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Enablers of Food Security and Improved Nutrition in SDGS among Low-Income Households in the South-South Region OF Nigeria

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ABSTRACT
The purpose of this study was to assess the enablers for food security and improved nutrition in SDGs among low-income households in the South-South region of Nigeria. The specific objectives were to examine the respondents' availability, accessibility, utilization and the stability of conditions to food security and nutrition. A multi-stage sampling technique in which Bayelsa and the Delta States were randomly selected, representing 33% of the region. Then one agricultural zone from each state was chosen randomly, making it two from a possible six. However, purposive sampling was employed to select 3 LGAs combined from the selected two agricultural zones. Lastly, three purposively rural communities were selected from the 3 LGAs, with 15 randomly selected household heads chosen from each community, totaling 135 respondents. A substantial number of the respondents are below 47 years; also, female household heads are 61.5%. 49.9% of the respondents had a high level of availability to food and improved nutrition, 72.5% had low accessibility to food and nutritional needs, while 60.4% had low utilization level of the SDGs practices to achieving food security. Furthermore, the respondents had 71.1% low stability of condition to food security and improved nutrition; a significant relationship exists between the stability of condition and level of accessibility to food and improved nutrition of the respondents ($r=0.539$; $r<0.05$). Conclusively, agricultural sustainability is fundamental to food security and nutrition. The government should develop adaptation capability and policies that can boost agricultural sustainability to improve the chances for low-income families to be food secured.

INTRODUCTION

In 1992, Rio Earth Summit created a reflection on the need to integrate the development process into the conscious global

planning geared towards more sustainable growth and progressive development in the social, environmental and economic components of every society and the international community (FAO, 2018). Agriculture is widely recognized as one of the long-term solutions for sustainable development. It has been estimated globally that about 88% (500 million) family farms produce more than 80% earth's food on nearly 570 million agricultural lands. Also from statistics gathered, about 380 million farming households in 83 countries (Latin America, Asia and sub-Saharan Africa) farm much less than 5 hectares (Samberg et al., 2016; FAO, 2018 Urama et al., 2014).

Africa as a continent no doubt has had its fair share of benefits since the summit and other economic conferences and was reported to average an annual rate of 5 per cent economic growth (Urama et al., 2014). World economists and investment experts have increasingly forecast that the continent has a place for sustainable growth and development if the present resources are well harnessed. However, Africa has continued to show its non-readiness to harness the vast untapped resources, which have the capacity and potential to transform the developing world. In addition, Africa has been bedevilled with unceasing civil unrest, decades of grand-scale corruption and bad governance, making the continent lose focus on the possibility of fully utilizing nature's endowment; all these combined have plunged the continent further into poverty. Therefore, finding a pathway to ensure economic growth and sustainable development has become expedient to prevent further socioeconomic woes. To this end, in 2000, millennium development goals (MDGs) were established, which was critical for Africa because they captured national contexts and set the pace for policies that would promote and foster development holistically and sustainably (Urama et al., 2014).

In 2015, the United Nations General Assembly came up with a conscious framework to guide policies of various governments (developed and developing countries alike) worldwide with the commitment to push for more sustainable development targets. These targets are seen as Sustainable Development Goals (SDGs), which are expected to end by 2030, with one of its objectives ending hunger and malnutrition (Díaz-Bonilla and Hepburn, 2016). Food insecurity is widely discussed globally, and the United Nations, FAO and other organizations are set about tackling its emergence. The organizations' concerns have painstakingly and resourcefully made a giant stride in their relentless effort to address them. However, in West Africa and particularly Nigeria, significant efforts are invested in ensuring food insecurity does not take its toll on the citizens; poverty, hunger and malnutrition are still very high. At the world food summit in Rome, the understanding of food security was clearly stated, which is the economic and physical accessibility and availability of food that is sufficient, safe and nutritious to all people and at all times to meet dietary needs and sustenance of healthy life (FAO, 1996).

As food insecurity and malnutrition continue to be a significant challenge globally, especially in Africa and the Study, narrowing it down to Nigeria, it has become necessary to look inwards. The rise in the proportion of undernourished families and hunger is alarming and a clear departure from the United Nations (UN) zero hunger and improved nutrition targets offered by both MDGs and now SDGs. Globally, malnutrition accounts for one of the leading contributors to diseases and about 45% of children's death under five years, majorly in sub-Saharan Africa (WHO, 2016).

