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THE ATTAINMENT OF THE UNITED NATION SUSTAINABLE DEVELOPMENT GOAL (SDG) NUMBER TWO: ASSESSMENT OF SOME INDICATORS IN NIGERIA

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Abstract

The study examined the journey so far towards achieving the United Nation Sustainable Development Goal (SDG) number 2 ("zero hunger) from the year 2001 to 2022 in Nigeria. Data was gathered from official sources such as the Central Bank of Nigeria (CBN), FAO, and the World Bank, and then analyzed using descriptive tools.The findings revealed that a significant population of Nigerians are still undernourished, representing over 15.00% of the country's population.The fertilizer use rate and water use efficiency in agriculture were found to be very low relative to the other countries in Africa. The finding further showed that agricultural land marginally increase on yearly basis without corresponding increase in factor productivity. In addition, less than 60.00% of the country's population have access to electricity, while 25.46% of the country's rural population has access to electricity in 2022. The agricultural orientation index in Nigeria was low compared to some African countries. The findings revealed that on average Nigeria is rather too slow or better is off track towards achieving the SDG of 'Zero Hunger' by 2030. The country's current efforts, strategies and the general progress towards SDG number 2 are grossly insufficient. The nation must approach the SDG number 2 as a team player collaborating the domestic agenda with the regional and global plans to effectively unlock the potential needed to attain the mandate of 'Zero hunger' in 2030.

Key words**:** *sustainable development goal, undernourished, fertilizer use, Nigeria*

INTRODUCTION

The United Nation Sustainable development Goals (SDGs) was birthed in 2012 at the Rio de Janeiro, Brazil [26], [22]. The major aim of the SDGs was to establish a common global driven mandates to urgently address the basic problems of humanity in areas such as: hunger, poverty, malnutrition, environmental, political, and economic challenges among others. The United Nation (UN) created a 17 SDGs to replace the eight Millennium Development Goals (MDGs) [18]. The adoption of the UN SDGs ushered in, a new era that focused on global collaboration to tackle critical humanity problems. Hence, the SDGs demonstrated an improvement from the MDGs, and emphasized on a larger scope and required a coordinated, monitored and sustainable global actions.

Many African countries have make concerted efforts to achieve the objectives of the SDGs. [18]. The Sub-Saharan African countries still rampage by increasing hunger, malnutrition, starvation, poverty and conflicts in recent years have struggled to achieve the objectives of SDGs especially the number two which focuses on hunger reduction or "zero hunger" [20], [17]. The sub region has enunciated policies, built institutions and implement programmes as well as engaged in regional and international collaborations to strengthen the domestic production of food on both short and long term basis [18]. The attainment of zero hunger is critical in the region given the worrisome statistics on poverty and malnutrition among vulnerable groups in the region. The African continent has a higher proportion of its population facing hunger and poverty compared to other regions of the World [2]. With less than 6 years left until 2030, some countries in Sub-Saharan Africa have made progress towards achieving 'zero hunger' despite the menace of COVID-19 pandemic, conflicts, climate change and political instability [15]. The region needs to

strengthen its agricultural research and build a sustainable and climate-resilient food and agricultural practice system. According to SDG report of 2023, the number of people facing hunger and food insecurity has been rising since 2015, with the pandemic, conflict, climate change and growing inequalities exacerbating the situation in the region.

Nigeria is one of the countries in the Sub Saharan Africa. It is the most populous and one of the largest economies in Africa. Following the Global Nutrition Report [23], the country has the second largest population of "stunted" and "wasted" children in the world preferably translated to about 13.90 million and 3.40 million children respectively. According to the SDGs Report [30], the nation was ranked 160 out of the 165 countries with prevailing potentials towards achieving the SDGs in 2030. The report asserted that the country is bewildered with significant challenges concerning the attainment of SDG 2 targets, with insignificant improvement made in reducing the prevalence of stunting and wasting among children under 5 years. Following the UN report archived in the "Our World of Data"[27] and FAO, [21], the share of population with moderate or severe food insecurity in Nigeria stood at 58.50% in 2020. In the same year, it was 19.00% for South Africa, while the figure stood at 36.60% for Ghana. In 2021, the proportion of children under 5 years who were stunted was 31.50%, which was higher than South Africa's 21.40% and Ghana's 17.50%. The report further revealed that the share of children who are wasted (less than 5 years) was 6.50% in Nigeria compared to 3.40% in South Africa. The report also showed that, in Nigeria, the percentage of wasted children (those under five years old) was 6.50%, while in South Africa, it was 3.40 percent and6.8% in Ghana in 2021. The average value of agricultural output produced by the small-scale food farmers/producers in Nigeria was estimated at $6.35/year, compared to $18.44/year in Mali, and $11.06/year in Benin Republic in 2021. The report also revealed an average income for small scale farmers of $444.92, $557.58 and $914.88 in Nigeria, South Africa and Ghana respectively. Further analysis revealed an estimated 0.23; 0.16 and 0.08 agriculture orientation index for government expenditures in Nigeria, Ghana and Mali respectively. In 2021, about $257.22m, $30.38m, $183.24m worth of total official inflows including development assistance to the agricultural sector in Nigeria, South Africa and Ghana respectively. The indicator of food price anomalies (IFPA) stood at 0.62, 0.82, and 2.04 for Nigeria, Ghana and Zambia respectively.

The brief literature provided revealed that, Nigeria is really struggling to achieve the UN SDG number 2 in many target areas. For instance, the country is a major importer of rice and wheat in the World including some livestock commodities[28], [24]. This is a strong indication that the agricultural sector is not a preferred sector relative to other economy sectors in the country. Also, many researchers in the country have reported poor farm factor productivity and low farm returns among rural farmers [29], [3], [12], [13], while the average per capita meat consumption is insufficient and is far lower than some African countries and the standard recommended by the World Health Organization (WHO)[4], [9], [8]. Literature also abounds on the high level of poverty among farmers, frequent conflicts between farmers and herders, seasonal flooding, increasing desertification in the northern region of the country, and increasing rural-urban migration among others [12], [6], [25], [1], [16]. This implies that the country still needs to scale up all aspects of development in the agricultural sector in order to holistically achieve the SDG number 2. With a huge population of over 200 million, the country is seriously challenged in areas such as food security, adequate nutrition and rural infrastructures provision among others [10], [11], [7]. It is thought that the country has made some progress in accomplishing SDG 2 in certain target areas compared to other African countries, there is still a need to critically examine other parameters or indicators to further expose the position of the country in tackling SDG number 2. Since achieving a "zero hunger" in the country requires a broad based approach, it therefore

means that additional parameters would be appropriate to further explore the country's developmental efforts in achieving UN SDG number 2 in different target areas. Premised on this assertion, the study was designed to first substantiate some of the SDG number 2 reports on Nigeria and secondly, provide additional parameters/indicators and information on the country's effort towards achieving the SDG number 2 and its targeted areas so far.

