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GCAN
GENDER, CLIMATE CHANGE, AND NUTRITION INTEGRATION INITIATIVE

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Country Profile- Nigeria

Gender, Climate Change, and Nutrition Linkages

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Introduction

This country brief supports GCAN's goal of integrating gender, climate resilience, and nutrition considerations into policy by providing policymakers, program officers, and researchers with an analysis of Nigeria's current situation and policy objectives in these areas. A recent study from Andam *et al*. (2023) underscores the vital role of Nigeria's agrifood system in the country's economy. In 2019, Nigeria's Gross Domestic Product (GDP) stood at $469.3 billion, supported by a workforce of 66.8 million people (Andam *et al.* 2023). The agrifood sector made a substantial contribution, generating $175.3 billion in GDP and providing employment for 41.9 million individuals. This sector encompasses both primary agriculture and off-farm activities, including processing, trade, transport, food services, and input supply. Primary agriculture alone contributed $103.3 billion to GDP and employed 32.2 million people. Off-farm agrifood activities contributed approximately 40 percent of the agrifood GDP and 20 percent of agrifood employment (Andam *et al.* 2023).

Despite its importance, Nigeria's agrifood sector faces significant challenges. The country is Africa's most populous nation, with an estimated 206 million people, and is endowed with abundant natural resources, including oil and gas. However, the country is grappling with severe security and environmental challenges. Persistent violence in the country's northeast region, coupled with armed banditry, kidnappings, and conflicts between farmers and herders in the northwest and north-central regions, have led to widespread displacement and escalating food insecurity. Like other sub-Saharan countries, Nigeria is vulnerable to climate-related shocks, such as perennial flooding and dry spells (Echendu, 2020). Climate-induced disruptions to agriculture reduce the availability and affordability of diverse and nutrient-rich foods. Malnutrition remains a critical issue in the country, with high rates of stunting, wasting, and micronutrient deficiencies affecting millions. These nutritional deficits not only compromise individual well-being but also limit educational outcomes, labor productivity, and long-term national development.

Moreover, gender inequality further compounds the problem. Women, who play pivotal roles in food production, processing, and household nutrition, face systemic barriers to accessing resources such as land, credit, and technology. As climate change intensifies, women's workloads increase, diminishing their

capacity to ensure adequate nutrition for their families. These vulnerabilities are exacerbated by disproportionate caregiving responsibilities and limited decision-making power, making women and children the most affected by climate and nutrition crises.

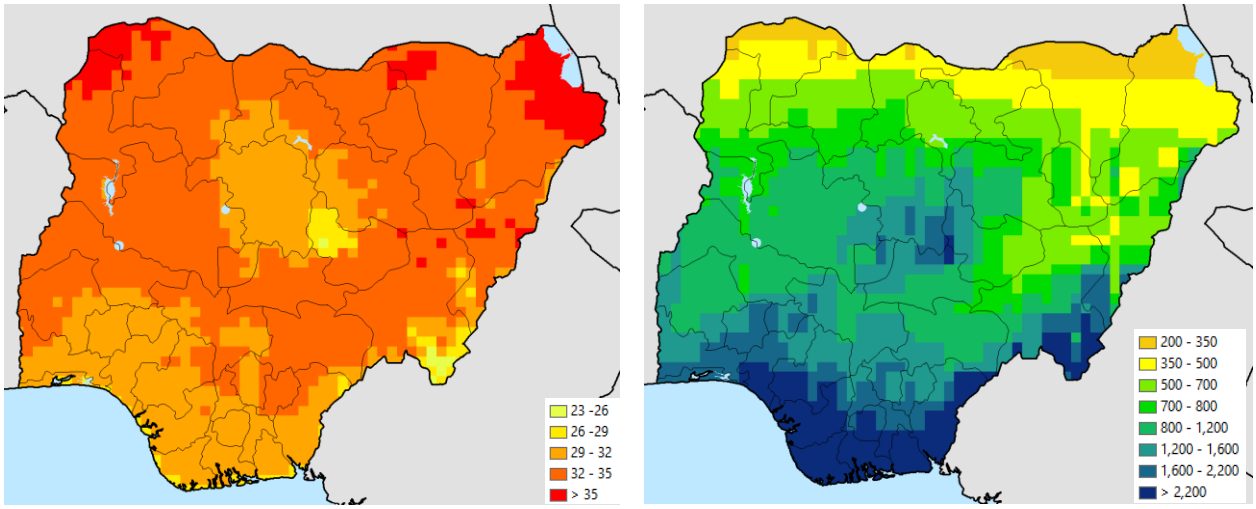
The intersections between gender, climate change, and nutrition create a complex web of challenges that demand integrated solutions. This brief explores these intersections, emphasizing the need for coordinated policies and actions to foster sustainable, equitable, and nutrition-secure outcomes for all Nigerians.

