Food Crisis, and its implication on Food and National Security in Nigeria: The Deplorable State of Bende Irrigated Rice Cultivation.

By

Ijioma, Emmanuel Chikezie PhD [1]
Department of History & International Studies,
Faculty of Arts, Alvan Ikoku Federal University of Education, Owerri, Nigeria
e-mail: ekezieijioma@yahoo.com /08034723817

Ibeh, Chukwuemeka Emmanuel PhD [2]
Department of Political Science, Faculty of Social Sciences,
Alex Ekwueme Federal University, Ikwo, Ebonyi State
e-mail: mekibeh74@gmail.com/07069463370

&

Chukwuleta, Chinenyenwa Obiaku PhD [3]
Department of History and International Studies, Faculty of Arts,
Alvan Ikoku Federal University of Education, Owerri, Nigeria
e-mail: nenyechuk@gmail.com

Abstract

Nigeria has not witnessed such acute food shortage except in then Biafra during the civil war. Climate change, corruption, neglect of the agricultural sector and the recent insecurity are well known factors that have affected food production. Not much has been done to appraise the challenges of irrigated rice projects initiated in the 1970s. The Irrigated Rice cultivation on Igwu River in Bende in the 1970s has been neglected and abandoned the return to civil rule in 1999, resulting in unemployment, food shortage, and high crime rate among youths. This study therefore interrogated the challenges of this critical infrastructure, and its impact on food security, and turn National security. Irrigation and ecological theories guided this study. Descriptive design using the qualitative and observatory techniques for data collection were adopted to interview 17 key witnesses comprising former World bank staff, farmers and community leaders, and data were content analyzed. Research recommends that the dams and channels be resuscitated, rsearch improved upon and supported by NCRI, rural development should be

intensified to stem rural-urban migration, adequate security provided in all the communities to provide more sustainable and productive environment to boost rice production, food security that would strengthen national security.

Keywords: Challenges; Food and National security; Irrigation project; Rice Cultivation

Introduction

Nigeria is faced with unmitigated food crisis that has made the country vulnerable. Several factors have created this national calamity. Some of these have been attributed to climate change, the petro-dollar, corruption, insecurity due to terrorist attacks, kidnapping for ransom, and government neglect of the agricultural sector. Majority of the research centres are no longer functional, the dams constructed in the past using the River Basin projects are completely abandoned because businessmen find it expedient importing all manner of food items from developed countries. This has depleted and depressed the country's currency. Any country that cannot food its teeming population would drive it into a failed state. For a healthy population produces talented and resourceful citizens. Rice is one of the staple food in Nigeria and its shortage has created a serious handicap that can only be redressed when government at all levels redesign its national objective. Recently a bag of rice has gone beyond the reach of the minimum wage, and this has affected other areas of life. Maji and Fagada (2002); FAO (2002:93); and Carpenter (1978) confirmed that rice cultivation in Nigeria began about three-and-a-half centuries to a period when the indigenous red rices – Oryza glaberrima varies – were the only species cultivated. FAO (2012) & Awoyemi (2010), argue that it is the agricultural commodity with the third-highest worldwide production, after sugarcane and maize. Its consumption in West African has increased over the past decades, more than the production rate. Okunneye (2003) cited in Aina, Ayinde and Falola (2015), revealed that it is cultivated in all agro ecological zones in Nigeria with the burden of production borne by over 60% of the rural population. Due to political priorities and the pervasive insecurity, scarcity of food and inflation have created harsh economic situation in the country.

Unfortunately, Maji and Fagade, (2015) revealed that at independence in 1960, Nigeria produced only 0.134 million tons (Mt) of paddy rice from 0.156 million hectares (Mha) with an average yield of 0.8 t/ha. The result is that rice production increased from 135,000 tons in 1960 to 308,780 tons in 1970. Rice improved with the establishment of the National Cereals Research Institute (NCRI) at Badaggi, and other parts of the country (Seshu, 1986). The institutes all over Nigeria introduced IR 8 (FARO 13) and Taichung Native 1 (FARO 21). Other IRRI lines were released as FARO 19 – 23; IR 8, IR 20, BP1 – 76, TN 1, IR 627-1-31-3-37 and IR 5, were released for cultivation between 1970 – 1974. Maji & Fagade, 2015:101; Fagade et al., (1988; Nkwungu et al., 1990) assert that as from 1976, FARO 31,32,33 and 34 were developed and released for cultivation. And the NCRI at Amakamma Umuahia provided all supportive resources to Bende Irrigated Rice Cultivation in the area of staff, skills and practice to revolutionize rice production among communities along Igwu River.

Udemezue (2018) and Rice Statistics and Facts, affirm that rice is the world's second most important cereal crop following only corn, and almost 482 million metric tons of the husked rice was produced in 2017 worldwide. Nigeria has a world share of 0.8% of the production which is much less than the national consumption need as the country fill in the gap with imported rice from southern Asia. Nigeria's demand increase could be attributed to population growth and government neglect of the agriculture sector. He further argues that Nigeria is the largest producer of rice in Africa having increased production from 5.5 million tons in 2015 to 5.8 million tons in 2017. He confirmed that in 2015, Nigeria spent about N1bn on rice consumption, and the consumption rate increased to 7.9 million tons while the production rate remained at 5.8 tons per annum. This increase resulted from the Central Bank of Nigeria (CBN's) Anchor Borrower's Programme with a total of 12 million rice producers and 4 million hectares of FADAMA rice land (RIFAN, 2017). This programme which was aimed at reducing over reliance on oil and imported food, gulped almost $400 annually. Statistics further revealed that import rates increased to 5,850 from 4,800 in 2016, and with this new government assistance, Nigeria only meets up with 49% of its domestic demand. Imolehin and Wada (2000), and Singh, et al (1997) corroborate that despite expansion of irrigated land and steady increase in rice production, the

output has not been enough to meet the growing demand of Nigerians in rice consumption.