MATERIALS AND METHODS

The study used time series information and applied descriptive tools to analyze the objectives of the study. Data were obtained from official sources including the Food and Agricultural Organization (FAO), World Bank and Central Bank of Nigeria. The data frame covered the period from 2001 to 2022.

Definition of Variables

The variables used in the analysis are defined in Table 1. The variable were categorized based on the target areas of SDGs number 2. Indices such as the mean, maximum, minimum, coefficient of variability, standard error and exponential growth rate of these variables were calculated for easy comparison and discussion.

Table 1. Sustainable Development Goal 2 ('Zero Hunger') – targets and indicators for Nigeria

Assessment variables	**unit**	**SDG 2 target**
Prevalence of undernourishment in Nigeria	Percentage of the population	Access to safe and balance diet in the country
Number of undernourished people in Nigeria	Number (million)	
Fertilizer use rate in Nigeria	(kg/ha)	Increase the productivity and incomes of small-scale famers
Water use efficiency in Agriculture in Nigeria	Naira/m^3	
Agricultural land availability in Nigeria	Percentage of the total land area	Sustainable food production and resilient agricultural practices
Agricultural share of central government total expenditure in Nigeria	Percentage	Rural infrastructure development
Access to electricity in the population	Percentage of population	
Access to electricity in the rural areas	Percentage of rural population	
Agriculture value added share of the country's GDP	Percentage	
Agricultural Orientation Index in Nigeria	No unit	

Source: prepared by the authors.

The exponential growth rate of variables

The explicit form of an exponential trend equation for a given variable is represented in equation 1:

$$lnY_t = \delta_0 + \delta_1 t + \varepsilon_t \dots\dots\dots\dots\dots\dots\dots (1)$$

The "Y" represent all the variables specified in Table 1. Therefore, the exponential growth rate is expressed in equation 2 ([14], [5]):

Exponential growth rate) =

$$\left(e^{\delta_1} - 1\right) * 100 \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots (2)$$

Definition of Variables

(a)Agriculture Share of Government Expenditures (AEG)

This variable measures the federal government sum of expenditures in agricultural sector relative to the total expenditure in the economy in period t. The higher the percentage or the closer the percentage to 100, the better the federal government expenditure on agricultural sector. Mathematically, it is expressed as thus:

$$\text{AEG} = \sum_{i=1}^{n} \frac{Govt\ expend.on\ agric.sector}{total\ govt\ expenditure} * 100 \dots\dots\dots\dots\dots\dots\dots\dots (3)$$

(b)Agriculture value added share of GDP (AVS)

The variable measures the sum of agricultural sector's value addition as a percentage of the economy's gross domestic product in period t.

The higher the percentage or the closer the percentage to 100, the better the agricultural sector's value addition. The mathematical form is shown in equation 4.

$$\text{AVS} = \sum_{i=1}^{n} \frac{\text{Agric. value added}}{\text{GDP}} * 100 \ldots\ldots (4)$$

(c)Agriculture Orientation Index (AOX)

The Agricultural Orientation Index (AOX) is the ratio of the agriculture share of Government Expenditure (AEG) and the Agriculture value added share of GDP (AVS). Note Agriculture refers to the agricultural sector consisting of livestock sub-sector, forestry sub-sector, fishery and wild life sub sectors.

$$AOX = \sum_{i=1}^{n} \frac{(\text{AEG})}{(\text{AVS})} \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (5)$$

An Agriculture Orientation Index (AOX) greater than unity shows a higher orientation towards the agriculture sector expenditure by government compared to the sector's monetary worth of its value-added. When the AOX is lower than one, it implies a lower index, while an AOX equal to one indicates neutrality or indifference in government's orientation to the agriculture sector expenditure.

RESULTS AND DISCUSSIONS

The descriptive tests of variables are shown in Table 2. The results present the minimum value, maximum value, standard deviation, coefficient of variability and annual exponential growth rate of the specified variables.

Table 2. Descriptive test of variables

Indicators	Min.	Max.	Mean	Std. dev.	CV (%)	Exp. G %
Number of undernourished people (million)	9.500	34.000	16.850	7.399	0.439	5.93
Prevalence of undernourishment (%)	6.400	15.900	9.621	2.636	0.274	3.20
Fertilizer use rate (kg/ha)	4.300	20.300	10.395	5.702	0.549	7.30
Access to electricity (% of population)	43.900	59.500	52.230	4.641	0.089	1.22
Agricultural land (% of the total land area)	72.101	75.369	73.796	1.045	0.014	0.22
Water Use Efficiency (Agriculture) USD/M^3	0.080	0.250	0.184	0.042	0.225	3.59
Access to electricity, rural (% of rural population)	21.804	33.970	26.237	3.596	0.137	0.61
Agric. share of Government Expenditure %	1.290	5.290	3.0398	1.197	0.394	-2.59
Agriculture value added share of GDP %	19.990	36.970	24.344	4.168	0.171	-1.55
Agriculture orientation index	0.040	0.210	0.126	0.044	0.349	-1.08

Source: computed by authors. Exp. G is exponential growth rate (%).

(i) Undernourished population (million)

According to statistics, Nigeria has a maximum of 34 million of undernourished people, with a minimum of 9.50 million from 2001 to 2022. Specifically, the sum total of undernourished Nigerian in 2021 was about 34 million. Within the period of study, the statistics showed an average undernourished population of about 16.90 million, with the coefficient of variability of 43.90%. This means that, the number of undernourished people in Nigeria experienced a variation of about 43.90% annually.The result indicates that the total undernourished people in Nigeria varies significantly on yearly basis. The result also showed an exponential growth rate of 5.93%, implying that the variable grew positively with increase in time. Otherwise, the variable grew at the rate of 5.93% per year.

