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AGRICULTURE AND FOOD SECURITY IN NIGERIA- A REVIEW ARTICLE

Njokunwogbu Ambrose Nwigwe and Ijoma Kinsley Ikechukwu
Department of Chemical Sciences, Godfrey Okoye University, Enugu, Nigeria.
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Abstract: Food and Agricultural organization (FAO), defined food security as a situation that exists when all people at all times have physical, social and economic access to sufficient, safe and nutritious food that meets their dietary needs and food preferences for active and healthy life. Food security is a basic human right. Infact, having access to at least adequate amount of nutritious food could be seen as the most basic of all human right. The paper reviewed the four dimensions of food security, factors that affect food security, indicators for measuring food security, agricultural and food security programs in Nigeria and finally, efforts to improve food security in Nigeria.

Keywords: Indicators, Dimensions, Programs, Food Security, Nutritious, Operation feed the Nation, Green Revolution, Armed conflicts and displacement in Northern Nigeria, Armed conflicts and displacement in Southern Nigeria.

Introduction

Food security is a vital aspect of human well-being, encompassing not only the availability of food but also access, utilization, and stability. It's defined as having reliable access to sufficient, safe, and nutritious food to meet dietary needs and preferences for an active and healthy life (FAO, 2024). Food security is the measure of an individuals ability to access food that is nutritious and sufficient in quantity. Some definitions of food security specified that food must also meet individuals food preferences and dietary needs for active and healthy lifestyles.

The food and Agriculture organization (2024), defined food security as when all people have access to safe, nutritious food to meet their dietary needs at all times. This includes physical, social and economic access to food. Food security is a basic human right. Infact, having access to at least adequate amount of nutritious food could be seen as the most basic of all human right. However, for hundreds of millions of people in Nigeria and sub-sahara regions of Africa, this right is not being met, usually for reasons entirely out of their control (Aidoo, et al, 2013; Black et al, 2013; Acheampong et al, 2022). According to FAO (2024), over 33 million Nigerians may face food insecurity during the lean season for food security objectives to be realized, all the four dimensions must be fulfilled simultaneously.

Dimensions of food security

Dimensions of food security refers to the various aspects or components that contributes to ensure that individuals have access to sufficient, safe and nutritious food. These dimensions are interconnected and essential for ensuring food security for individuals, households and communities. Food security has four main dimensions, they are:

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1. Physical availability: Food availability addresses the supply side of food security, determined by production, stock levels, and net trade.

Factors that affects physical availability of food are:

i. **Climate change**: Rising temperatures, changing precipitation patterns, and increased frequency of extreme weather events can impact crop yields and food production.

ii. **Soil degradation**: Soil erosion, salinization, and nutrient depletion can reduce crop productivity and affect food availability.

iii. **Water scarcity**: Insufficient water supply can limit crop growth and food production.

a. Effects of water security includes:

b. Reduced crop yields, economic losses to farmers, increase food insecurity,

c. increase production costs, market instability, rural poverty

d. adaptation strategies: Water-efficient irrigation techniques like drip irrigation and micro-sprinklers, drought-resistant crops, water harvesting, water management,

e. policy and institutional support (Gohar and Cashman, 2016; Leventon and Laudan, 2017)

iv. **Pests and diseases**: Outbreaks of pests and diseases can damage crops and reduce food availability. Insects, rodents and other pests can damage crops, reduce yields and affecting quality. Plant diseases can be caused by various pathogens, including fungi, bacteria, viruses and nematodes. Pests and diseases can significantly affect food availability by reducing crop yields, affecting food qualities by reducing nutritional values through contaminations, rot and spoilage.

2. Economic and Physical Accessibility: Ensuring households have adequate income and physical access to food, without which national or international food availability is irrelevant (Myers and Caruso, 2016; Lipton and Saghai, 2017).

Factors that affects accessibility of food are:

i. **Poverty**: Limited financial resources can restrict access to food, particularly for vulnerable populations.

ii. **Income inequality:** Unequal distribution of income can lead to food insecurity among low-income households.

iii. **Food prices**: High food prices can make food unaffordable for many people.

iv. **Conflict and displacement**: Armed conflicts and displacement can disrupt food systems and limit access to food. Table 1, below shows how armed conflicts and displacement have affected food security in different parts of Northern Nigerian

Table 1: Armed conflicts and displacement in different parts of Northern Nigerian

Region	*States*	*Conflict Type*
Northeast	Borno, Adamawa, Yobe	Boko Haram insurgency since 2009
Northwest	Zamfara, Katsina and Kaduna	Banditry and farmer – herder clashes
Northcentral	Benue, Plateau, Nasarawa, Niger	Farmer-herder clashes