Udemezue listed Anambra, Nassarawa, Ebonyi, Kaduna, Niger, Kano, and Benue as states that have the capacity to provide rice on largescale, unfortunately, Abia State does not belong to the elite club of producers despite effort made in 1970 by the then East Central State in collaboration with the World Bank to revolutionize rice production through Bende Irrigated Rice Project. Although this project was initially conceived to mitigate sufferings of people immediately after the civil war but the critical objective was to boast food production. However, current food crisis and widespread insecurity in Bende area have been aggravated by the neglect of Bende Irrigated rice project.

Irrigated rice cultivation on Igwu River in Bende covers the stretch from Alayi, Ozuitem, Igbere, Umuhu, Bende, Ntalakwu, Okporoenyi, and Itu Mbauzo. This East Central State Government and world Bank-sponsored rice project began in 1970, immediately after the civil war to boast agricultural sufficiency and to remedy the devastating effect of the food blockage strategy of the Federal Government against the defunct Biafra during the war, and to actualize this lofty objective, two medium-sized dams were built at the border between Alayi and Ozuitem, and the second at the Igbere section of the same river. Although, rainfall distribution is bimodal, with most rains falling between June and October, monthly average temperatures range between 25 and 27^{o} C, daily temperature fluctuations are very small which hardly affects rice cultivation, (Kebbeh, Haefele & Fagade, 2003), there was need to irrigate lands on both sides of the river to increase the number of paddies and hectares for rice production, by maximizing both upland and lowlands.

Water is pivotal for agricultural production because it ensures the development of large-scale production which would obviously generate huge employment opportunities. In this regard, the development of the dams to irrigate rice farms on both banks of the river meant a progressive strategy to curb food shortage. It was observed that the dams and their channels were initially operational, and only supplied water to half of the developed hectares, the second phase was abandoned. However, the effort made benefited the communities having access to

the river. The irrigated areas increased from 200 hectares in 1972 to about 500 hectares by the 1980s without further expansion, (Fagade & Ayotade, 1978). These developed areas were acquired by the East Central State from the communities and the World Bank encouraged farmers' cooperatives to have access to the land.

In Nigeria, policies are hardly sustained. Successive governments hardly complete the projects started by its predecessor. According to Ijioma (2019), agricultural policies and programmes were implemented to accelerate economic growth with the net result of achieving food stability and in totality national security. But the absence of continuity of agricultural projects has had huge impact on the availability and access to food. Food security contributes to national security because a well-fed and energetic manpower serves as the engine room of development. National commitment is anchored on the ability of a state to make the lives of its citizens worth living. The research therefore explored the reasons why the World Bank withdrew from Bende Irrigation Rice Cultivation whose consequences have aggravated unemployment, food insecurity and increased social convulsions.

Statement of the Problem

There is a nexus between water and food sufficiency; where this balance is not maintained, there would be food insecurity resulting in high level of unemployment, criminality, and finally result in crisis as witnessed recently in Nigeria. Hunger is nobody's friend, and currently Nigerians have resorted to protests sighting hunger masterminded by bad governance and insecurity. It is against this background that this research highlights the neglect of Bende Irrigated Rice Cultivation and its consequences on food and national security.

Research Questions

1. What is the historical process of developing Bende irrigated rice cultivation in the 1970s and its contribution to rice production?
2. what are the factors responsible for its moribund nature?
3. In what ways have such intensified food crises and impacted on national security?
4. In what ways can the situation be strategically reversed to enhance stable rice production and national security?

Conceptual Clarification

Dams and their role in irrigation in rice production

The history of the development of dams by man dated back to the period before the 20th century. At that time, there was not much sophistication in construction as this involved creating an embarkment to store water and transport through channels to available lands. However, by the 20th century, because of advancement in science and technology, a mechanized construction process and speedier construction led to the building of modern and larger dams to increase the capacity to store water and irrigate more land for agriculture and hydropower generation. The large dams ensured that large water resources were harnessed to meet the agriculture needs of people for food, fodder, fish production, industrial wildlife, and many others (ICID, 2024). Since the colonial era, efforts have been made to increase crop production and harness existing water resources to actualize the goals of agricultural programmes, (Ijioma, 2019: Njoku, 2014).

Water is critical to food security and this has been a major issue in all developing countries of the world. Dams are crucial to their existence due to scarcity of natural water, and in drought prone regions, distributive resource crisis has dominated their conflict issues. In the Horn of Africa, Ethiopia and Egypt, Egypt and Sudan, and other conflicts over access to the Nile River water has defied all effort toward achieving peace. For example, there was tension in 1978 following Ethiopia's proposal to construct dam on the Blue Nile and the backlash from Egypt led to the failure of the project, (The Organization for World Peace, 2024).

