurgency's ripple effects extend to market systems, where conflict-induced insecurity inflates transaction costs and disrupts supply chains. Transportation routes critical for moving goods from Nigeria's agrarian north to urban markets are frequently blockaded or rendered impassable due to extortion and attacks (Hiller *et al.*, 2014). This fragmentation fosters black markets dominated by non-state actors, where food prices soar beyond the reach of vulnerable populations (Krasteva, 2015). In Northeast Nigeria, Boko Haram's weaponization of food via confiscating granaries and controlling distribution channels, mirrors tactics seen in Somalia and Tigray, where scarcity is leveraged to subjugate populations (Somerville, 2021; Maxwell, 2014). Such strategies deepen food insecurity, as households divert dwindling incomes to meet inflated prices, sacrificing health and education expenditures in the process (McIntosh & Buckley, 2015).

Institutional failures exacerbate these dynamics. Nigeria's reallocation of national resources toward military expenditures, at the expense of agricultural investments, mirrors trends in South Sudan and Syria, where diminished state capacity undermines food system resilience (IMF, 2019; Tian & Lopes da Silva, 2019). The Agricultural Transformation Agenda

(ATA), designed to bolster productivity through input subsidies and credit access, falters in conflict zones where insurgent activities paralyze implementation (Olomola, 2017). Concurrently, climate variability such as erratic rainfall and desertification, interacts with conflict to amplify vulnerabilities. Farmers, already displaced or fearful of attacks, abandon climate-adaptive practices like drought-resistant cropping, accelerating environmental degradation (Mbow *et al.*, 2020; Delgado *et al.*, 2021). This dual burden of conflict and climate shocks entrenches cycles of poverty, as households lack the resources to recover from recurrent disruptions.

Gender disparities further stratify food insecurity. Female-headed households, comprising a growing share of Nigeria's displaced populations, face compounded barriers: restricted access to land, markets, and credit forces women into subsistence farming, curtailing their ability to participate in formal food systems (Gundersen & Garasky, 2012; Gebre *et al.*, 2021). Host communities, strained by refugee influxes, often resist integration, heightening tensions over scarce resources and inflating local food prices (Barman, 2020; Harild & Christensen, 2010). These dynamics reflect broader global patterns where conflict entrenches socio-economic inequities, rendering marginalized groups disproportionately vulnerable. The Boko Haram insurgency also illustrates how violent conflict intersects with external shocks to magnify food insecurity. During the COVID-19 pandemic, movement restrictions in Northeast Nigeria curtailed access to seeds and fertilizers, reducing cultivated areas and yields (Delgado *et al.*, 2021). Such layered disruptions expose the fragility of food systems in conflict zones, where resilience is systematically eroded by both anthropogenic and environmental stressors.

2.2 Theoretical Framework

The Boko Haram insurgency's impact on food security in Northeast Nigeria demands a theoretical framework that bridges systemic vulnerabilities and individual agency. This study integrates Human Security Theory and Rational Choice Theory to unravel the interplay between structural violence and adaptive decision-making in conflict-affected contexts. Together, these theories provide a dual lens to analyse how systemic failures exacerbate food insecurity and how individuals navigate scarcity under duress.

Human security theory: A structural lens on systemic vulnerability

Human Security Theory, crystallized in the UNDP's 1994 *Human Development Report*, redefines security as the protection of individuals from "critical and pervasive threats" to their survival, dignity, and livelihoods (UNDP, 1994). Moving beyond state-centric paradigms, it emphasizes interconnected risks such as poverty, displacement, and environmental degradation – dynamics central to Northeast Nigeria's crisis. The theory's foundational pillars; "freedom from fear" and "freedom from want", resonate in a region where Boko Haram's violence has displaced 1.8 million people, destroyed agricultural assets, and severed access to markets (OCHA, 2018; Alhaji, 2023). By framing food security as a multidimensional issue encompassing availability, accessibility, utilization, and stability (FAO, 2008), Human Security Theory illuminates how insurgency disrupts each pillar:

- a) Availability: Attacks on farmlands and livestock decimate local production, reducing cereal yields by 45.94% in Yobe State (Yunusa *et al.*, 2023).
- b) Accessibility: Market blockades inflate food prices by 300%, forcing households into dependency on exploitative informal networks (Da-Cocodia, 2021).
- c) Utilization: Contaminated water sources and collapsed healthcare infrastructure elevate child malnutrition rates to 15%, impairing nutrient absorption (Ikemefuna, 2022).
- d) Stability: Climate shocks and recurrent violence erode resilience, trapping communities in cycles of precarity (Mbow *et al.*, 2020).