Effects of Climate Change

Precipitation in Nigeria shows a strong north-south gradient, with rainfall in the north averaging less than 350 millimeters per year, and the precipitation in the south exceeding 2,000 millimeters per year (Figure 1). The temperature shows a similar gradient, with mean daily temperatures exceeding 35^0C in the north but below 26^0C in parts of the South.

Figure 1: Mean daily maximum temperature and annual precipitation, 1985-2015

Temperature (^{0}C) Precipitation (millimeters)



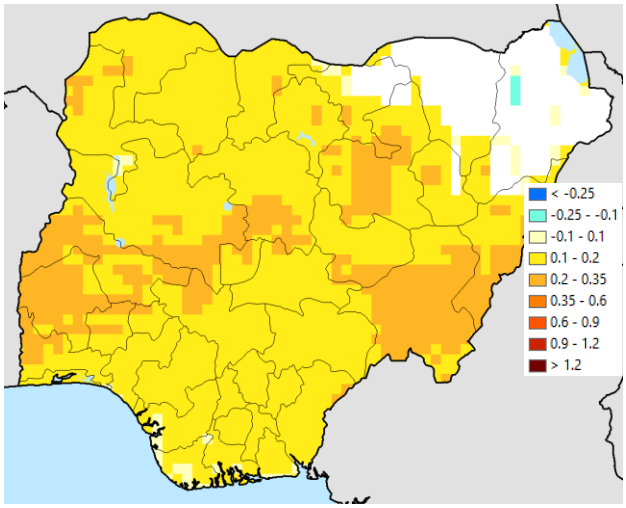
Source: AgERA5 (Boogaard et al. 2022).

The climate has been changing throughout the country over the past four decades, with temperatures rising at a rate exceeding 0.2^0C per decade in a band across the center of the country, and most of the rest of the country changing at a slightly slower rate (Figure 2). Precipitation has not trended in any direction in much of the country, though in areas within the central band, rainfall has declined by more than 25 millimeters per decade, and in a few places, by more than 200 millimeters per decade.

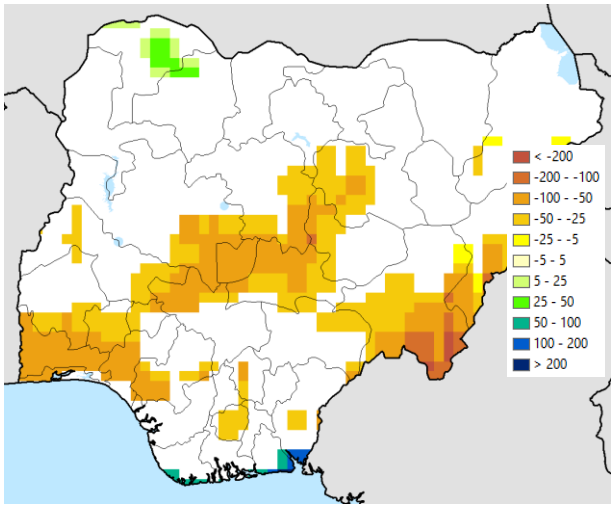
In Nigeria, like many other countries, yields for maize and other crops will be adversely affected by climate change, however, global economic factors related to climate change, as well as productivity investments, are projected to affect maize yields positively. Using 5 climate models from ISIMIP3B (Lange 2021), Thomas and Robertson (2024) investigated the direct impact of climate change on agricultural yields of several key crops using the DSSAT crop model (DSSAT 2024; Jones et al. 2003). The median impact of climate change on rainfed maize yields is shown in Figure 3, with much of the country projected to experience considerable yield reduction greater than 10%, and some of the country even greater than 40%.