Table 2: Impact of armed conflicts and displacement on food security in some states in Southern Nigeria

STATE	**TYPES OF CONFLICT**	**EFFECTS**

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Delta	Kidnapping Farmer –herders	Abounded farmlands, rotting crops, increase rural poverty
Enugu	Farmer-Herder Clashes Kidnapping	Conflict around Nsukka area, Nkanu, Awgu, Isi Ugor, abounded yam and cassava farms reduced food supply to the city
Abia	Criminality Banditry Kidnapping	Reduced farming in rural, zones like Isuikwuato drop in food transport due to road insecurity
Anambra	Cult clashes Banditry Kidnapping	Insecurity in rural zones, reduces farming activity. Higher cost of food in peri-urban markets
Bayelsa	Oil spill conflicts, kidnapping	Water contamination affects fishing and agriculture, food insecurity in coastal and rural communities
Ondo	Kidnapping, herders invasion	Cocoa and tuber- producing areas abandoned, insecurity in forests disruption of farming activities

3. Food Utilization: Refers to the proper use of food, including good care and feeding practices, food preparation, diversity of diet, and intra-household distribution of food.

Factors that affects food utilization are:

i. **Food safety**: Contamination of food can lead to foodborne illnesses and affect food utilization.

ii. **Nutrition knowledge**: Limited knowledge about nutrition can lead to poor food choices and inadequate nutrition.

iii. **Food storage and handling**: Inadequate food storage and handling practices can lead to food spoilage and waste.

iv. **Cultural and social factors**: Cultural and social norms can influence food choices and utilization.

4. Food Stability: Ensures that the other three dimensions are maintained over time, despite potential disruptions like conflicts, economic shocks, or extreme weather events. Adverse weather conditions, political instability, unemployment, rising food prices may have an impact on food security.

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Factors that affects food stability are:

i. **Economic shocks**: Economic downturns, trade disruptions, and other economic shocks can impact food stability.

ii. **Climate variability**: Climate variability, such as droughts and floods, can affect food production and stability.

iii. **Conflict and political instability**: Conflict and political instability can disrupt food systems and impact food stability.

iv. **Infrastructure and logistics**: Inadequate infrastructure and logistics can hinder food distribution and stability.

Factors that affects food security in Nigeria

Food security in Nigeria is a complex issue, influenced by several factors. Here are some of the key ones:

i. **Crop diversity and food expenditure**: Studies have shown that crop diversity, food expenditure, and access to credit positively impact food security in Nigeria. In fact, research has found a positive and significant relationship between crop diversity and dietary diversity.

ii. **Geographical location and asset ownership**: The location of a household and the assets they own, such as land and livestock, also play a significant role in determining food security. For instance, households in rural areas may face different challenges than those in urban areas.

iii. **Inflation and economic factors:** Inflation, poverty, and economic instability can all negatively impact food security. With Nigeria's high inflation rate, an additional 4 million people have been pushed into poverty, exacerbating food insecurity.

iv. **Climate change and environmental factors**: Climate change, soil degradation, and water scarcity can all affect agricultural productivity and food availability. Nigeria's agricultural sector is particularly vulnerable to climate change.

v. **COVID-19 Pandemic**: The pandemic has also had a significant impact on food security in Nigeria, disrupting food systems and exacerbating poverty and hunger (Amara et al, 2021).

vi. **Demographic factors**: Household size, age, and education level can also influence food security. For example, households with larger families or those headed by women may face unique challenges.

Addressing these factors will require a multi-faceted approach that involves government policies, community-based initiatives, and individual actions.

Indicators for measuring food security

Measuring food security is crucial to understanding the extent of food insecurity and developing effective interventions. Here are some common indicators used to measure food security:

Food Availability Indicators

i. **Food production index:** Measures the total volume of food produced in a country or region.

ii. **Food import dependency ratio:** Measures the percentage of food imports relative to total food consumption.

iii. **Food price index:** Measures the average price of a basket of food items.

iv. **Food Access Indicators**

i. **Poverty rate**: Measures the percentage of the population living below the poverty line.

ii. **Food expenditure share**: Measures the percentage of household income spent on food.

iii. **Food affordability index**: Measures the ability of households to afford a nutritious diet.

Food Utilization Indicators

i. **Dietary diversity score**: Measures the variety of foods consumed by households or individuals.

ii. **Nutrient intake**: Measures the average intake of essential nutrients, such as calories, protein, and micronutrients.

iii. **Prevalence of malnutrition**: Measures the percentage of the population suffering from malnutrition.

Food Stability Indicators

i. **Food availability variability**: Measures the variability in food availability over time.

ii. **Food price volatility**: Measures the variability in food prices over time.

iii. **Access to food assistance programs**: Measures the percentage of the population with access to food assistance programs.