Human Security's emphasis on prevention and resilience aligns with calls for holistic interventions, such as rebuilding agricultural infrastructure and fostering inclusive governance (Alkire, 2003; Gómez *et al.*, 2016). However, critiques by Paris (2001) and Newman (2010) caution against its broad scope, which risks diluting policy priorities in contexts like Nigeria, where state responses often prioritize militarization over humanitarian needs. Despite this, the theory's universal applicability underscores the necessity of global solidarity in addressing Northeast Nigeria's crisis, particularly through coordinated aid and sustainable development programs (Okeke, 2018).

Rational choice theory: Agency and adaptation in resource-scarce contexts

Rational Choice Theory (RCT), rooted in classical economics and expanded by Homans (1961) and Coleman (1990), posits that individuals act to maximize utility under constraints. In Northeast Nigeria, where Boko Haram's violence has created severe resource scarcity, RCT elucidates the logic behind survival strategies that may appear irrational to outsiders. For instance:

- i. Migration: Displaced farmers weigh the risks of insurgent attacks against the benefits of relocating to IDP camps, where food aid, though insufficient, offers temporary relief (Agofure *et al.*, 2022).
- ii. -Informal Trade: Households engage in black-market transactions, accepting inflated prices and security risks to access staples like maize and millet (Krasteva, 2015).
- iii. Coping Mechanisms: Families reduce meal frequency or prioritize children's nutrition, reflecting calculated trade-offs to stretch limited resources (Mukhtar, 2020).

RCT's strength lies in its predictive utility, enabling policymakers to anticipate behaviours such as protest mobilization or illicit crop cultivation in response to scarcity (Morris *et al.*, 2011). Yet, critiques highlight its limitations in capturing non-rational drivers of behaviour. In conflict zones, fear and trauma often override calculated decision-making, as seen in the impulsive flight of farmers during raids (Usman, 2015). Furthermore, RCT's individualistic focus overlooks communal solidarity networks, such as kinship-based resource sharing, which sustain vulnerable populations (Gebre *et al.*, 2021).

Synthesis: Bridging structural and agentic perspectives

The integration of Human Security and Rational Choice Theories offers a nuanced framework to dissect Northeast Nigeria's food security crisis. Human Security Theory contextualizes the insurgency within systemic failures such as governance neglect, climate stressors, and global inequities, while RCT decodes the micro-level calculus of survival. For example, the theory of human security explains why farmers in Borno State abandon drought-resistant crops due to insecurity (structural vulnerability), while RCT reveals

their rational pivot to short-cycle, less nutritious crops to minimize labour exposure (individual adaptation) (Arias *et al.*, 2019).

This synthesis underscores the necessity of dual policy approaches:

- a) Structural Interventions: Strengthening state capacity to protect agricultural zones, as advocated by Alkire (2003), and investing in climate-resilient infrastructure to stabilize food systems.
- b) Agentic Support: Providing conditional cash transfers or microloans to empower households' rational coping strategies, thereby aligning aid with localized decision-making patterns (Blau, 1964).

3. Methodology

This study employed a qualitative systematic literature review, guided by the PRISMA framework (Moher *et al.*, 2009), to examine the Boko Haram insurgency's multidimensional impact on food security in Northeast Nigeria. Data were sourced from academic databases (Scopus, Web of Science, PubMed, JSTOR) and institutional repositories (FAO, OCHA, ICG) using Boolean searches (e.g., "Boko Haram," "insurgency," "food security") spanning from 2009–2025. Inclusion criteria targeted peer-reviewed empirical studies, books, and reports from Borno, Yobe, and Adamawa states, excluding non-empirical or unclear studies. Following a three-stage screening such as title/abstract review, full-text assessment, and quality appraisal via CASP and JBI tools, from which 47 studies were selected. Thematic analysis (Braun & Clarke, 2006) identified patterns in insurgency tactics and their effects on food availability, accessibility, utilization, and stability, framed by Human Security and Rational Choice theories. Quantitative data provided measurable insights, while qualitative narratives captured lived experiences.