Figure 2: Decadal temperature and precipitation change, AgERA5, 1979-2021

Temperature (^{0}C)

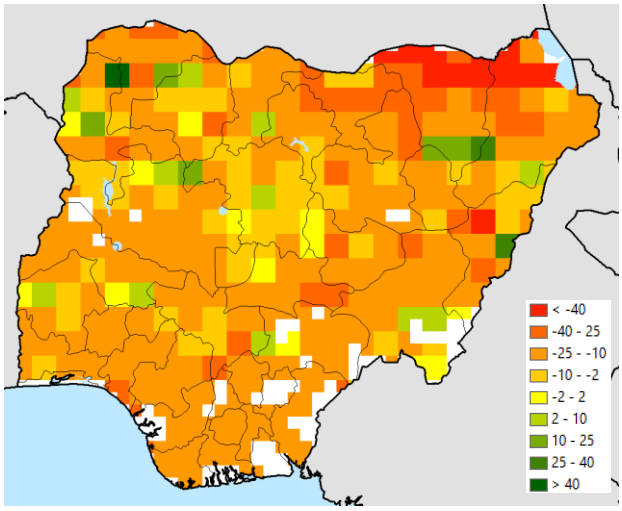


Precipitation (millimeters)



Source: Authors, based on AgERA5 (Boogaard et al. 2022).
Note: The figure shows only changes with a 90% confidence interval using regression.

Figure 3: Median percent yield change for rainfed maize, 2005-2050, SSP5-85



Source: Thomas and Robertson (2024).

There are several important avenues for action. First, as Figure 3 suggests, some areas of the country will be more adversely impacted by climate change, such as the semi-arid zones in the northeast. Special attention should be given to those areas, including developing subnational climate action plans. Second, some crops, such as yams and other roots and tubers, will be more adversely affected by climate change than others. Some possible courses of action include investing in new varieties that will be more resilient to climate change, or working with farmers to switch to alternative crops better suited to the new climate. Third, climate variability is increasing along with the magnitude of the impact of climate shocks. This suggests investing in resiliency, which can include increasing irrigation in drought-prone areas and developing drought-resistant and heat-tolerant varieties. It also suggests improving social protection institutions, which may include increasing buffer stocks, developing and expanding weather-based insurance, and becoming proficient in delivering help in times of food shortages.

Gender Profile

Gender inequality remains a persistent and significant challenge in Nigeria, with entrenched disparities across health, education, economic participation, and political empowerment. The Gender Inequality Index (GII), which captures inequalities in reproductive health, empowerment, and labor market participation, stands at 0.677 (as at 2022), ranking Nigeria 165th out of 189 countries. The index has not improved from its rank in 2019, while progress has been slow and uneven, reflecting deep structural barriers to achieving gender equality. Similarly, the Gender Development Index (GDI), which measures disparities between men and women in health, education, and control over economic resources, was 0.834 in 2019 and improved to 0.886 in 2022, still indicating high levels of gender disparity. Historical trends reveal that Nigeria's GDI has seen only marginal improvements over the past decade, suggesting limited success in addressing systemic inequities.

Such inequalities are strikingly evident in the agricultural sector. Women are less likely to work in agriculture than men, and only 21% of primary plot managers are women. Due to social norms as well as financial barriers, women farmers tend to grow staple crops, with cash crops mainly grown by men. At the national level, plots managed by women are about 30% less productive than plots where the primary manager is a man (World Bank, 2022). Both structural factors and gender inequalities in access to productive resources contribute to these gender differences in agricultural productivity, although the specific constraints women face vary by region (Bello et al. 2021; Oseni et al. 2015).