Crisis over access and use of water have posed serious challenge when not handled properly. During the civil war in Nigeria, acute shortage of water and the inability to use rain water and rivers for agriculture, caused food crisis. Also, the food blockade into Biafra made worsen the situation and all these resulted in kwashiorkor, a malnutrition health issue. Based on this crisis, immediately after the war, the government of East Central State, collaborated with the World Bank to introduce Irrigated Rice projects to develop and harness water from notable rivers to increase the capacity of water for irrigation through construction of dams. It is for this purpose that the dams on Igwu River in Bende to irrigate lands on its banks for rice farming. It was also made to ensure available and regular food

supply to curb the incidences of crime and irrigated land increased from 200 ha to 500 ha by 1980, (Fagade & Ayotade, 1978).

Importance of irrigation

Irrigation on Igwu River improved fertile lands on its banks through access to sufficient water for crop cultivation, and growth; it extended production into the dry season; maintained a balance between production and market activities without creating temporary unemployment, or reduction in supply; it softened tillage; prevented wastage of fertilizer by promoting the functioning of some microorganisms. It also cools the temperature of the soil. Irrigation transports nutrients to crops and the overall advantage is consistency in cultivation and production of food. Unfortunately, the withdrawal of the World Bank from the project, and failure of government to sustain the project have increased food crisis. **Food crisis** has been conceptualized as shortage and inability to access available food in a particular society. The history of food crisis in Nigeria could be traced back to the 1973 Arab-Israeli war which increased revenue earnings from crude oil; the country resorted to importation of food, other goods without paying adequate attention on agricultural practices. This drained the country's foreign exchange. Imagine that in 2015 alone, the country spent about N1bn on rice importation, (RIFAN, 2017). In fact, despite various government intervention in agriculture, the country still imports several hundreds of tons of rice and food generally per year, (Ijioma, 2019:124-135; Udemezue 2018:3).

Unfortunately, the consumption rate of rice has been on the increase because in 2003, Nigeria recorded the importation of 1600701 tons, 1396692 in 2004, 1174071 in 2005, 974647 in 2006, 1215758 in 2007, 970787 in 2008, 1160671 in 2009, 1882759 in 2010, 2187419 in 2011, 2455202 in 2012, and 2187370 in 2013; that is between 2003 and 2013, 17,206,077 tons of rice with an average import at 1,564,188 million, (NaijaAgroNet, 2018). Prior to the emergence of terrorism in Nigeria, Kaduna state was the highest rice producer in 2000, accounting for about 22% of the country's rice output followed by Niger state 16%, Benue state 10% and Taraba 7%, (Godwin, Federic and Olaf in Udemezue , 2018). Since then, there has been a decrease despite the increase in production in Osun, Kogi, Cross River, Borno, Adamawa and Katsina. There are variations between wet and dry season cultivation: during the wet season, the South East produced 2.4 tons/ha; North East 2.0 tons/ha; Central

zone 1.8tons/ha while South West had the least 1.4 tons/ha. But for the dry season the North Central contributed 3.6 tons/ha with North West 1.74tons/ha, (Udemezue ,2018: 3-4). From 2009, the country has been experiencing acute food crisis with the Boko Haram and ISWAP activities in the North East, combined with other terrorists operating in the North West, North Central and the South East. Farmers hardly access their farmlands and in the areas controlled by these terrorists, farmers are forced to pay tax before being allowed to access their farm, (Ijioma, 2019:139-145). Many have been killed by these terrorists, and their crops fed to cattle by the Fulani herdsmen/terrorists. In May, 2025, while reacting to the Yalewata mass murder in Benue State, the Tor Tiv, confirmed that harvests are destroyed by the terrorists, while kidnapping has frightened farmers away from their farmlands. This strategy has intensified hunger in Nigeria.

Ijioma (2019:141-142) affirms that armed conflicts, extreme weather events, high prices, and displacements have aggravated food insecurity. As a result, Nigeria has been made vulnerable to external exploitation by those who determine international prices of goods. The dire situation accounts for the high rate of unemployment which supplies manpower to kidnapping. The number of food insecure Nigerians have increased from 66.2 million in Q1 of 2023 to 100 million, in Q1 of 2024 (WFP, 2024), with 18.6 million facing acute hunger and 43.7 million Nigerians at the crisis level. National security is threatened by this hydra headed problem.

Food security and National Security

Food security is the state of having reliable access to sufficient and affordable nutritious food. Food security connotes the availability of quality food for all people devoid of class, state, gender or religion. Food and Agriculture Organization (FAO) Report on food security in the World in 2001, defines 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 references for an active and healthy life" (FAO, 2002). The 2009 World Summit on Food Security added stability as the short-term time indicator of the ability of food systems to withstand the shocks, whether natural or man-made (FAO, 2009). The four dimensions of food security include availability of food produced locally and imported from abroad; accessibility to

the consumer (transportation infrastructure) and the latter has enough money for purchase; utilization is another factor: the individual must be able to eat adequate amounts both in quantity and quality to live a healthy and full life to realize his or her potential. Food and water must be safe and clean, in fact, adequate water and sanitation are essential. Finally, the last is stability, that is, the ability of a nation/community or household to withstand shocks to the food chain system whether caused by natural disaster (climate, earthquakes) or those that are man-made (wars, economic crises). Food security exists at all these levels. Simply, food security encapsulates the linkage between production and consumption, through distribution to processing, (Berry et al, 2015). There must be sustainable diets to ensure a sustainable food system. This represents protective, and respectful biodiversity and ecosystems, culturally acceptable, accessible, economically fair, and affordable, nutritionally adequate, safe and healthy, while optimizing natural and human resources (FAO, 2012).