Composite Indicators

i. **Food Security Index (FSI):** A composite index that measures food security across multiple dimensions.

ii. **Global Hunger Index (GHI)**: A composite index that measures hunger and food insecurity across multiple dimensions.

These indicators provide a comprehensive framework for measuring food security and identifying areas for improvement (Feleke, et al., 2005; Dunga., 2020).

Agricultural and Food Security Programs in Nigeria

Nigeria has implemented various programs to boost agriculture and food security. Here are some of them:

Government Initiatives

i. Agricultural Transformation Agenda (ATA): Launched in 2011, ATA aimed to improve agricultural productivity, reduce food imports, and create jobs.

ii. **Seven-Point Agenda**: Introduced in 2007, this program focused on increasing food security through enhanced agricultural production.

Operation Feed the Nation:

Operation Feed the Nation was a national agricultural program launched by the Nigerian government in 1976, aimed at increasing local food production and reducing imports. The program encouraged citizens to cultivate any empty plot of land, with urban dwellers being encouraged to garden undeveloped building plots (Evenson and Gollin, 2003).

The program was introduced by General Olusegun Obasanjo, who was the military Head of State at the time. Its main objectives were to:

i. **Reduce food importation**: Nigeria was importing too much food from other countries, and the prices of food items were getting too high.

ii. **Promote farming**: Encourage Nigerians to farm, whether in villages or cities, to produce food.

iii. **Create jobs:** More farming meant more work opportunities for people.

iv. **Make Food Affordable:** If there was enough food, the price of food items would be lower, and more people could afford to eat well.

To achieve these objectives, the government introduced agricultural education in schools, provided farming tools, fertilizers, and seeds to help people grow crops, and encouraged students to plant in their schools.

Although the program did not last long, it helped Nigerians understand the importance of growing their own food and made agriculture an important part of the country's economy. However, five years after its launch, food production was still lagging behind population growth, and a new administration launched a new program, the Green Revolution, to replace Operation Feed the Nation.

The Green Revolution:

The Green Revolution in Nigeria aims to boost agricultural productivity and food security. Although the global Green Revolution significantly increased

food production from the 1950s to 1960s, Nigeria didn't experience a similar impact due to various challenges (Evenson and Gollin, 2003; Pingali, 2012). Some key initiatives and programs supporting the Green Revolution in Nigeria include:

i. **Agricultural Transformation Agenda (ATA):** Aims to modernize Nigerian agriculture through improved productivity, processing, and marketing.

ii. **E-Wallet Program**: An initiative that provides farmers with subsidized inputs, such as seeds and fertilizers, through an electronic wallet system.

iii. **Biofortification**: HarvestPlus Nigeria's approach to enriching crops with essential vitamins and minerals to improve nutrition and health.

These efforts aim to increase agricultural productivity, improve food security, and enhance the livelihoods of small-scale farmers in Nigeria.

Efforts to improve food security in Nigeria

Government Efforts and Initiatives:

Federal Ministry of Agriculture and Food Security (FMAFS):

The ministry aims to ensure food security and promote agricultural sustainability in Nigeria.

Agriculture Promotion Policy and Presidential Economic Diversification Initiative:

These initiatives aim to improve local food production and reduce reliance on imports.

HortiNigeria Program:

This program focuses on improving vegetable production and addressing supply gaps in the local market.

Mechanization Projects:

The government is focusing on modernizing agricultural machinery to boost food production and improve efficiency.

Intervention plan on food security:

The government has unveiled a comprehensive plan to tackle food inflation and ensure access to affordable food.

Revitalization of the Bank of Agriculture:

The government is taking steps to reposition the Bank of Agriculture to enhance economic growth, promote social-economic development, and improve food security.

Key Areas for Improvement:

Addressing insecurity:

Resolving conflicts and ensuring the safety of farming communities is crucial for food security.

Investing in infrastructure:

Improving infrastructure, including roads, storage facilities, and irrigation systems, is essential for boosting agricultural productivity and reducing post-harvest losses.

Supporting smallholder farmers:

Providing access to credit, technology, and markets for smallholder farmers is vital for increasing food production.

Promoting diversification:

Encouraging the production of a wider range of crops and livestock can help reduce reliance on a few staple foods and improve food security.

Addressing Climate Change:

Implementing climate-resilient agricultural practices and investing in early warning systems for extreme weather events is crucial for protecting agricultural production.

Improving Food Systems:

Enhancing food processing, storage, and distribution systems can help reduce food losses and improve access to affordable food.

Strengthening Governance:

Improving governance and reducing corruption can help ensure that resources are used effectively for food security.

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