One of the most pressing issues perpetuating gender inequality is early marriage. According to UNICEF (2022), 12 percent of women aged 20–24 were married or in marital union before their 15th birthday. Early marriage often truncates girls' education, restricts their economic opportunities, and increases vulnerability to health risks, including early pregnancy and childbirth complications. This cycle of deprivation is particularly pronounced in northern Nigeria, where cultural and socio-economic factors exacerbate these trends. In addition, Nigeria's child and maternal mortality rates are a major concern, with 42 child deaths per 1,000 live births and 512 maternal deaths per 100,000 live births. High mortality rates reflect challenges in accessing quality healthcare, particularly in rural and underserved areas.

Nutrition Profile

Nigeria's nutrition profile reveals critical challenges and disparities in food security, dietary quality, and health outcomes. Recent data highlights significant concerns regarding micronutrient inadequacy, dietary diversity, and overall health. As of 2022, 79% of the population was unable to afford a healthy diet; an indication of the poor performance of the food system in Nigeria, which negatively affects a wide range of health outcomes.[1]

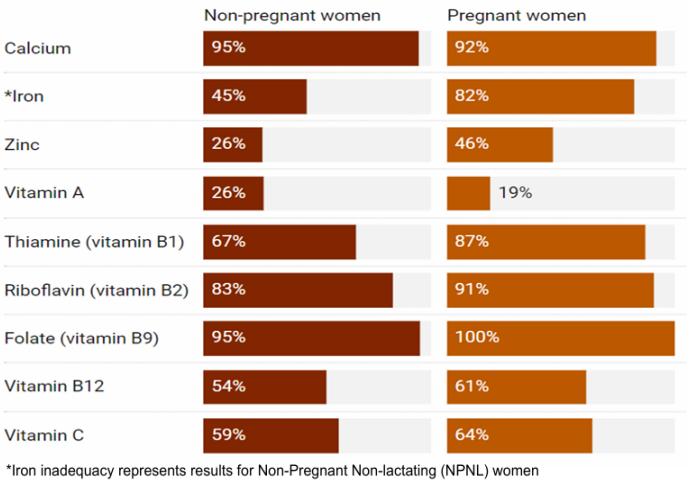
Micronutrient inadequacy and Dietary Diversity

As shown in Figure 4, Nigerian women face serious micronutrient inadequacies, with large majorities lacking adequate intake of calcium, thiamine, riboflavin, and folate. Furthermore, the 2022 National Food Consumption and Micronutrient Survey highlighted that 55 percent of adolescent girls and women in Nigeria were anemic, reflecting widespread iron deficiencies. According to a recent survey by FGoN & IITA (2024), only 27.7 percent of non-pregnant women and 28.8 percent of pregnant women met the

[1] See: www.foodsystemsdashboard.org/countries/nga

criteria for achieving an adequate level of dietary diversity (consuming 5 out of 10 food groups). Additionally, the Global Diet Quality Score (GDQS) indicates that a large proportion of both non-pregnant (72.2 percent) and pregnant women (69.9 percent) fall within a score range of 15 to 23. This range reflects a moderate likelihood of experiencing poor diet quality, underscoring the need for improved dietary practices and access to diverse food options. These shortfalls points to substantial gaps in nutritional intake and overall dietary quality, with a significant majority still struggling to access a diverse and nutritionally balanced diet.

Figure 4: Prevalence of micronutrient inadequacy among women



Source: FGoN & IITA, 2024

Prevalence of overweight/obese adults

The *nutrition transition*, in which populations all around the world are consuming a greater quantity of energy-dense foods, has affected Nigeria in many ways, such as a significant move away from the consumption of traditional grains and towards the consumption of rice and maize, a higher consumption of animal-based foods, and a higher frequency of families eating in restaurants, rather than at home (Petrikova et al. (2023). This transition has contributed to a growing challenge of overweight and obesity. As of 2020, there were 21 million overweight individuals and 12 million obese individuals in the country (Adeloye *et al.*, 2021; Chukwuonye *et al.*, 2022)). Obesity rates are notably high, affecting 15.7 percent of adult women and 5.9% of adult men (Global Nutrition Report, 2024). These statistics indicate a dual burden of malnutrition where both undernutrition and overweight issues are prevalent.