While food insecurity is a situation where there are problems at any one level in the food production – consumption chain. Food insecurity is whenever the availability of nutritionally adequate and safe foods, or the ability to acquire acceptable foods in socially acceptable ways, is limited or uncertain (Expert Panel, 1990), and this could be measured in the uncertainty about future food availability and access; insufficient in the amount and kind of food required for a healthy lifestyle; or the need to use socially unacceptable ways to acquire food (National Research Council, 2006). On the other hand, the objective of national security is the protection of a country from all forms of threat (whether nationally or internationally) through military and nonmilitary strategies. National security covers such threats as military, economic, energy, environmental, and political. National security policy must provide a framework to measure the needs of the country and how they would be guarded jealously against external or internal convulsive forces. In all these, economic security is paramount followed by military security. A country with a strong, healthy, and growing economy prioritizes the well-being and security of her citizens. It also includes the protection of national wealth, and economic freedom, and the eradication of poverty through the elimination of income inequality. Thus, ensuring unhindered access to energy resources such as oil, water, and minerals. As a corollary, food security generates opportunities for gainful employment when all hands are

positively busy in production. Unfortunately, when a society is distracted by hunger, political crisis, and all manner of crimes, such society would be vulnerable all manner of criminality, and have to remain on other better organized societies for survival though loans. As a result, national security can be protected and strengthened with good leadership, strategic planning and mobilization of human and material resources.

Theoretical framework

The study adopted the irrigation and Bronfenbrenner's Ecological systems theories to achieve the purpose of the research. The irrigation theory was developed bearing in mind the hydraulics. This theory highlights the process through which hydraulics move through pipes. Advocates of the theory believe that water can move through pipes or channels to feed a system of distribution in plants. The system of hydraulics involves having a water source that provides appropriate flow and pressure for distribution. There is a main piped distribution system connected to individual pipes and channels, and this is constructed to ensure that the water-flow velocity reaches an acceptable limit to reduce wear, and lengthen service life. In the chain flow are sprinkler heads or drip emitter selections to provide even distribution of water in amounts that allow the managers of the irrigation to supply enough water for time limitations for watering. Irrigation technologies and water storage can be controlled to ensure there is sufficient food at the right time, and at the right nutritional value to the people. However, the Nigerian state and its subnational governments lack proper care for its established facilities even when these things require timely and sustained care. Therefore, the dysfunctional nature of the irrigation process in Bende allowed only small scale activities by the rural poor after government withdrawal the irrigation project.

Bronfenbrenner's Ecological systems theory posits that an individual's development is influenced by a series of interconnected environmental systems. It is a framework that explains the complex systems that influence human development. The theory emphasizes the importance of environmental factors and social influences in shaping development and behaviour. The model takes a holistic approach, which involves a dynamic interaction between environment, societal, biological, and psychological factors. There is a reciprocal interplay

between humans and the various levels of influence that affect development. Bronfenbrenner argues that more nurturing and encouraging environments lead to better development outcomes. Human development is predicated on the exploitation of the environment as exemplified in the construction of dams on Igwu River to increase the capacity of water for irrigation to aid rice production. It no doubt led to the development of, and increase in hectares of land from 200 to 500, and expanded the scope of cultivation, quantity and quality of rice produced.

Empirical Studies

Offor, Amusa & Udochukwu (2020) did an Economic analysis of rice production in Bende, Abia State, Nigeria and identified the source of input to farmers, the estimate cost of and return of rice production, and the challenges that militate against maximum production. Primary data were used, and a multistage sampling technique was used for respondents. Data were analyzed using descriptive statistics, cost and return formulae and regression model. The result revealed that input farmer association and personal sources were the major source of inputs. It also revealed that rice production was a viable venture and that farm size, availability of chemicals, amount of credit and initial capital influenced production positively. The study listed pest and diseases, and lack of access to credit as the major constraints. It however recommended farmers' cooperative societies, and increased access to finance by farmers to promote rice production. Chukwuleta, (2018) explored the National Root Crop Research Institute Umudike, Abia State 1976-2024, and study revealed the objective of the Institute, its functions, and contributions to development of crops. The structural functionalist theory guided the work and findings established that the institute improved root crops through new technologies. However, the operations of the institute were constrained by farmers' inconsistency and inefficiency of the extension service programme in implementing results of research. The research recommends stronger collaboration between the institute and farmers through the extension staff and the commercialization of the improved crop varieties. Udemezue (2018) examined 'Analysis of rice production and consumption trends in Nigeria which revealed that the main goal of agricultural development programmes and policies is increasing agricultural productivity for accelerated growth. The work highlighted the failures of previous policies' measures to increase crop production, but domestic rice production has not met the needs of the increasing population

of the country. Finally, Kebbeh, Haefele & Fagade (2003) investigated the Challenges and opportunities for improving irrigated Rice productivity in Nigeria using sample selection for interviews conducted through informal and semi-structured interviews for data collection. The study explored the environment and profile of rice projects at South Chad Irrigation project (SCIP); Kan River Irrigation Project, Kadawa; Watari Irrigation Scheme, Kano; Bakolori Dam Irrigation Scheme; Badeggi Irrigation scheme; and Bende Irrigation Scheme. The work assessed their constraints and opportunities for improving productivity. The study however recommends development and adaptation of small farm machinery for harvest and post-harvest operations; on-farm evaluation and adaptation of improved irrigated rice varieties. Current research would complement all the above research by identifying the factors that hindered the Irrigated Rice project in Bende and provide a template to create food and national security.