The graph represented in Figure 1 shows the trend in the yearly total of undernourished population in Nigeria from the 2001 to 2022. The graph portrayed a steady growth rate in the population of undernourished in Nigeria.

The findings indicate that, the country is not doing enough to tackle the problem of undernourished among vulnerable groups and UN SDG on global access to safe and nutritious food might not be achieved in Nigeria in 2030. This result is substantiated by the UN-SDGs [30] reports on Nigeria.

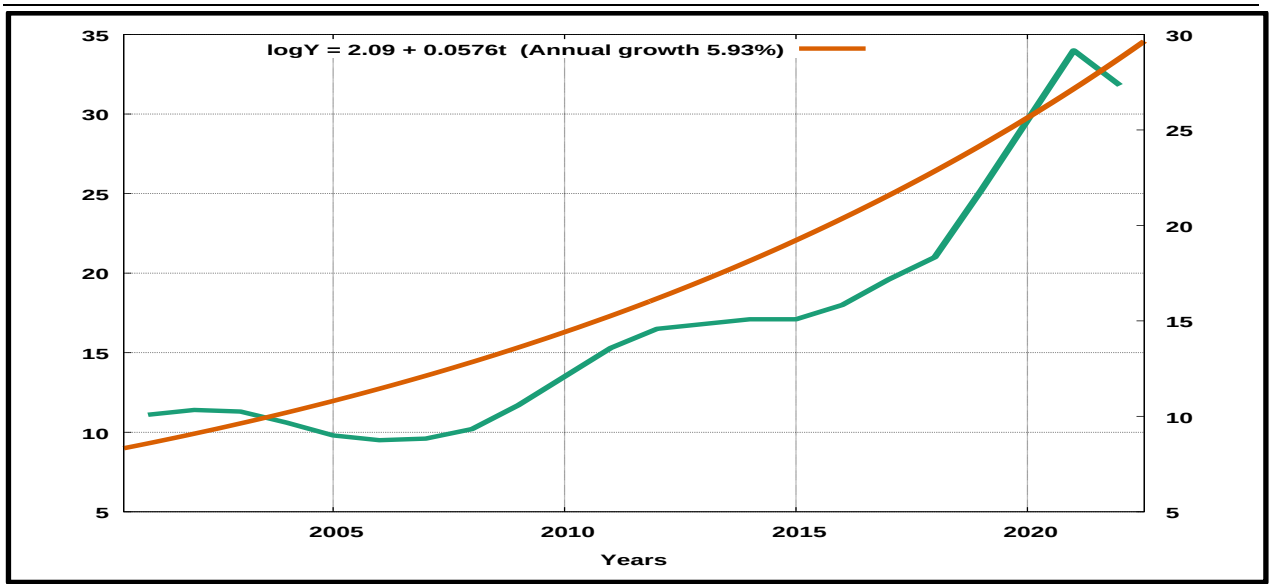

Fig.1. Trend in number of undernourished people in Nigeria (2001 - 2022)
Source: from data analysis, 2024.

(ii)Prevalence of undernourishment (%)

The percentage prevalence of undernourished population revealed an average percentage distribution of 9.62 with the coefficient of variability of 27.40% from the year 2001 to 2022. The country experienced the minimum percentage prevalence of undernourished population of 6.40 and maximum of 15.90 within the time frame of the study.

The result suggests that the percentage prevalence of undernourished population in Nigeria varies at 27.40% per year (Fig. 2).

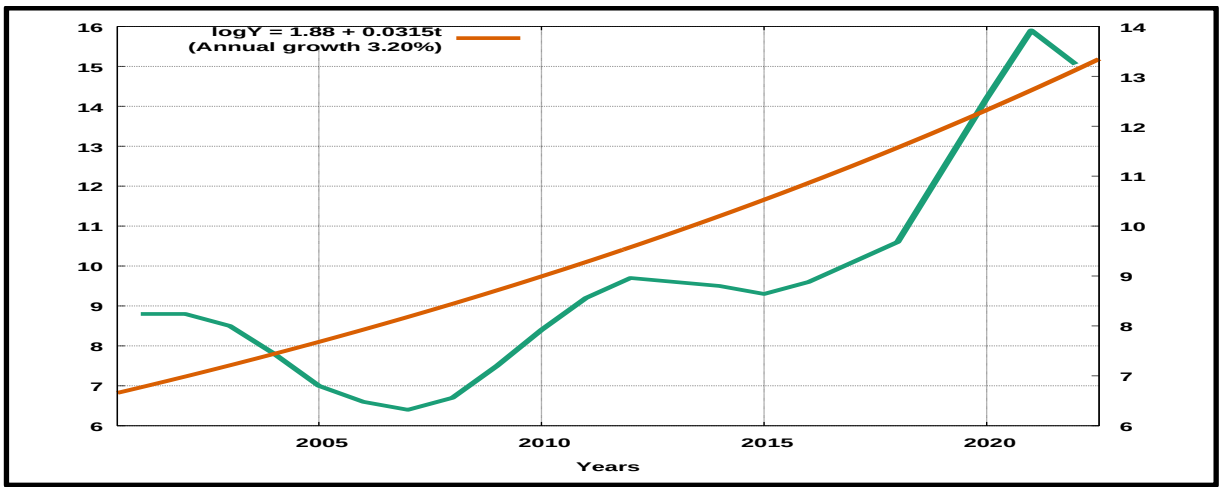

Fig. 2. Trend in the prevalence of undernourishment in Nigeria (2001 - 2022).
Source: from data analysis, 2024.

In 2022, the percentage of undernourished Nigerian was 15.08%. The finding also revealed a compound growth rate of 3.20% in the percentage prevalence of undernourished population. This revealed that the variable grew positively as time increases.

The percentage prevalence of undernourished populations in Nigeria is depicted pictorially in Figure 2.The graph which starts from 2001 to 2022 shows distinct troughs and peaks with an average progressive or positive growth within the time of study. The results depicts the fact that the undernourished population is mounting despite attempts by the country to meet the SDGs target. By implication, the country is not doing enough to tackle the problems of undernourished population and the universal access to safe and nutritious food among vulnerable groups. This result is

substantiated by the UN-SDGs[30] reports on Nigeria.