4. Results and Discussion

The Boko Haram insurgency, a protracted conflict rooted in socio-economic marginalization, governance failures, and ideological extremism, has precipitated a catastrophic erosion of food security in Northeast Nigeria. This review synthesizes empirical studies that interrogate the insurgency's operational patterns, drivers of radicalization, and multidimensional impacts on food systems, revealing a complex

interplay of violence, structural vulnerabilities, and systemic collapse.

Operational patterns and hybridization of Boko Haram: An empirical review investigation

Boko Haram's evolution into a hybrid entity, blending terrorism with organized crime, underscores its adaptive strategies in exploiting governance vacuums and socio-economic grievances. Studies by Saminu and Adam (2023) and Prieto Curiel *et al.* (2020) demonstrate how the group's decentralization into autonomous cells and alliances with bandits enabled territorial expansion and logistical resilience. For instance, Saminu and Adam (2023) utilized Makarenko's crime-terror nexus model to reveal Boko Haram's reliance on kidnapping, narcotics trafficking, and cross-border smuggling to sustain operations, particularly in Nigeria's north-western regions. Similarly, Prieto Curiel *et al.* (2020) identified at least 50–60 mobile cells operating across the Lake Chad Basin, leveraging porous borders and rural sanctuaries like the Sambisa Forest to evade military counteroffensives. These findings align with Nwobueze's (2022) analysis of Boko Haram's exploitation of ungoverned spaces in the Lake Chad Basin, where asymmetric warfare and propaganda amplified its capacity to destabilize state authority.

The insurgency's weaponization of food systems such as burning farmlands, looting granaries, and extorting farmers, has been extensively documented. Alhaji (2023) and Yunusa *et al.* (2023) quantified agricultural collapse in Yobe and Borno states, noting a 45.94% decline in crop yields and a 23.32% reduction in cultivated land between 2009 and 2015. Such tactics mirror global patterns of conflict-induced food insecurity, where non-state actors weaponize scarcity to subjugate populations (Maxwell, 2014; Somerville, 2021). Market dynamics further unravel under insurgent control: Ikemefuna (2022) and Da-Cocodia (2021) highlighted how Boko Haram's blockade of transportation routes inflated food prices by over 300%, forcing households into dependency on exploitative black markets.

Impact on food security: A multidimensional crisis

The insurgency's impact on food security manifests through disruptions to all four pillars – availability, accessibility, utilization, and stability. Availability is undermined by direct attacks on agriculture: Agofure *et al.* (2022) documented how Boko Haram's

prohibition of certain crops and destruction of storage facilities in Gulani LGA reduced staple food access, forcing households to rely on nutrient-deficient alternatives like garri and moringa. Accessibility is compromised by market fragmentation; Mukhtar's (2020) regression analysis in Kano Metropolis linked conflict variables like unemployment and property destruction to a 31% food insecurity rate, with households resorting to extreme coping strategies such as asset sales and meal-skipping.

Utilization suffers from compounded health and environmental crises. Ikemefuna (2022) and Alhaji (2023) noted that insurgent contamination of water sources and destruction of healthcare infrastructure in Borno and Yobe states elevated child malnutrition rates to 15%, with recurrent cholera outbreaks impairing nutrient absorption. Stability is eroded by the interplay of conflict and climate shocks: Mbow *et al.* (2020) and Delgado *et al.* (2021) emphasized how farmers abandon drought-resistant practices due to insecurity, accelerating desertification and crop failure.

Divergent methodological insights and policy implications

Quantitative studies, such as Yunusa *et al.* (2023) and Ezeokana (2021), employed econometric models to isolate conflict's impact on food expenditure and agricultural output. Yunusa *et al.* (2023) used OLS regression to correlate insurgency-related fatalities with a 21.47-bag reduction in annual crop yields, while Ezeokana (2021) applied a probit model to reveal regional disparities, with conflict paradoxically increasing food expenditure in some areas due to inflation. Conversely, qualitative works like Agofure *et al.* (2022) and Da-Cocodia (2021) provided granular narratives of displacement and coping mechanisms, underscoring the human toll of food rationing and IDP camp overcrowding.