Child Malnutrition (prevalence of wasting, stunting, overweight/obese – under 5)

The joint estimates from UNICEF, WHO, and the World Bank for child malnutrition reveal concerning figures. In 2020, the prevalence of wasting (low weight-for-height) among children under five was 6.5 percent, while stunting (low height-for-age) stood at 31.5 percent. Additionally, 1.6 percent of children under five were categorized as overweight or obese. These figures illustrate significant gaps in child nutrition and the need for comprehensive interventions to address both undernutrition and overweight.

Exclusive Breastfeeding

Exclusive breastfeeding during the first six months is critical for infant health, yet only 29 percent of infants in Nigeria benefit from this practice (NPC & ICF, 2019). This means that over 70 percent of infants miss out on the full range of benefits associated with exclusive breastfeeding, which is crucial for optimal growth and development.

Integration of Gender, Climate, and Nutrition

The intersection of gender, climate change, and nutrition dynamics is profoundly evident in Nigeria's agrifood system, where these factors intertwine to impact both agricultural productivity and food security. Gender inequalities in agriculture—characterized by gender differences in access to inputs, resources, services, and information—result in women's greater vulnerability to climate shocks and stressors and hinder efforts to respond effectively to climate change and achieve food security (Anugwa et al. 2020; Ayanlade et al. 2023 Thomas et al. 2017). Women, who are primarily responsible for subsistence farming, often have less influence over agricultural decisions and less control over assets and less access to resources, such as land, compared to men (Fashogbon *et al.*, 2023; Thomas *et al.*, 2017). This limits their ability to adapt to climate change or to benefit from climate interventions.

As highlighted by the World Bank's Gender Innovation Lab (GIL) and mentioned earlier, women farmers in Nigeria produce about 30% less per hectare than their male counterparts, primarily due to differences in input use, labor allocation, and access to high-value crops and markets (World Bank, 2022). These productivity disparities translate directly into lower income, reduced food availability, and poorer dietary outcomes, particularly during periods of climate stress.

Moreover, climate change impacts on crops have direct implications for nutrition (Van der Merwe *et al.*, 2022; Teklewold *et al.*, 2019). As of 2022, about 55 percent of Nigerian adolescent girls and women of reproductive age were anemic (FGoN & IITA, 2024), a condition linked to inadequate dietary intake and exacerbated by climate-induced food insecurity. Crops that are heavily relied upon for dietary diversity and micronutrient intake are particularly vulnerable to climate change. For instance, cassava and maize, staples that form the bulk of many Nigerian diets, are susceptible to changing weather patterns which affect their yield and nutritional quality (Amare *et al.*, 2020). This leads to variations in mean caloric intake and an increase in micronutrient deficiencies, impacting overall diet quality. In addition, national nutrition profiles show that women in Nigeria tend to consume fewer animal-source foods, fruits, and vegetables (FGoN & IITA, 2024; Pastori *et al.*, 2024), food groups that are both critical to micronutrient sufficiency and highly susceptible to climate-related production shocks (Pastori *et al.*, 2024). With climate change projected to reduce the yields of nutrient-dense foods (World Bank 2022) such as leafy greens, legumes, and animal products, existing nutritional gaps among women in Nigeria are likely to widen, especially in rural areas where market access is limited and subsistence farming dominates.

Gender and nutrition are also intertwined, with women's roles in food production and dietary management being crucial for ensuring adequate diets and nutrition. Because women are primarily responsible for household nutrition and caregiving, the burden of food insecurity falls heavily on them (Thomas *et al.*, 2017). As agricultural yields decline and food prices rise due to climate impacts, women must stretch limited resources to maintain household diets, often at the expense of their own nutrition. This results in a vicious cycle where limited resources, increased workload, and inadequate diets reduce women's health and productivity, further constraining their ability to respond to environmental and economic shocks (Anugwa *et al*. 2020). The combination of limited access to resources and increasing climate

stressors often means that women bear a disproportionate share of the negative impacts, which further intensify nutritional deficiencies and health issues.