(iii)Fertilizer use rate (kg/ha)

The statistics for fertilizer use rate showed that the minimum use rate in recent time was 4.30kg/ha while the maximum use rate stood at 20.30kg/ha within the period of the study. The analysis showed an average use rate of 10.39kg/ha, with the coefficient of variability of 54.90% within the study period. In 2022, the annual fertilizer use rate in the country stood at 18.60kg/ha. The finding suggests that fertilizer use rate varies significantly on yearly basis in Nigeria. Moreover, the finding revealed a compound growth rate of 7.30%. This means that the fertilizer use rate has seen a significant positive growth rate in recent time in the country.

The Figure 3 shows the trend in the fertilizer use rate in Nigeria from the year 2001 to 2022.

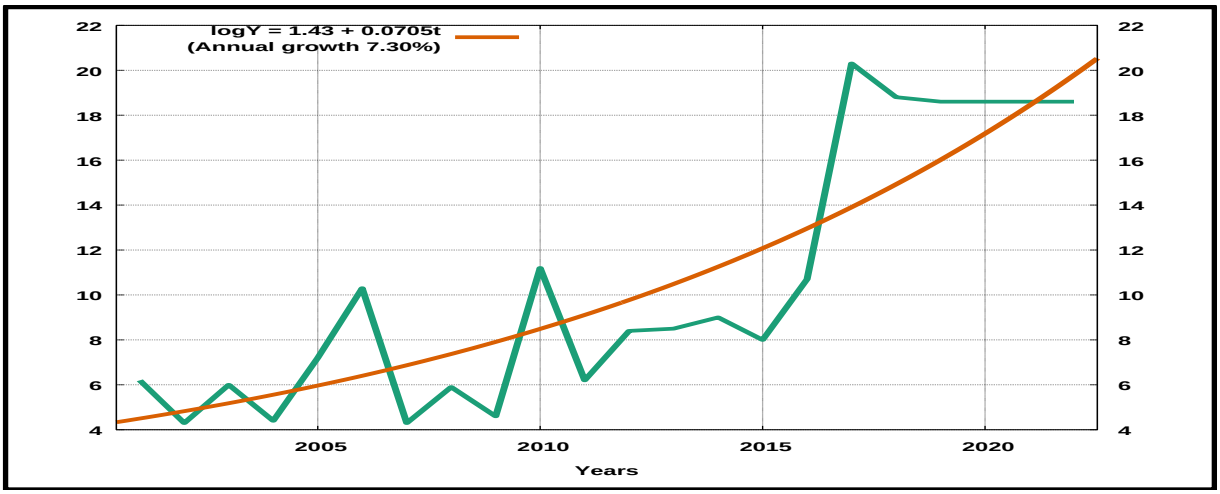

Fig. 3. Trend in Fertilizer use rate in Nigeria (2001 – 2022).
Source: from data analysis, 2024.

The graph revealed a rippled trend in fertilizer use rate across the study period. However, the trend on average indicates a steady rise in fertilizer use rate in the country. The use of fertilizer is very critical in attainment of the increase productivity and sustainable income of small-scale farmers who are mostly resource poor.

Contrary to the recent improvement in fertilizer use in the country, the country's average annual fertilizer use is still far behind some countries in Africa. For instance in 2021, Egypt, South Africa, Zambia and Mali used fertilizer at the rate of, 414.16kg/ha, 91.04kg/ha, 63.25kg/ha and 28.12kg/ha respectively compared to 18.60kg/ha in Nigeria. The use of fertilizers in Africa averaged at around 25.6kg/ha of cropland area, a very low figure compared to the world average of about 118.6kg/ha that same year. The findings implies that, the country is making positive improvement in fertilizer use rate, but the improvement is not sufficient to trigger double productivity and sustainable income for resource–poor farmers in the country. Based on this finding, it is obvious that the SDG target of increasing the productivity and incomes of small-scale farmers in the country in 2030 is seriously jeopardized.

(iv)Access to electricity (% of population)

The percentage of Nigeria's population that have accessed to electricity averaged at 52.23% from the year 2001 to 2022, with the coefficient of variability of 8.90%. In 2022, about 57.45% of the country's population had access to electricity. The country experienced only 1.22% growth in electricity consumption from 2001 to 2022. Though the country's witnessed a positive growth in electricity consumption within the period of this study, however with the population of over 200 million, the level of consumption was grossly inadequate. From this finding it is so clear that the country has a serious issue in electricity consumption which is very critical in attaining

SDG target of doubling productivity and income of farmers. Electricity is an important resource in agro-processing. Its sufficiency and availability would help to reduce the cost of farm production and encourage farmers to use modern technologies in processing.

Figure 4shows the trend in electricity access among Nigerians from the year 2001 to 2022.

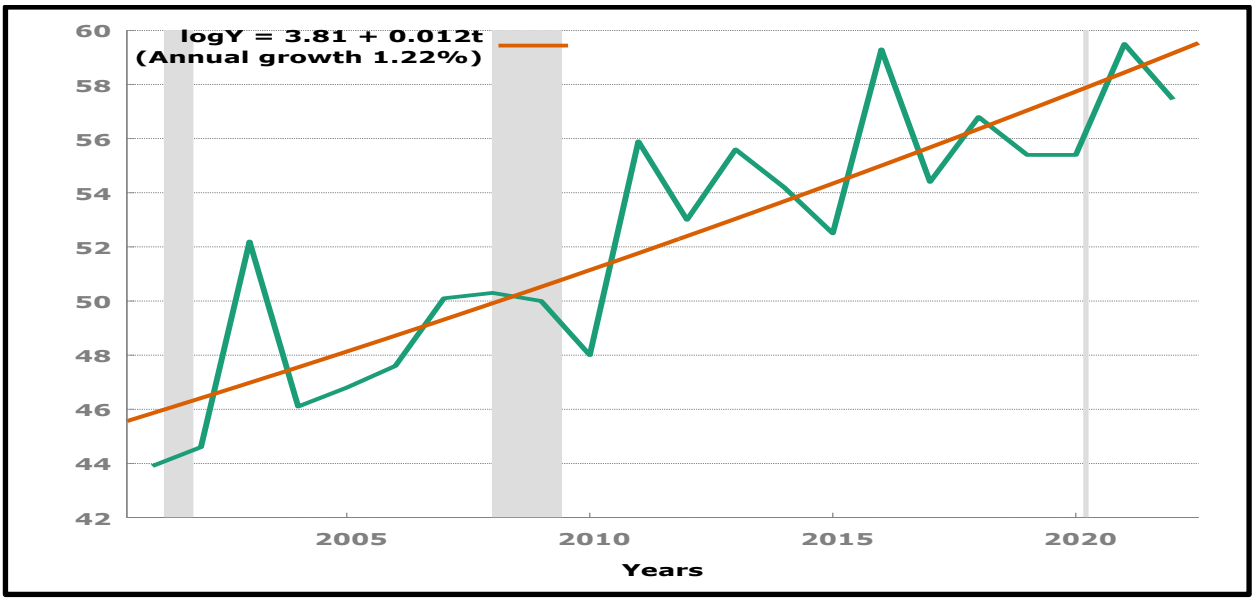

Fig. 4. Trend in the percentage of population that have access to electricity in Nigeria (2001 - 2022).
Source: generated from analysis, 2024.