Policy recommendations converge on the need for integrated approaches. Alhaji (2023) and Ikemefuna (2022) advocate for military-humanitarian synergies to secure farmlands and rebuild infrastructure, while Saminu and Adam (2023) stress regional cooperation to disrupt cross-border insurgent networks. Long-term solutions emphasize poverty alleviation, educational reforms, and anti-corruption measures (Onuoha, 2014; Africa Centre for Strategic Studies, 2015). However, critiques by Anyadike (2013) and Akinteye *et*

al. (2023) highlight the inadequacy of reactive militarized responses, urging instead for community-led peacebuilding and equitable resource distribution.

4.1 Discussion of findings

The empirical review illuminates two interconnected dimensions of the Boko Haram insurgency's impact on Northeast Nigeria: its operational patterns and its profound disruption of food security across availability, accessibility, utilization, and stability. These findings directly address the research questions, revealing a deliberate strategy of socio-economic destabilization and systemic vulnerabilities exacerbated by governance failures and environmental stressors.

Operational patterns of Boko Haram

Boko Haram's operational tactics reflect a hybrid model of terrorism and organized crime, characterized by adaptive resilience and exploitation of ungoverned spaces (Saminu & Adam, 2023; Prieto Curiel *et al.*, 2020). The insurgency operates through decentralized cells—estimated at 50–60 across the Lake Chad Basin—leveraging mobility, rural sanctuaries like Sambisa Forest, and cross-border networks to sustain logistical operations (Nwobueze, 2022). Tactics include scorched-earth campaigns (burning farmlands, looting granaries), kidnappings, and market blockades, which collectively weaponize food scarcity to subjugate populations (Alhaji, 2023; Yunusa *et al.*, 2023). Socio-economic grievances, notably unemployment (affecting 70% of youth) and poverty, fuel radicalization, amplified by distorted religious narratives and state repression (Onuoha, 2014; Usman, 2015). Governance failures, including corruption and neglect, further entrench the insurgency's appeal as an alternative authority in marginalized regions (Akinteye *et al.*, 2023).

Impact on food security

The insurgency has precipitated a multidimensional food security crisis, with empirical studies quantifying severe disruptions:

- i. **Availability:** Direct attacks on agriculture have slashed crop yields by 45.94% in Yobe and reduced cultivated land by 23.32% in Borno between 2009 and 2015 (Yunusa *et al.*, 2023; Alhaji, 2023). Destruction of storage facilities and prohibitions on certain crops force reliance on nutrient-poor alternatives,

undermining dietary diversity (Agofure et al., 2022).

- ii. **Accessibility:** Market fragmentation, driven by blockaded transport routes and insurgent-controlled black markets, has inflated food prices by over 300%, rendering staples unaffordable for most households (Ikemefuna, 2022; Da-Cocodia, 2021). Over 70% of households allocate more than half their income to food, yet face chronic hunger (Mukhtar, 2020).
- iii. **Utilization:** Contaminated water sources and collapsed healthcare infrastructure have elevated child malnutrition rates to 15%, compounded by cholera outbreaks that impair nutrient absorption (Ikemefuna, 2022; Alhaji, 2023). Displacement disrupts cultural dietary practices, further eroding nutritional quality.
- iv. **Stability:** Recurrent violence, combined with climate shocks like erratic rainfall and desertification, undermines resilience. Farmers abandon drought-resistant practices due to insecurity, accelerating environmental degradation and crop failure (Mbow et al., 2020; Delgado et al., 2021).

Household coping strategies such as migration to IDP camps, meal rationing, and informal trade, reflect rational adaptations to scarcity, yet often exacerbate long-term vulnerability (Agofure et al., 2022; Mukhtar, 2020). Gender disparities amplify inequities, with female-headed households facing restricted access to resources, while systemic neglect of agricultural policies (e.g., the Agricultural Transformation Agenda) perpetuates dependency on humanitarian aid (Gundersen & Garasky, 2012; Olomola, 2017).