Policy Analysis

A review of Nigeria's National Climate Change Policy (NCCP) for 2021-2030 reveals a solid commitment to enhancing gender equality and women's empowerment. The NCCP outlines Nigeria's dedication to addressing gender disparities through gender-sensitive climate adaptation measures. However, it notably lacks explicit connections between climate and nutrition, and the National Action Plan on Gender and Climate Change (2020) and the Nationally Determined Contribution (NDC) also fail to address nutritional concerns. This gap highlights a missed opportunity to integrate nutritional outcomes into climate policy frameworks, despite the clear link between climate impacts and food/nutrition security.

In contrast, Nigeria's Long-Term Low Emission Development Strategy (LT-LEDS) demonstrates a more nuanced approach by acknowledging the intersection of climate and nutrition. The LT-LEDS includes recommendations to improve nutrition as a strategy to mitigate climate change impacts, reflecting a broader understanding of the relationship between dietary needs and environmental conditions. Additionally, the LT-LEDS emphasizes the importance of gender equality and women's empowerment as central objectives. It includes specific policies and plans to advance these goals, underscoring the importance of integrating gender considerations into climate strategies.

A critical examination of the NCCP shows that there is a growing recognition that addressing nutrition must be part of the climate change response. For instance, the promotion of nutrient-rich crops that are resistant to climate stress, alongside nutrition education, can help mitigate the negative effects of climate change on food and nutrition. However, these programs are still in the early stages and need more attention in the policy framework.

The NCCP also encourages the adoption of climate-smart agriculture, which includes practices such as improved irrigation techniques, drought-resistant crops, and agroforestry. These practices aim to reduce the vulnerability of smallholder farmers to climate change and improve food security. Despite these provisions, women continue to be disproportionately affected by climate change. For example, women in rural areas often bear the brunt of water scarcity and food insecurity, which are exacerbated by climate-related factors like drought and flooding. Their limited access to decision-making, resources, and technology hinders their ability to adapt effectively.

The National Gender Policy (NGP) also addresses the differential impacts of climate change on men and women. This policy outlines objectives and actions to incorporate gender perspectives into environmental and climate change initiatives. A key strategy promoted by the policy is enhancing women’s access to information and communication tools related to climate resilience. This focus on improving women's involvement in decision-making and access to resources is crucial for fostering gender-responsive climate and environmental policies.

While the NGP emphasizes women's health, empowerment, and education, the link between nutrition and gender is not made explicit in the policy’s framework. Gender equality in nutrition requires a more holistic approach that explicitly connects women's economic, social, and political empowerment with improved nutritional outcomes for both women and children.

The National Gender Policy in Agriculture (NGPA), launched in 2019 by Nigeria’s Federal Ministry of Agriculture and Rural Development (now Federal Ministry of Agriculture and Food Security), primarily

focuses on addressing gender inequalities in access to agricultural resources, services, and opportunities. Its core goal is to mainstream gender into agricultural policies and programs to empower women and promote inclusivity in the sector.

While the NGPA acknowledges the importance of resilience and sustainable agriculture, it does not extensively integrate climate change as a central focus. However, some sections do promote climate-resilient farming practices and call for women's inclusion in climate-smart agriculture, which implies indirect engagement with climate adaptation. Moreover, the NGPA does not explicitly prioritize nutrition outcomes. It mentioned food security and women's roles in household nutrition as part of broader objectives, but nutrition-sensitive agriculture is not a primary component of the policy.

Policy Implementation and Outcomes

In terms of policy implementation, the alignment between government policy interventions and planned strategies is mixed. While there are clear budget allocations for gender and climate initiatives, actual funding and execution have often fallen short of expectations. For instance, the National Climate Change Policy and the National Gender Policy outline ambitious goals, the practical deployment of resources has been uneven, with some programs underfunded or delayed. Monitoring frameworks for these policies are in place but vary in effectiveness. The government has established mechanisms for tracking progress, yet evidence on the impact of these interventions remains limited. There is some indication of positive spillovers, such as increased women's participation in climate projects and increased awareness of climate issues. However, the lack of integration of climate and nutrition policy means that potential positive outcomes in nutrition have not been fully realized.

In Nigeria, low public awareness about both climate change and nutrition hampers the success of both policies. Women, especially in rural areas, are often not well-informed about climate-resilient farming practices or nutrition education, which affects their ability to adapt to climate impacts and make informed decisions regarding food security and nutrition.