Statement of the problem

The South-south region of the country is a zone rich in crude oil. Over the past decades and present has been the mainstay of Nigeria's economy and the primary (95%) provider of Nigeria's foreign exchange. Nigeria has the most significant crude oil production in West Africa and is the sixth-largest in the world. However, the discovery of crude oil has turned out to become the worst nightmare in the region; violence and conflict on resource control are recurring decimals mingled with the negative impact of oil exploration on agricultural lands, making farming difficult. Therefore, the region has plunged further into a state of neglect amid plenty, with 56.1% of people barely surviving and living below 2 dollars per day. Extreme poverty and undernourished and malnourished children in the region have become a thing of pity that requires urgent intervention, despite the area's economic importance to the country (Ojo, 2018). According to Ojo (2018), farming communities and their households in this region are poor and vulnerable to economic shocks, and their food choices are constrained mainly. Children and women of child-bearing age are deficient in Vitamin A, Iodine and Iron, which are responsible for high maternal mortality caused by anaemia. Given all of these, this study takes a critical look at the assessment of enablers for food security and improved nutrition in SDGs among low-income households in the South-South region of Nigeria

Objectives of the Study

The overarching objective is the assessment of the SDGs enablers on food security and improved nutrition among low-income households in the South-south region of Nigeria. The specific goals are to:

1. examine the respondents' level of availability to food security and improved nutrition as SDGs enablers;

2. explore respondents' level of accessibility to food security and improved nutrition as SDGs enablers;
3. determine respondents' level of utilization of sustainable practices for food security and improved nutrition as SDGs enablers and;
4. investigate the stability of conditions to food security and improved nutrition as SDGs enablers among the respondents.

Hypothesis

The hypothesis of this research study is:

Ho_1: There is no significant relationship between the stability of condition and level of accessibility to food security and improved nutrition as an enabler of SDGs.

MATERIALS AND METHODS

Area of Study: Bayelsa State have a population of 1,704,515 people with a total land area of 10,773 km^2 and is bounded by Delta and Rivers State. Delta State has an estimated population of 581,054,578 people with a total land area of 16,842 km^2 and lies between 5°30'N and 6°00'E. It is bounded by Edo, Anambra, Imo, Rivers and Bayelsa State.

The population of Study: the target population constitutes low-income household heads, male or female, in the Niger Delta region of Nigeria.

Method of data collection: Data were collected from primary sources obtained through administering a well-structured questionnaire. This was used to elicit information for the Study.

Sampling Procedure and Sampling Size: A multi-stage sampling technique was employed; a simple random sampling was used to select two (2) out of six (6) states from the South-south region.

The states were **Bayelsa and Delta State**, which represent 30% of the area. Secondly, one (1) Agricultural zone each was randomly chosen from each of the States selected, making up two (2) Agricultural zones out of the possible six (6). The Agricultural zones selected were **Bayelsa East** (Bayelsa State) and **Delta Central** (Delta State), representing 33.3% of the Agricultural zones combined. Thirdly, the purposive sampling technique was used to select the Local Government Areas; for Bayelsa East, **Ogbia LGA** was selected, while for Delta Central, **Okpe LGA and Ughelli South LGA** were selected representing approximately 30% LGAs combined. Three LGAs were selected due to low commercial activities/involvement and poor development. Lastly, three (3) rural communities were purposively sampled from each of the selected LGAs due to their low-income status, with fifteen (15) households randomly chosen from each of the selected communities. A respondent (adult male or female household heads) makes a total of 135 respondents.

RESULTS AND DISCUSSION

Socioeconomic Characteristics of Respondents

The distribution of the respondents' characteristics, as revealed in Table 1, indicates that most respondents were below 47years, with a mean age of 39.8 ± 5.09. The majority (41.5%) were between 34 and 46 years, while respondents between 47 and 60 years were 36.3%. This implies the households in the South-south region of Nigeria are still within the productive years of their lives. Hence, the propensity to have their households' food secured through various remote occupations is high. This agrees with Akinbile (2007) findings that the active workforce of the remote population is between 21 and 40 years old. This age distribution further reveals the life expectancy of an average Nigerian, pegged at 54 years by the Association of General and Private Medical Practitioners of Nigeria (AGMPN), due to bad

economic conditions and lack of nutritional needs, as reported by ISLAND (2016).