Methodology

The study adopted a mixed technique of qualitative and observatory approach to data collection. 15 respondents (retired World Bank staff, beneficiaries of the world Bank assistance and current rice farmers) were interviewed individually in their communities on the history of the rice project, why the project had remained moribund and what should be done to revive it for increased productivity. The researcher visited the abandoned dams, at Alayi- Ozuitem boundary, and the Igbere site, to observe the dilapidated condition of dams. Data were content analyzed.

Result and Discussion

Research question One: What is the historical process of developing Bende irrigated rice cultivation in the 1970s?

Food is one of the most important factors that sustain man, therefore, policies and programmes are designed to ensure their successful outcome. Scarcity of food triggers health, social, and psychological crises. That is why all governments must promote agricultural interventions to achieve food security. Respondents agreed that Bende Irrigated Rice Project was developed:

> To mitigate the losses of the civil war and to increase the capacity of water on Igwu River to irrigate lands for rice production. This

> was urgent due to scarcity of food which had caused a spike in crime. The trend had become dangerous that government decided to empower youths through agricultural schemes. It was also a means of engendering a start of new life after the losses in the war. Government with the World Bank constructed the dams to develop and expand cultivable lands along the river to achieve availability of rice for health living in the communities and beyond the local government.

A respondent affirms that:

> As a World Bank Staff, we collaborated with extension staff from National Cereal Research Institute Amakamma, Umuahia to sensitize farmers on the best practices in managing the paddies developed, use the water channels adequately in the production process. We also exposed farmers to the rice species, standard of spacing rice plants, application of chemicals, pesticides, fertilizers. We also organized workshops, and encouraged them to form cooperative societies, for largescale cultivation and marketing of harvested rice.

The efforts of government in the above regard helped to cushion the hardship of people and rice became a staple food in the rural communities. It also became a peacebuilding process to curb insecurity and strengthen food security that translates to national security.

According to a rice farmer, the irrigation scheme promoted the construction of roads in Ozuitem, Alayi, Igbere, Umuhu and Bende, and milling machines were established in Bende and Uzuakoli, to mill rice for local consumption, while bulk sales were sold off to entrepreneurs whose mills were in urban centres. A respondent confirmed that some 'big' farmers later became successful businessmen in Aba and other cities in Nigeria.

Data revealed that lands 300 metres away from the bank of the river were irrigated with channels, and in some uplands, the farmers used hoses to reach the paddies. This scheme according to Fagade (2001) succeeded in increasing the irrigated areas

from 200 hectares to 500 hectares by the 1980s. These irrigated lands were acquired by the East Central State from the communities and encouraged the cooperative societies to take them on lease. This system allowed many people to combine their resources to cultivate very large areas. Fagade confirmed that eight extension officers under the supervision of an extension agent supervisor monitored, assisted and implemented research results conducted at the National Cereal Research Institute (NCRI) at Amakama Olokoro, Umuahia. With its research farms, trials in lowland and irrigated systems were experimented. Multi-location trials with screenings for African rice gall midges and iron toxicity tolerance or resistance were conducted to support Bende Irrigated Rice Cultivation.

There were 8 blocks manned by the officers fully employed by the State and each agent was responsible for one sub-block. Extension agents regularly met farmers in the fields where they trained them. This practice impacted so much on participants to the extent that farmers had adequate experience in rice cultivation and supply. Many were active in the rice production process which involved developing the nursery, and transplanting in the paddies. There were labour for weeding, protection of rice fields from birds, harvesting, threshing, and winnowing before parboiling and milling.

Harvesting was done in October, November, and December. Average yield in Bende area was reported by NCRI to be 1.8 t ha^{-1} between 2000 and 2001. Fagade further argued that selected farmers produced 8.0t ha^{-1} which later declined to 3.0t ha-1. This decline was due to the poor structure of the dams and government withdrawal from funding the project. Staff were also disengaged and the dams suffered from structural defects which led to its collapse. This neglect has been attributed to less attention given to agriculture because of the inflow of oil money. Corruption dealt a final blow to the project because funds were not managed properly by government appointed officials. Therefore, the dams which were initially functional and useful became another abandoned project whose consequence would impact negatively on food production, food security and national security.

Respondents revealed that:

> Farmers began to utilize rainfed water only to cultivate lowland rice. This limited production to one set of cultivation instead of the all-year round production that includes uplands. With the limitation of water to all developed land and the inability to develop more hectares, people began to abandon rice culture in these communities except the small scale farmers who only produced for local consumption. This created opportunities for the youth to embrace politics as a means of livelihood and others who could not find a place in politics became thugs for politicians combining it with one level of criminality or the other.

Despite the modest achievements of the Bende Irrigated Rice project/cultivation, it joined the ranks of the agricultural intervention programmes that the government failed to capitalize upon to develop the country's economy.

Research question two: What are the factors that led to the reduction in rice cultivation in Bende area?

Data revealed that the old Eastern Region contributed about one third of Nigeria's estimated production of 160,000 tons of rice in 1965/66. But civil war experienced wiped off, this contribution due to the fact that people were busy fighting and farming became dangerous. With the laudable irrigation project began in 1970, Bende Irrigation rice cultivation became a substitution to importation of food but a viable means of economic recovery.