The graph revealed a progressive increase in the percentage of population that have access to electricity in Nigeria. The findings indicate that, though the country is making progress in electricity consumption, but is far from achieving the UN SDG on sustainable infrastructural development and enhancing agricultural sector's productivity in 2030. The observations noticed in the analysis aligned with the report of the SDGs [30] on Nigeria.

(v)Agricultural land (% of the total land area)

The distribution of the annual share of agricultural land in the total land area revealed an average agricultural land area of about 73.80% of the total land from the year 2001 to 2022. Judging from the duration of the study, the ountry has experienced gradual expansion of agricultural land which grew at the exponential rate of 2.20% per annum. In 2021, the percentage of agricultural land use stood at 75.29% of the total land mass in the country. The result shows a coefficient of variability of 1.40%. This suggests that agricultural land is expanding slowing.

By implication, the forest land and other land reserves are degrading annually probably creating potentials for other problems like climate change issues, erosion and desertification among others.

The pictorial trend in agricultural land area is presented in Figure 5.

The graph revealed a steady progressive trend from the year 2001 to 2022 in Nigeria. Given a huge population of Nigeria (above 200 million), the continuous rise in the agricultural land area is not a good indication, but rather remind the nation that farm–factor productivity is inadequate. The country should rather opt for land saving technologies and adopt actions that will promote farm-factor productivity in the country. Hence given the current agricultural land use method, it is pertinent that, the attainment of a sustainable food production and resilient agricultural practices in the country might not be achieved in 2030 as enshrined in the SDG number 2, unless proactive actions are urgently taken.

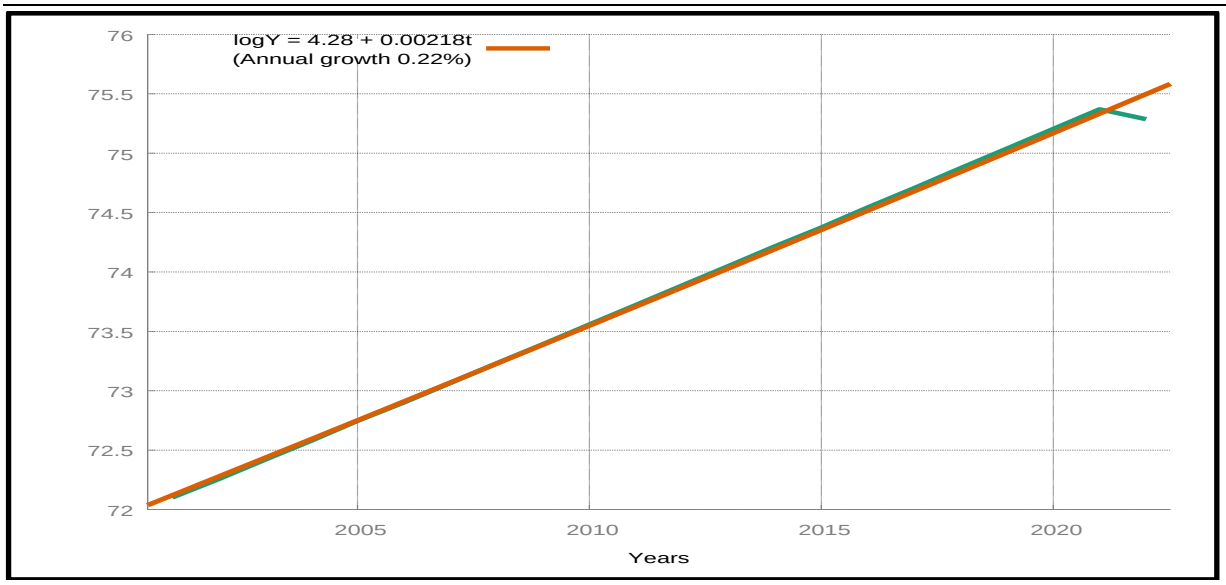

Fig. 5. Trend in Agricultural land availability in Nigeria (2001 - 2022)
Source: from data analysis, 2024.

(vi)Water Use Efficiency (Agriculture) Naira/M^3

Water use efficiency measures the total accumulated biomass per unit used of water. According to Cui et al., [19], improved water use efficiency of crops would result in a higher yield. From 2001 to 2022, the country's average water use efficiency was 0.184 USD/m^3 and coefficient of variability of 22.50%. In 2020, Nigeria average water use efficiency was 0.23USD/m^3 compared to 0.75 USD/m^3 in Egypt and 0.18USD/m^3 in Ethiopia. However, within the period of this study, the water use efficiency grew at the rate 3.95%, implying that the country is making progress in enhancing water use efficiency in agriculture relative to other African countries. The trend in agricultural water use efficiency is shown in Figure 6.