Furthermore, the data shows that the majority (61.5%) of the household heads were female, while the male gender was 38.5%. This implies that the females bear the household's responsibility when the males are out for other livelihood activities to secure their families financially. It further suggests that women may quickly become a prime mover of community-led development, as agreed by Coonrod (2016). In addition, 66.7% of the household heads were married, leading to the fact that most respondents have more than themselves to feed and also supported by the household size with a minimum of 2 persons. The mean household size is 5±0.81. This implies that the larger the size of an average low-income household, the more beneficial it becomes. This is because they could be used as a labour force in their farming activities as the majority (52.6%) are farmers or hired labourers to support the family (FAO, 2011). The respondents' occupation suggests that low-income households engage in subsistence farming to augment what is earned from other sources of livelihood as they could barely survive with it. This is in line with World Bank (2007) that engaging in subsistence agriculture is twice as effective in poverty reduction.

Table 1 further revealed the respondents' educational status and discovered that about 94.1% were literate. The majority (43.0%) had secondary education; next to it was primary education with 31.1%, while those with post-secondary education were 8.9%. This suggests that household heads in the South-south region of Nigeria value education and could understand in simplest terms what it means to be food secured or appropriate nutritional needs in the family. According to Ruel et al. (2013), empowerment and education are vital to achieving better health outcomes within

local households. Furthermore, respondents' annual income reveals that more than half (51.9%) had less than ₦70,000 per annum, which is less than $12 per month. Hence, this implies that the majority of the respondents live less than $1 per day and are extremely poor, as it lends credence to the World Bank (2016) report that sub-Saharan houses a more significant percentage of the world's extreme poor.

Table 1: Distribution of Respondents According to Their Personal Characteristics

Socioeconomic characteristics	Freq. (n=135)	Per cent (%)
Age		
<34	30	22.2
34-46	56	41.5
47-60	49	36.3
Minimum age = 22 years; Maximum = 60 years; Mean age = 39.8 years; SD = 5.09		
Gender		
Male	52	38.5
Female	83	61.5
Marital Status		
Married	90	66.7
Divorced	9	6.7
Widowed	15	11.0
Single	21	15.6
Education		
No education	8	5.9
Adult education	15	11.1
Pry education	42	31.1
Sec. education	58	43.0
Post-sec. education	12	8.9
Main occupation		
Farming	71	52.6
Trader	36	26.7
Teacher	15	11.1
Tailor	13	9.6

Annual income		
< ₦70,000	70	51.9
₦70,000-100,000	35	25.9
₦100,001-130,000	19	14.1
>₦130,000	11	8.1
Household size		
<4	41	30.4
4-7	74	54.8
8-12	20	14.8
Minimum = 2; Maximum = 12; Mean = 5; SD = 0.81		

Source: (Field survey, 2021)

Respondents' level of availability to food security and improved nutrition

From Table 2, it is revealed that about half (49.9%) of the respondents have a high level of availability to quality food using the benchmark mean of 2.0. This implies that there is awareness of the availability of quality food from agricultural productivity within the region. However, the productivity is insufficient to drive down the prices of agricultural produce to make it accessible to low-income households because of unsustainable farming practices in the South-south region of Nigeria. This agrees with Jayne, Chamberlin and Headey (2014), which claim agricultural productivity can be constrained and become insufficient with unsustainable farming practices. To support this claim, respondents scored 'Reliable and consistent source of quality food' and 'Efficient food/ farm produce storage facility 60.7% low availability level each. This could be partly due to the environmental and soil conditions of the region, such as soil degradation, oil spillage, and water pollution. Hence, prices of agricultural produce are increased beyond the reach of low-income households. As revealed by Bayode and Adewunmi (2011), the environmental implications of oil exploration and exploitation of farmlands cause a spike in market prices of agricultural items.

Table 2: Respondents' level of availability to food security and improved nutrition

ITEMS	High(%)	Moderate(%)	Low(%)	mean
Improving and regular rates of breastfeeding	28(20.7)	80(59.3)	27(20.0)	2.01
Proper food/ farm produce distribution system	0	80(59.3)	55(40.7)	1.59
Modern preservation to reduce postharvest losses of perishable crops	28(20.7)	53(39.3)	54(40.0)	1.81
A reliable and consistent source of quality food	27(20.0)	26(19.3)	82(60.7)	1.59
The proper packaging system of farm products to increase shelf life	54(40.0)	26(19.3)	55(40.7)	2.00
Efficient food/ farm produce storage facility	26(19.3)	27(20.0)	82(60.7)	1.58
Sufficient resources to produce and/or purchase quality food	0	109(80.7)	26(19.3)	1.80
Greater market access to smallholder family farmers	55(40.7)	53(39.3)	27(20.0)	2.21
Fresh fruits and vegetables are available in the markets	53(39.3)	54(40.0)	28(20.7)	2.19