However, the project was abandoned for reasons normally associated with Nigeria. It is apparent that the revenue from the oil sector had become a daily routine and anything that would take time to mature was not an option. Government withdrawal affected the attention given to existing 200 to 500 hectares developed (Kebbeh, Haefele, and Fagade, 2003). Offor, Amusa, and Udochukwu (2020) further attributed the decline to rice cultivation in Bende to high incidence of pest and diseases, lack of access to credit facilities, inadequate social facilities (roads and market), lack of technical knowledge, high interest on loans, high cost of fertilizer, scarcity of land, and high cost of agrochemical to poor harvest. These were direct constraints that hindered production. According to respondents:

> The more obvious factors attributed to the decline of rice production in Bende were the collapse of the dams, the inability of the World Bank to expand the irrigated areas; the dearth of technical staff from government; the poor responses from NCRI, and poor return from sales at Bende and Uzuakoli markets. In addition to these factors were poor maintenance of the water channels, and the roads became impassable. The absence of extension service staff and non-existence of credit to farmers hurt more after poor water supply to farms. Added to these was that the energetic youths became political tools in the hands of politicians and do not see their future in rice cultivation in the rural communities. This situation triggered a wave of migration to urban centres leaving the communities with the very young and the old.

Arising from the issues above, food shortage was aggravated and the communities began to experience instability due to the incursions of criminal elements in the Local Government. Thus one of the ingredients of national security was flagrantly breached because the immediate gains from other sectors. Therefore, government withdrawal discouraged its partner, the World Bank, and every development and assistance enjoyed by both cooperative societies and small scale farmers, ended such as the maintenance of the dams; technical responses from NCRI. These also included absence of credits for farmers, farm inputs and standardized market for farmers to sell their rice. All these were the constraints that impacted negatively on Bende Irrigated Rice Cultivation.

Research question three: In what ways have the reduction in cultivation of rice in Bende impacted on food and national security?

Citing National Cereal Research Institute, Amakamma Umuahia, Fagade (2001), between 2000 and 2001, Bende Irrigated Rice project produced 1.8t ha^{-1}, and that subsequently, some selected farmers produced 8.0 ha^{-1} which were huge productive efforts, however, a fundamental error was made by neglecting this contribution to both the state and national economy. There was a drastic decline to 3.0t ha^{-1} from 2002. This was a huge negative to the previous progress made. This result economically, lowered the moral and the effort of the cooperative societies and individual farmers who lost both their means of livelihood and

income; people were no longer motivated and this led to mass unemployment, thus paving the way for high incidence of criminality.

Some respondents argued that:

> The irresponsibility of government in abandoning such laudable economic project portray them as not being strategic, because the overall growth and development of both citizens and the country strengthen national power and pride of the nation. Unfortunately, food scarcity, hunger, and the incidences of crime have left the country vulnerable to foreign powers that prefer we import their food. This arrangement has destroyed the value of the country's currency thereby forcing government to indulge in endless borrowing from foreign creditors. The implication of the heavy debt burden translates into mass poverty, high cost of goods and services, economic sabotage and terrorism related-crimes.

Respondents further condemn bad governance witnessed in not encouraging continuity; the tradition of abandoning projects of previous governments whenever there is a transition. Continuity is a fundamental attribute of man, and no government can achieve success by abandoning progressive policies and programmes of its predecessor. But in Nigeria, governance is not seen as a continuous process. Thus, this inconsistency has undoubtedly affected food production, its availability and affordability, and no nation develops by depending on other countries to feed its citizens. This is suicidal.

Of great concern is that the lands previously developed by the World Bank and cultivated by farmers when the dams were functioning and maintained, have been abandoned for lack of hands to cultivate them. The former owners who recovered their lands at end of the programme, have either passed on or are too old to exploit its usefulness. Their off-springs had migrated to urban centres and the few still cultivating cannot maintain the water channels because there is no available water. Moreover, the channels are covered with bushes.

Respondents agreed that:

> Bende is prevalent with an aging farming population with no access to credit and financing as the banks are not interested in granting loans to farmers but to importers who would pay back within short periods. Of late, the herders are competing with the farmers over control of the irrigated farmlands, thus reducing available spaces for cultivation.

The above view corroborates Ibeh, Agudiegwu & Ijioma, (2022); Ibeh, and Ijioma (2021); and Ijioma (2019) that climate change forced herders to head down south of the country to graze their cattle and often time, conflict and destruction result. Recently, farmers hardly accessed farmlands at the Igbere portion of the developed areas, if not for the timely intervention of the Local Government officials. This situation has intensified food shortage in Bende and Nigeria generally inflicting heavy shocks on national security.

Food insecurity has created diverse diseases due to the inability of citizens to access and eat nutritious meals. This has increased the death rate, and many men die quite early due to heavy burdens on them. As a result of food insecurity, national security is threatened as youths compromise the security of the nation by colluding with non-state actors. Also, kidnapping has become an economic enterprise. People always come home with security for burials of their love-ones and indigenes whose buildings are under construction do so through third parties. Respondents further alluded to a rise in armed robbery, rape and infidelity among married women. There is no doubt that a destabilized society poses danger to the nation. There are not enough resources to send children to schools and an uneducated and poorly fed children are people whose future is already aborted. We need not go far to imagine its consequences on the country.

Research question four: In what ways can the situation be strategically reversed to enhance food and national security?