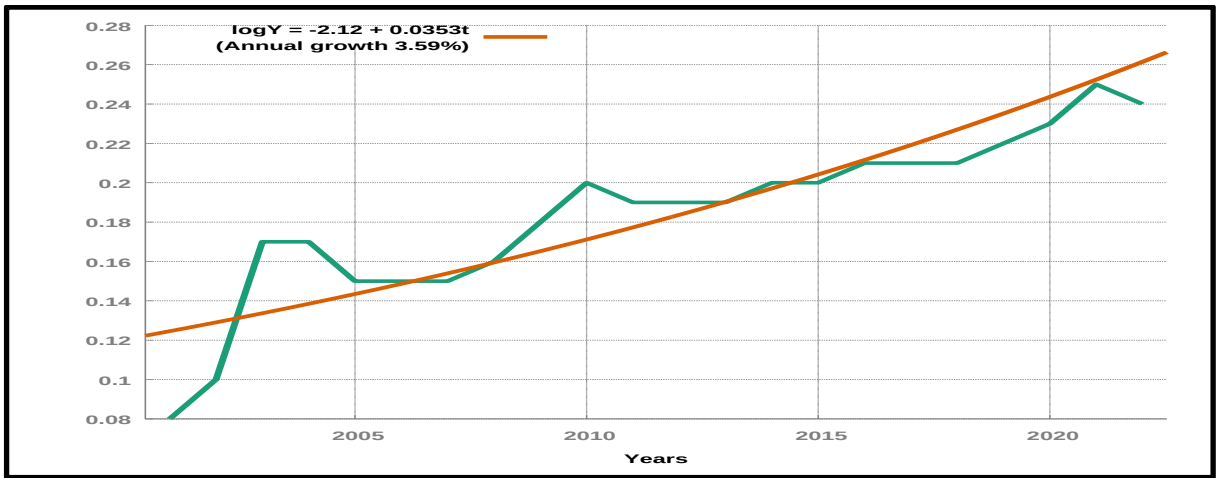

Fig. 6. Trend in water use efficiency (Agriculture) in Nigeria (2001 - 2022).
Source: from data analysis, 2024.

The graph showed evidence of positive growth in water use efficiency in agriculture from the year 2001 to 2022 in Nigeria. Since there is a positive relationship between total biomass and water use efficiency, the current level of water use efficiency in agriculture in the country is not sufficient to maintain a sustainable food production as envisage by the SDG number 2. Water use efficiency is critical in enhancing farm factor productivity and yield of farmers. The majority of farmers in the Sub Saharan region of Africa are

resource-poor, government need to subsidize some factors of production in order to enhance farm income generation. Hence, achieving a sustainable water use efficiency in agriculture in Nigeria in 2030 would require a more practical policy embedded in sound and adaptable modern technologies.

(vii)Access to electricity, rural (% of rural population)

The percentage of Nigeria's rural population that have accessed to electricity averaged at 26.34% from the year 2001 to 2022, with the volatility index of 13.70%. In 2022, the result showed that about 25.46% of the country's rural population has access to electricity. The country experienced only 0.61% growth in the rural electricity consumption from 2001 to 2022. Though the country's witnessed a marginal positive growth in electricity consumption in the rural areas within the study period, but it is also observed that in 2022, about 74.54% of the rural population did not have access to electricity. This statistic is very worrisome as sustainable agricultural production cannot be achieved in 2030 with this magnitude of poor rural infrastructure such as electricity which is very critical in agricultural production and processing.

The graph represented in Figure 7shows the trend in electricity access among rural population in Nigeria from the year 2001 to 2022.

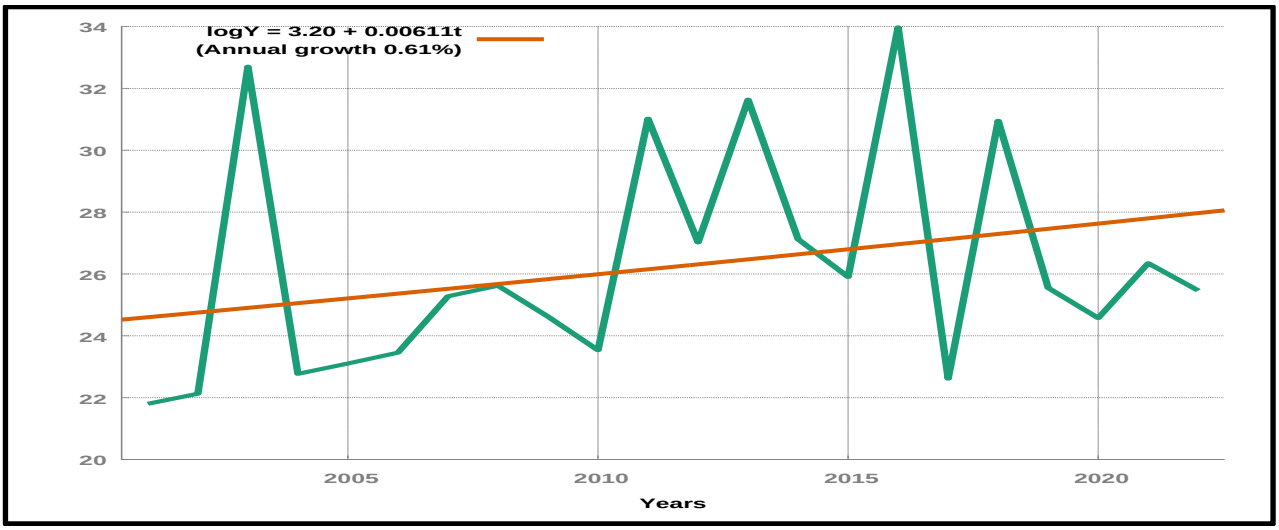

Fig. 7. Trend in the rural population access to electricity in Nigeria (2001 - 2022)
Source: generated from data analysis, 2024.

The graph showed a slight increase in Nigeria's rural population's access to electricity.The findings indicate that, though the country is making a marginal progress in electricity consumption in the rural areas, but it is far behind the standard required by the SDGs targets for the agricultural sector. The observations noticed in the analysis aligned the report of the SDGs [30] on Nigeria.

(viii)Agricultural share of Government Expenditure (%)

The agricultural share of government expenditure measures the percentage share of agricultural expenditure in the government total expenditure at period t. The variable measures the government's commitment to infrastructural development and research in agricultural sector. The statistics for this variable revealed the mean value of 3.04%, minimum and maximum values of 1.29% and 5.29% respectively. The coefficient of volatility of the variable stood at 39.0% and an exponential growth rate of -2.59%. The result suggests that, the country has not been consistent in advancing the course of agricultural expenditure over the years. For instance, the country's budgetary allocation to the agricultural sector has been persistently less than 10.0% which is in deviant with the Maputo declaration of 2003. The declaration demanded African Union member nations to commit at least 10.0% of their annual budgetary allocation to the development of agricultural sector. However, in Nigeria the

achievement of this declaration was just a mirage as the declaration demands were not met at any time. In 2022, the agricultural share in the central government total expenditure was only 2.29%. This is far below the standard needed by the UN SDG number 2 target on rural infrastructure development and stimulation of agricultural researches among others.