Nigeria is home to diverse ethnic groups and religious communities, many of which have deeply embedded patriarchal norms. These include the belief that men are the primary breadwinners and decision-makers, and women's roles are confined to domestic spaces. Cultural practices such as female genital mutilation (FGM) and child marriage remain persistent, despite laws designed to protect women. In many rural areas, the Nigeria gender policy's goals conflict with these traditions, leading to resistance. The policy's success is, therefore, often hindered by the need to confront deeply ingrained societal structures and attitudes.

The economic empowerment initiatives under the Nigeria Gender Policy, such as access to microfinance and skills development programs, aim to improve women's financial independence, which in turn can increase their ability to access nutritious food and invest in health-related needs. However, gender norms often restrict women's mobility and access to larger markets, meaning that while they may produce food, their control over its sale and distribution may still be limited. Even when women do gain financial resources, their limited access to markets, and limited 'power' in decision making, prevents them from capitalizing on these gains to improve their nutrition.

The NGP's emphasis on improving women's health, particularly maternal health, has a direct impact on the nutritional status of women and children. Despite the policy, maternal nutrition remains inadequate in many areas, particularly in the northern regions where food insecurity, and early marriages, limit a

woman's ability to access nutritious foods, undermining the broader health and nutrition goals of the gender policy.

In addition, the prevalence of Gender-based violence (GBV) in Nigeria is a major obstacle to women's health and nutrition. Women who are victims of violence are less likely to seek out healthcare services or nutrition counseling, and they often face malnutrition because of stress, psychological trauma, or lack of access to food. For example, in cases of domestic violence, women have limited control over household resources, including food, which affects the nutritional intake of both the women and their children.

Effective implementation of policies requires geographically and culturally disaggregated context-specific evidence and robust monitoring systems, which Nigeria has struggled with. A lack of gender-disaggregated data makes it challenging to assess the progress of climate change, gender, and nutrition policies, hindering informed decision-making and adjustments to policies.

Advantages and Limitations

The advantages of Nigeria's current approach include a clear commitment to gender equality and the integration of women's perspectives into climate policies. This focus supports the broader objectives of sustainable development and resilience-building. However, limitations exist, particularly in the insufficient integration of nutrition into climate strategies and the inconsistent implementation of policies. The gap between policy intentions and practical outcomes suggests that without more cohesive and adequately funded interventions, the expected benefits in gender, climate, and nutrition may not be fully achieved. Addressing these limitations in the Nigeria policies requires a more integrated approach that connects climate resilience with nutritional outcomes and ensures effective implementation and monitoring of policies across all relevant domains in the country.

Conclusions and Recommendations

The intersection of gender, climate change, and nutrition in Nigeria presents a complex but crucial area of research and policy development. Currently, integration across these domains is limited. While there is substantial research on gender and climate change and separate studies on nutrition, comprehensive research linking all three areas remains sparse. This lack of integration hampers the development of holistic policies that address the multifaceted impacts of climate change on both gender and nutritional outcomes.

To enhance policymaking, further information is essential to bridge existing knowledge gaps. Specifically, detailed data on how climate change differentially impacts gender roles within agricultural systems and subsequent nutritional outcomes is needed. This includes more granular research on crop-specific climate impacts, the effectiveness of gender-sensitive adaptation strategies, and the direct effects of climate-induced changes on dietary quality and health. Additionally, understanding the specific needs and barriers faced by men and women in accessing resources for climate adaptation and nutritional support will inform more targeted and effective interventions.

Non-governmental development partners, research institutions, private sector entities, and development financiers have critical roles to play in addressing these challenges. NGOs can facilitate community-based initiatives and advocacy efforts to integrate gender and nutrition considerations into climate policies. Research institutions should focus on generating and disseminating comprehensive evidence at the intersection of these domains, while private sector actors can invest in innovative solutions that address

gender disparities and enhance nutritional outcomes. Development financiers need to ensure that funding is allocated to integrated approaches that address climate, gender, and nutrition collectively. Collaborative efforts among these stakeholders will be essential to developing and implementing effective policies that support sustainable development and resilience in Nigeria.

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