Research revealed that despite the hopeless situation generated by government avoidable neglect, strategic planning would significantly redress the unfortunate situation. In this regard, respondents proffer both short and long term solutions. In the short term, they suggest that:

> A gradual but total rehabilitation of the moribund irrigation infrastructure must be pursued to make it functional for normal irrigation process. All the irrigated hectares must be cultivated for rice production. Also the National Cereal Research Institute at Amakanma Olokoro, Umuahia to resume and sustain its research and training should also be resuscitated to optimize its benefits in knowledge and practice so that high- yielding rice varieties, input subsidies (seeds, fertilizers, pesticides) can reach farmers. Furthermore, Farmer cooperatives and provision of storage facilities would ensure largescale production.

They also argued that:

> Youths engaged in rice production should be motivated through soft loans and the provision of regular supply of electricity, water, and the enabling environment for private investors to establish hospitality services such as guest houses, sport viewing centres and sport facilities. These must be provided to stem rural-urban drift. We need to understand that 'all work and no pleasure leads to an early grave'. Life must be oiled for better performance.

In furtherance of reversing the trend, respondents suggest that the long-term strategies must include high capacity storing dams for irrigation, and hydro-power generation to serve dual purpose of irrigation, and supply of electricity to the communities in the local government. This would be complemented by standard rice processing machines to save time and cost. And of greater importance is the collaboration between the research institute and farmers to improve on production technique. There should be regular capacity building for extension staff and farmers to update knowledge on rice cultivation and cooperative society strategies to discourage importation of foreign food. These measures must be implemented to gravitate towards food self-sufficiency, create employment opportunities to curb criminal tendencies by utilizing youthful energies for rice and food production.

All these would strengthen the national economy, reduce overdependence on importation to strengthen the country's currency and curb the unending brain

drain that is part of the bane of Nigeria's development. No country sustains its sufficiency and national security by relying so much on importation. Therefore, an agricultural road map for self-sufficiency in food production must be drawn and implemented. Because a well-fed country is healthy and ensures less reliance on foreign aid. Finally, adequate security must be provided by strengthening the vigilante groups to collaborate with the conventional security agencies in securing the communities and their farmlands (Ijioma et al. 2020:85).

Conclusion and Recommendations

This research investigated the challenges of Bende Irrigated rice scheme and its implications on food and national security. Study revealed that the avoidable negligence of the irrigation scheme by successive governments led to the decline of rice production, farmer's income, and of food in Bende and Abia State generally. Unemployment, hunger and criminality made life unbearable, and to reverse this situation, study revealed both short and long strategies by recommending that existing irrigation facilities be revitalized along with the National Cereal Research Institute at Amakanma Olokoro Umuahia with its ancillary extension staff to assist farmers by providing high-yielding seeds. More lands should be expanded and farmers should be encouraged through rapid rural development to stem migration.

References

Amankwah, E. & Ocloo, T. O. (2012) Contribution of small-scale irrigated agriculture to food security in the Upper West Region of Ghana. *Journal of Developments in Sustainable Agriculture* 7:115 – 121.

Aina, I.V.; Ayinde, O.E. & Falola, A. (2015). Effect of Price variation on rice production in Nigeria (1970- 2011). Agriculture in an Interconnected World, International Conference of Agricultural Economists, 29th Milan Italy, 2015.Universita DeguStudi Di Milano, August 8 – 14.

Appraisal of Rice Project In Nigeria, September 23, 1974. Agriculture Projects Department Western Africa Regional Office. Document of the International Bank for Reconstruction and Development. *International Development Association*.

Berry, E.M.; Dernin, S.; Burlingame, B.; Meybeck, A.; Conforti, P. (2015). Food Security and Sustainability: can exist without the other? *Public Health Nutrition* 18:2293 – 2302.

Carpenter, A.J. (1978). The history of rice production in Africa. In Buddenhagen, I.W. & Persley, G.J. (eds.) Rice in Afric, p. 3-10. London: Academic Press.

Chuwkuleta, C.O. (2018). *A History of the National Root Crops Research Institute, Umudike,* 1976-2017. Unpublished Thesis, Department of History & International Studies, Nnamdi Azikiwe University, Awka.

Expert Panel of the American Institute of Nutrition and Life Science Research Office (1990).

Fagade, S.O. (2001). Yield gap and productivity decline in rice production in Nigeria. In Yield gap and productivity decline in rice production. Proc. Of Expert consultation, Rome 5-7 September, 2000, p.357-377.

Fagade, S.O.; Pillai, P.G. & Kehinde, J.K. (1988). Improved rice varieties released in Nigeria. International Rice Researves. Newsletter, Volume 13 (1): 17-18.

Fagade, S.O. & Ayotade, K.A. (1978). The race towards the green revolution for rice in Nigeria: Is the technology available? In Proc. 2nd WARDA Workshop, Ibadan, Nigeria, 25th September, 1978.

FAO (2012) Sustainable Diets and Biodiversity. FAO Rome. Available at: http://www.fao.org/docrep/016/i3004e/13004e.pdf.

FAO (2009) Declaration of the World Food Summit on Food Security. FAO Rome.

FAO (2002). The State of food insecurity in the world, 2001. FAO Rome.

Haleemunissa, S.; Didel, S.; Swami, M.K.; Singh, K and Vyas (2021). Children and covid-19: Understanding impact on the growth trajectory of an evolving generation. Child Ser Rev, 120: 105754/ *Journal of Child Youth*. 2020.105754

Holmes, Kim.R. (2015). What is National Security? 2015 Index of U.S. Military Strength.