The graph in Figure 8 shows the trend in agricultural share of the central government expenditure from the year 2001 to 2022.

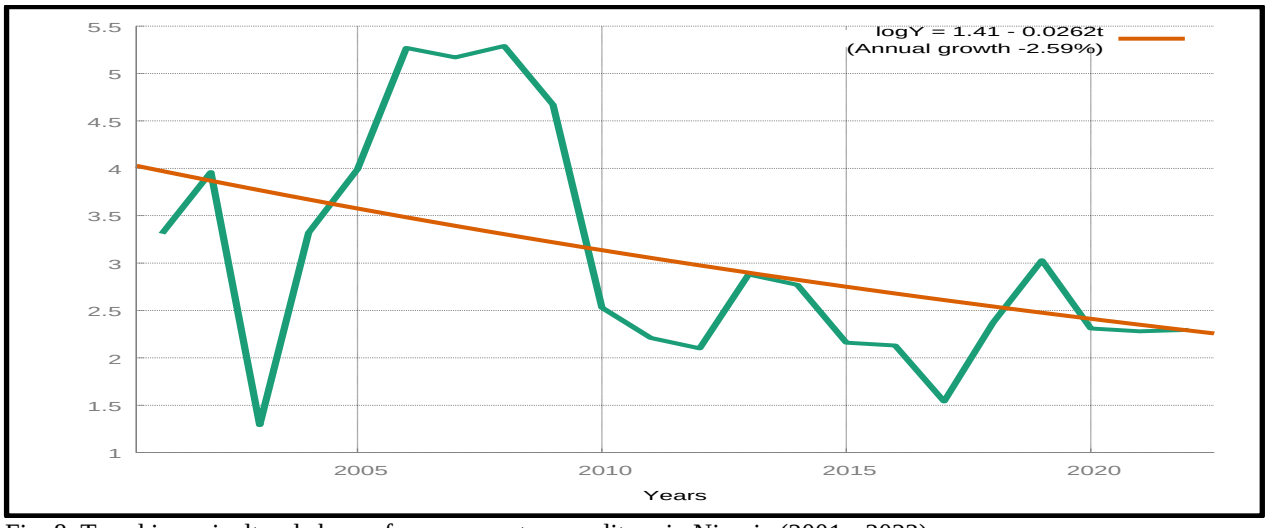

Fig. 8. Trend in agricultural share of government expenditure in Nigeria (2001 - 2022).
Source: from data analysis, 2024.

The graph revealed a conspicuous negative growth in agricultural share of the central government expenditure. The findings indicate that, the country in recent time has persistently reduce the capital allocation to the agricultural sector, thereby stiffening its investment potentials. This trend structure do not align with the purpose of the SDG 2 which emphasizes on the provision of sustainable rural infrastructures as one of the prerequisites to manifest "zero hunger" and sustainable development in the agricultural sector. The findings from the analysis of the agricultural share in the central government's expenditure are consistent with the SDGs report[30] on Nigeria.

(ix) Agricultural sector's value added share of GDP % in Nigeria

This index represents the proportion of the agricultural sector's value addition in monetary terms in the country's GDP expressed as a percentage in period t. The index is larger in agrarian based economy. A greater index implies potent, efficient and sustainable agricultural sector's production, processing and marketing. Otherwise, an industrialized economy which built its GDP outside agriculture will have a lower index of agriculture value share of GDP. However, the information for this variable revealed the mean value of 24.34%, minimum and maximum values of 19.99% and 36.97% respectively. The coefficient of variability is 17.10% and an exponential growth rate of -1.55%. In 2021, the index was 23.36% in Nigeria, 2.47% in South Africa, 19.17% in Ghana and 11.44% in Egypt. The result suggests that, the country's value addition in agriculture is depreciating. Increase in agricultural researches and expenditure as well as a stable macroeconomic environment are some of the prerequisites for the upsurge of this variable.

The graph in Figure 9 below shows the trend in the agricultural value added share of the GDP (as a percentage) from the year 2001 to 2022. The graph revealed a noticeable negative growth in the agricultural value added share of the GDP. Given the nature of trend in the agricultural value added share of the GDP, it implies that the country is not doing enough in technology application and processing of agro-products. This is contrary

to the aim of SDG number 2 and the finding corroborates the report of the SDGs [30] on Nigeria.

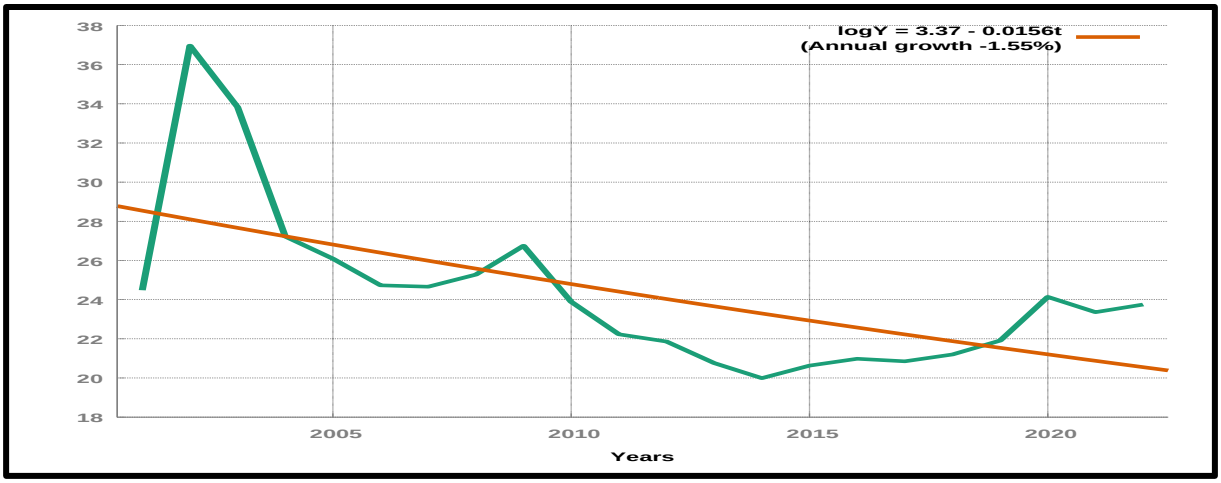

Fig. 9. Trend in Agricultural value added share of the GDP (%) in Nigeria (2001 - 2022).
Source: from data analysis, 2024.