Source: (Field survey, 2021)

Respondents' Level of Accessibility to Food Security and Improved Nutrition

Table 3 shows that the level of accessibility to food security and improved nutrition among the respondents is low. Respondents have 27.5% accessibility to quality food and enhanced nutritional needs with a benchmark mean of 2.0. This implies that the region is yet to experience an all-inclusive sustainable agriculture-led economic growth that gives low-income households access to quality food and improved nutritional needs at an affordable price, as most of their earnings are on food purchases. This agrees with the statement of Diehl (2019) that sustainable agricultural growth lowers food prices, which could lead to better access to adequate food nutrition by low-income households all year round. For example, 40.7% responded to high accessibility

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to low transport costs and improved rural access to increase agricultural production, while 0% chose high accessibility to nutritious and diversified diets for children & women and sufficient resources to produce and purchase quality food. This suggests that the affordability of food prices due to robust agricultural growth could give low-income households access to quality food and improved nutrition; as claimed by Pretty et al. (2018), a functioning agricultural system brings about job creation in rural communities, leading to a better standard of living.

Table 3: Respondents' level of accessibility to food security and improved nutrition

ITEMS	High(%)	Moderate(%)	Low(%)	mean
Access to improved market and food commodity	28(20.7)	53(39.3)	54(40.0)	1.81
Access to safety nets for those who cannot afford basic services	28(20.7)	27(20.0)	80(59.3)	1.62
Access to quality food with low purchasing power	28(20.7)	0	107(79.3)	1.42
Access to multiple interventions to improve purchasing power	28(20.7)	53(39.3)	54(40.0)	1.81
Access to nutritious and diversified diets to children & women	0	80(59.3)	55(40.7)	1.59
Low transport costs and improved rural access to increase agricultural production	55(40.7)	53(39.3)	27(20.0)	2.21
Sufficient resources to produce and/or purchase quality food	0	80(59.3)	55(40.7)	1.59
access to food market	28(20.7)	107(79.3)	0	2.20
increased access to fruits and vegetables	27(20.0)	53(39.3)	55(40.7)	1.79

Source: (Field survey, 2021)

Respondents' level of utilization of food security and improved nutrition

Table 4 reveals that the level of utilization of sustainable practices on food security and improved nutrition among the

respondents is low (36.9%) using the benchmark mean of 2.0. This implies that low-income households cannot utilize the sustainable practices proposed by SDGs on food security and improved nutrition due to low accessibility resulting from the high cost of agricultural produce, as revealed in Table 3 and the lack of adequate information from extension workers. For example, education and affordable price are necessary for improved utilization of 'Developing new food value chains and value addition' and 'knowledge and basic sanitary conditions in good' as these practices scored very low in the utilization level with 80.7% and 60.0% respectively. Education and adequate information promote more sustainable practices, especially in farming methods and nutrition understanding. This claim agrees with Bukchin and Kerret (2018) that education plays a crucial role in motivating people to adopt sustainable farming practices and understanding the need for a balanced diet daily to reduce the risk of certain diseases.

Table 4: Respondents' level of utilization to food security and improved nutrition

Items	High(%)	Moderate(%)	Low(%)	mean
Education for adequate health care, maternal and child nutrition	21(15.6)	61(45.2)	53(39.3)	1.76
Having better consumption habits and adequate balanced diet	27(20.0)	53(39.3)	55(40.7)	1.79
Sound dietary practices among farm families and households	28(20.7)	53(39.3)	54(40.0)	1.81
knowledge and basic sanitary conditions in food items	0	54(40.0)	81(60.0)	1.40
Sensitization of resilient agricultural practices for high productivity and quality produce	82(60.7)	53(39.3)	0	2.61
Developing new food value chains and value addition	26(19.3)	0	109(80.7)	1.39

Source: (Field survey, 2021)

Promoting sustainable agricultural practices	81(60.0)	54(40.0)	0	2.40
Improving rates of breastfeeding awareness and education	53(39.3)	0	82(60.7)	1.79
Relatively reduction in high cost of fruits and vegetables	81(60.0)	27(20.0)	27(20.0)	2.40