5. Conclusion and Recommendations

The Boko Haram insurgency has transformed Northeast Nigeria into a crucible of food insecurity, where deliberate insurgent tactics intersect with structural vulnerabilities to dismantle food systems. The empirical synthesis reveals a sophisticated operational model, marked by decentralized violence, resource plunder, and socio-economic exploitation, that systematically erodes the four pillars of food security. The 45.94% decline in crop yields, 300% food price inflation, and 15% child malnutrition rates underscore a crisis that transcends agricultural

disruption, embodying a broader assault on human security (Yunusa et al., 2023; Ikemefuna, 2022). Governance failures, socio-economic marginalization, and climate stressors amplify these impacts, trapping communities in cycles of displacement, hunger, and precarity.

The study's integration of Human Security and Rational Choice theories illuminates the interplay between systemic collapse and individual agency. While Boko Haram exploits governance vacuums to weaponize scarcity, affected populations navigate survival through calculated trade-offs – migration, informal trade, and dietary adjustments that often deepen long-term vulnerabilities. The findings challenge militarized state responses, which prioritize security over humanitarian and developmental needs, and highlight the urgency of holistic interventions that address root causes while fostering resilience. By situating Northeast Nigeria within global discourses on conflict-induced food insecurity, this paper underscores the imperative of bridging security, development, and human rights to rebuild sustainable food systems in fragile states.

Based on the findings addressing the research questions, the following recommendations offer actionable, evidence-informed pathways to mitigate the Boko Haram insurgency's impact on food security, aligning with principles of resilience, equity, and sustainability:

- i. **Secure agricultural zones through military-humanitarian synergies:** To counter Boko Haram's farm destruction and land seizures, the Nigerian government should establish protected agricultural corridors in Borno, Yobe, and Adamawa, combining military patrols with civilian-led monitoring systems. Drawing from Alhaji (2023), these zones would enable farmers to resume cultivation safely, boosting crop yields and restoring food availability. Humanitarian agencies should complement this by providing seeds, fertilizers, and extension services to rebuild agricultural capacity.
- ii. **Invest in climate-resilient agricultural systems:** Given the interplay of conflict and climate shocks (Mbow et al., 2020), policymakers should prioritize drought-resistant crops, irrigation infrastructure, and agroforestry programs tailored to Northeast Nigeria's Sahel ecology. Partnerships

with international organizations like the FAO can facilitate technology transfers, ensuring stability against environmental disruptions while empowering farmers to adapt to insecurity-driven constraints.

- iii. **Strengthen market access and price stabilization:** To address the 300% food price inflation and market blockades (Da-Cocodia, 2021), the government should deploy mobile market units and subsidized food distribution networks in conflict-affected areas. These initiatives, coupled with anti-extortion task forces to secure transport routes, would enhance accessibility, particularly for displaced populations and female-headed households facing economic exclusion.
- iv. **Enhance nutritional interventions in IDP camps:** With child malnutrition rates at 15% (Ikemefuna, 2022), humanitarian agencies must scale up therapeutic feeding programs and ensure access to clean water and sanitation in IDP camps. Integrating cultural dietary preferences into food aid, as suggested by Agofure et al. (2022), would improve utilization while fostering dignity among displaced communities.

- v. **Promote gender-inclusive livelihood programs:** To mitigate gendered disparities in resource access, development agencies should implement microfinance schemes and vocational training targeting women, enabling them to participate in formal food systems (Gundersen & Garasky, 2012). Community-based cooperatives can further empower female farmers, enhancing household resilience and accessibility to food markets.
- vi. **Foster multi-stakeholder regional collaboration:** Boko Haram's cross-border operations necessitate regional cooperation among Lake Chad Basin countries (Saminu & Adam, 2023). A joint task force, supported by the African Union, should disrupt insurgent supply chains while harmonizing food security policies, such as cross-border seed banks and trade agreements, to stabilize regional food systems.

These recommendations integrate structural and agentic solutions, aligning with the Human Security emphasis on systemic resilience and the Rational Choice focus on empowering adaptive strategies. By prioritizing multi-dimensional interventions, Nigeria can move beyond reactive militarization toward a sustainable framework for food security and peacebuilding in the Northeast.

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