(x)Agriculture orientation index

The agricultural orientation index for government expenditures is referred to as the proportion of agriculture share of government expenditure divided by the agriculture value added share of the economy GDP in period t. The descriptive statistics for this variable revealed the mean value of 0.126, minimum and maximum values of 0.04 and 0.21 respectively from the year 2001 to 2022. The coefficient of variability is found at 34.90% and exponential growth rate of -1.08%. In 2021, the index was 0.10 in Nigeria, 0.56 in South Africa, 0.06 in Ghana, 0.10 in Kenya, and 0.12 in Egypt. The result suggests that, the country's agricultural orientation index is low relative to some African countries. The finding implies that, the agricultural sector receives a lower share of government spending relative to its contribution to economic value-added. The result contradict the intention of the SDG number 2 target for the country in 2030 (Fig.10).

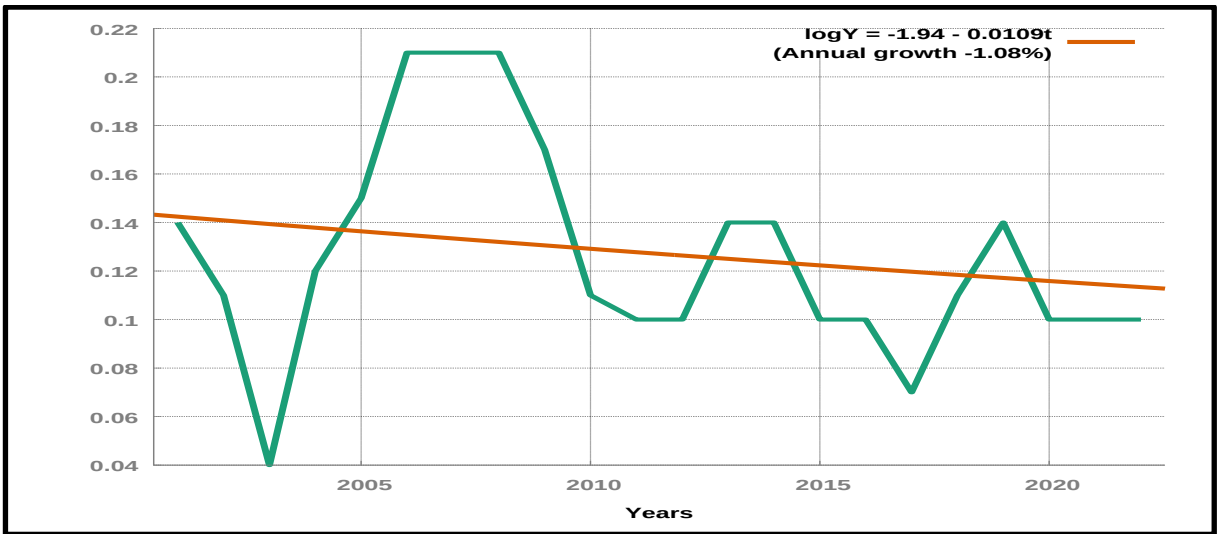

Fig. 10. Trend in the Agricultural Orientation Index in Nigeria (2001 - 2022)
Source: from data analysis, 2024.

Figure 10 shows the trend in the agricultural orientation index for government expenditures from the year 2001 to 2022. The graph displayed a fluctuating trend with distinct

peaks and troughs, all of which were characterized by an average negative growth throughout the period. Considering the nature of the agricultural orientation index trend for government expendituresin Nigeria, it is obvious that the country is far from achieving the SDG Number 2 in 2030.

Beckoned on such facts as: majority of farmers in the country are poor, plenteous of moribund projects in agricultural sector, dilapidated infrastructures in agricultural sector and frequent farmers-herders conflicts as well as mounting insecurity, the country need to invest heavily in all facets of agriculture in order to make meaningful improvement in the sector. The finding is contrary to the aim of SDG number 2 and it corroborates the report of the SDGs [30] on Nigeria.

CONCLUSIONS

The study assessed several indicators of the United Nation Sustainable Development Goal (SDG) number 2 in Nigeria. The aim was to examine the success the country has achieved from the year 2001 to 2022. Time series data were used for the analyses. The finding revealed that significant population of Nigerians are still undernourished representing over 15.00% of the country's population. This means that the target of SDG number 2 concerning universal access to safe and nutritious food in 2030 might be an illusion if proactive actions are not taken by the country. The fertilizer use rate in Nigeria was found to be very low relative to the other countries in Africa, the average in Africa continent and the world. Also, the water use efficiency in agriculture was relatively low and cannot generate sustainable agricultural practices as envisage by the UN SDG number 2.

The findings suggests that the SDG target of doubling productivity and incomes of small-scale food producers Nigeria would not be achieve unless the fertilizer use level and water use efficiency is deliberately upsurge. The finding further showed that agricultural land marginally increase on yearly basis without corresponding increase in factor productivity. The finding contradict the requirement for achieving the SDG on sustainable food production and resilient agricultural practices.

In addition, the percentage of the country's population that have access to electricity is less than 60.00%, while only 25.46% of the country's rural population has access to electricity in 2022. The agricultural share of government expenditure is persistently low and less 10.00% of the Maputo declaration for African Union member nations.

The agriculture value added share of GDP of Nigeria is low and it grew negatively from 2001 to 2022.

Agricultural Orientation Index in Nigeria is low compared to some African countries. The index was 0.10 in 2022. The index grew at the rate of -1.08% from 2001 to 2022 implying that, the agricultural sector receives less or insignificant share of the federal government spending relative to its contribution to economic value-added.

The findings revealed that on average Nigeria is rather too slow or better is off track towards achieving the SDG of 'Zero Hunger' by 2030. The country's current efforts, strategies and the general progress towards SDGs are grossly insufficient.

The nation must approach the SDGs as a team player collaborating the domestic agenda with the regional and global road maps to effectively unlock the potential needed to attain the mandate of 'Zero hunger' in 2030.

Based on the findings, it is recommended that, Nigeria should increase its budgetary expenditure on agricultural sector in order to meet the SDG number 2 and its targets in 2030.

The country should invest in fertilizer production and irrigation system so as to increase fertilizer consumption per hectare and water use efficiency in agricultural sector. Also, the nation should focused on achieving higher farm factor productivity instead of expanding the current agricultural land area.

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