Respondents' sustainability of condition to food security and improved nutrition

Table 5, using a benchmark mean of 2.0 reveals that the respondents have a deficient level of sustainability (28.3%) in utilizing the sustainable practices to achieve food security and improved nutrition. This implies that the region lacks sustainable development to enhance sustainable agricultural practices that could promote resilience in the stability of food security and improved nutrition. Hence, it agrees with Santhanam-Martin, Ayre and Nettle (2015) that a sustainable community is fundamental in boosting the local economy and increasing the incomes of households due to jobs provided. It also would improve the sustainability level of local families against the high-cost-driven agricultural produce to enhance food security and improve nutrition. This agricultural framework could take care of these sustainability measures: 'Market availability and development with essential services', 'Enhancement of soil health and restore waste land' and 'Participation in food systems and agricultural value chains'; the respondents scored low (61.5%, 60.7% and 54.1%, respectively).

Table 5: Respondents' sustainability of condition to food security and improved nutrition

ITEMS	High(%)	Moderate(%)	Low(%)	mean
Participation in food systems and agricultural value chains	19(14.1)	43(31.9)	73(54.1)	1.60

Doubling productivity and incomes of small-scale food producers	27(20.0)	53(39.3)	55(40.7)	1.79
Enhancement of soil health and restore wasteland	27(20.0)	26(19.3)	82(60.7)	1.59
Building capacity to improve production and postharvest practices	28(20.7)	80(59.3)	27(20.0)	2.01
Access to health care and nutrition education	27(20.0)	53(39.3)	55(40.7)	1.79
Access to land, finance, technology, markets, information by producers, especially women	27(20.0)	55(40.7)	53(39.3)	1.81
Improvement in transport services and market intermediaries	53(39.3)	53(39.3)	53(39.3)	1.59
Market availability and development with essential services	26(19.3)	26(19.3)	83(61.5)	1.57
Regular consumption of fruits and vegetables	82(60.7)	53(39.3)	0	2.61

Source: (Field survey, 2021)

Test of hypothesis

Hypothesis 1: There is no significant relationship between the stability of condition and level of accessibility to food security and improved nutrition as enablers of SDGs. Table 6 showed that the null hypothesis is rejected ($r = 0.539$; $r<0.05$). This implies that the respondents' accessibility level influences their stability of condition to food security and improved nutrition in the region. This was noticed as the respondents' low accessibility level (see Table 2) may have caused the low sustainability level (28.3%) to ensure food security and improved nutrition. It could be inferred that, high accessibility level to improved market and food commodity, quality food with low purchasing power, multiple interventions to improve purchasing power, nutritious and diversified diets to children & women, increased access to fruits and vegetables and creating attractive farming livelihood as reported in Santhanam-Martin, Ayre and Nettle (2015) would

help to improve the stability of conditions of low-income households.

Table 6: Correlation between respondents' level of accessibility and stability of condition

Variables	r- value	p-value	Decision
Stability of condition and Level of accessibility	0.539	0.028	Significant

Source: (Field survey, 2021)

CONCLUSION

Achieving food security and improved nutrition, enablers such as access to food, availability, food utilization, and stability of conditions are fundamental to its success. However, based on the findings, the South-south region of Nigeria has fallen short of the core enablers that can promote food security and improve nutrition among the poor and vulnerable. This results from the ineffective agricultural system at all levels, a lack of rural sustainability to withstand the shocks of perishable farm produce, price inconsistency, and climate change, among others. These findings further reaffirm the importance of agriculture and sustainable farming practices in achieving #SDG2 (end hunger, achieve food security and improved nutrition and promote sustainable agriculture) among vulnerable and low-income households. In conclusion, sustainable development in the agricultural sector is key to achieving food security and improved nutrition.

RECOMMENDATIONS

This Study has the following recommendations;

- Using Policy Coherence for Sustainable Development as a tool, the Federal government should identify mismatched domestic policies on rural development and align with the SDGs objectives on food security and nutrition, as this can help the government at all levels to key into internationally agreed goals.
- The state government should develop an adapt capability that can boost agricultural and community sustainability and create employment to improve the income of low earners to withstand shocks like extreme price swings and trade interruptions.
- Policymakers need to improve education in vulnerable communities and invest in primary healthcare as it helps ensure quality use of food, thereby ensuring food security.

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