Ibe, C.E.; Agudiegwu, O.M. & Ijioma, E.C. (2022). Dynamics of climate change from natural resource depletion to farmers-pastoralist-herders violent conflict in Nigeria. *IOSR. Journal of Humanities and Social Science (IOSR-JHSS),* vol.27, Issue 7, Series 3, pp.17-28, July.

Ibeh, C.E. & Ijioma, E.C. (2021). An interrogation of government intervention policies on farmers-herders violence in Nigeria. *NOUN International Journal of Peace Studies and Conflict Resolution (NIJPCR)*, vol. 1, No.1:170-185.

Ijioma, E.C., Ijioma, C.D., Akoma, E.K. (2020). Emerging trends in criminality in local communities and the centrality of vigilante security agency in Ozuitem, Southeastern Nigeria. African Conflict Prifile: Journal of the Centre for Ethnic and Conflict Studies, University of Port-Harcourt, Volume 4, No. 1:69-90.

Ijioma, E. C. (2019). *Themes in Economic History of Nigeria: The pre-colonial and the contemporary period*. Owerri: My Books Publishers.

Imolehim, E.D. & Wada, A.C. (2000). Meeting the rice production and consumption demands of Nigeria with improved technologies. National Cereals Research Institute, Badeggi, Bida, Niger State, Nigeria.

Kebbeh, M.; Haefele,S. and Fagade, S.O. (2003). Challenges and opportunities for improving Irrigated Rice Productivity in Nigeria. The Nigeria Rice Economy in competitive world, constraints, opportunities, and strategic choice. West Africa Rice Development Association (WARDA), Abidjan Cote d'Ivoire.

Kendra, Cherry. (2023). A Comprehensive guide to the Bronfenbrenner's ecological model. *Development Psychology*.

Maji, A.T. and Fagade, S.O. (2015). Utilization of genetic resources for rice production in Nigeria.

National Research Council (2006). Food Security and Hunger in the United States: An Assessment of the measure. National Research Council, Washington.

Njoku, O.N. (2014). Economic History of Nigeria 19th – 21st centuries. 2nd Edition. Nsukka: Great A.P Express publishers.

Nkwungu, M.N.; Joshi, R.C. & Winslow, M.D. (1990). Collaborative research on resistance to African rice gall midge. Discovery and Innovation, 2 (3):17.

Offor, E.I.; Amusa, T.A. and Udochukwu, P.C. (2020) Economic Analysis of Rice Production in Bende Local Government Area of Abia State, Nigeria. *Journal of Sustainable Agriculture and Environment*, 18 (1): 152-164.

Peng, W. & Berry, E.M. (2019). The Concept of food security, In: Ferranti, P.; Berry, E.M; and Anderson, J.R. (Eds). *Encyclopedia of Food Security and Sustainability*, vol. 2: 1-7. Elservier

RIFAN (2017) Rice Farmers' Association of Nigeria. Rice Production in Nigeria increases to 5.8m tonnes. RIFAN Report, 2017.

Singh, B.N., Fagade, S., Ukwungu, M.N., William, C., Jagtap, S.S., Oladimeji, O., Effisue, A. & Okhidievbie, O. (1997). Rice growing environments and

biophysical constraints in different agroecological zones of Nigeria. Met. Journal, @(1): 35-44.

The Organization for World Peace (2024) Nile River Conflicts. theowp.org.crisis-index.nile.riv..

Tudge, J. and Maria Rose.E. (2020). Bronfenbrenner's Ecological Theory. In: Hupp, S.; Jewell, J. eds. The Encyclopedia. Ist Ed. Wiley.

Udemezue, J.C. (2018). Analysis of rice production and consumption trends in Nigeria. National Root Crops Research Institute, Umudike, Abia State Nigeria. Journal of Plant Science Crop Protection, Volume 1, Issue 3: 1-6.

WFP (2024) World Food Programme

Interviewee Information

S/N	Name	Occupation	Community	Age
1.	Ufere, Maduka	Rice Farmer	Ozuitem	60+
2.	Ukoji, Umeh	Rice Farmer	Umuhu	50+
3.	Okocha, Josiah	Rice Farmer	Igbere	50+
4.	Okorie, Jeremiah	Ex-staff World Bank	Igbere	72
5.	Okoro, Osondu	Rice Farmer	Umuhu	45
6.	Ogwo, Omeifu	Rice Farmer	Igbere	60+
7.	Ogwo, Agbai	Ex-staff World Bank	Igbere	75
8.	Ogwuru, Enyinnaya Jr.	Ex-staff World Bank	Ozuitem	72
9.	Uche, Mba	Rice Farmer	Umuhu	47
10.	Nwadiri, Uguru	Rice Farmer	Alayi	63
11.	Ikemba, Omeudo	Machine Operator	Bende	56
12.	Imo, Kalu	Rice Farmer	Bende	60+
13.	Iroeke, Maduabuchi	Agric. Dept. Bende LGA	Bende	40+
14.	Abara, Jonah	Rice Farmer	Igbere	59
15.	Ebe, Kalu	Rice Farmer	Ozuitem	60+
16.	Eni, Michael	Rice Farmer	Ozuitem	70
17.	Eze Ogo Kalu	Community Leader	Umuhu	73
18.	Ukaiwo, Onyedikachi	Community Leader	Alayi	70+