How far has Africa gone in achieving the Zero Hunger Target? Evidence from Nigeria

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Abstract

Sustainable Development Goal 2 is hinged on achieving zero hunger, worldwide, by the year 2030. Many developing countries, especially African countries, are faced with extreme hunger often caused or compounded by bad governance, conflicts and climate change. In this paper, we review patterns of Global Hunger Index scores across Africa from 2000 to 2018 noting advances and setbacks in the fight against hunger in relation to the underlying causes of hunger in these nations, using Nigeria, the poverty capital of the world, as a case study. We also review selected policies of the Nigerian government and development partners aimed at reducing hunger in Nigeria and proffer solutions that can help actualise the target of zero hunger by 2030.

Keywords: Hunger; SDG 2; Poverty; Food security; Conflict events; Global Hunger Index

1. Introduction

The United Nations (UN), during its high-level Special Summit held in New York, in September, 2015, adopted the resolution of the agenda for sustainable development made by its General Assembly (comprising 150 Heads of State and Government and Representatives). This resolution birthed 17 goals referred to as Sustainable Development Goals (SDGs) (UN, 2017a). These goals were formulated to address the deficiencies noticed in the Millennium Development Goals (MDGs). Adegbami and Adesanmi (2018) asserted that the MDGs did not achieve many of its targets for development in many developing countries. Specifically, Sustainable Development Goal 2 (SDG 2) was set to address the importance of food security and nutrition within the wider

Agenda, and calls member states to *"end hunger, achieve food security and improved nutrition, and promote sustainable agriculture"* by 2030. The five principal targets and three implementing mechanisms of SDG 2 (UN, 2017b; IITA, 2017; Ayoola *et al.*, 2018) are highlighted below.

1.1 Principal Targets of SDG 2

1. By 2030, end hunger and ensure access to safe, nutritious, and sufficient food.
2. By 2030, end all forms of malnutrition
3. By 2030, double the productivity and incomes of small-scale food producers
4. By 2030, ensure sustainable food production systems and implementing resilient agricultural practices
5. By 2030, maintain the genetic diversity of seeds, plants, and animals.

1.2 Implementing Mechanisms of SDG 2

1. Increase investment through enhanced international cooperation
2. Correct and prevent trade restrictions and distortions in world agricultural markets
3. Adopt measures to ensure the proper functioning of food commodity markets and their derivatives and facilitate timely access to market information

The word "hunger" always incorporates the word 'food' in its definition. Hunger is the feeling of discomfort that is the major body's signal that it is in dire need of food. Every person experiences this feeling at one time or the other but, for most people, particularly in the developed economies; this phenomenon is a passing event that is ameliorated once the next meal is taken, with no serious or permanent damage. When it is hunger or persistent lack of food, the repercussion can be really devastating (IICA, 2015; The Hunger Project, 2008). Also, the word "hunger" (chronic undernourishment) is referred to as an unscientific term that relates to nutrition and health outcomes in various ways (Webb *et al.* 2018). Ending hunger involves a broad definition of hunger, including calorie deficiencies (chronic hunger), micronutrient deficiencies (hidden hunger), and related health problems (Gödecke et al, 2018).

Over 124 million people suffer acute hunger which is a devastating rise from 80 million in 2016. Close to 151 million children are stunted and 51 million children are wasted globally. This disturbing reality of hunger and malnutrition progressively portends huge impact on the future generation (FAO *et al.* 2017; von Grebmer *et al.*, 2018).

In this paper, we study and compare patterns of Global Hunger Index (GHI) scores across Africa from 2000 to 2018 in relation to the underlying causes of hunger in these nations, with Nigeria as a case study. We also review selected policies aimed at reducing hunger in Nigeria and proffer solutions that can help to actualise the SDG 2 target of zero hunger by 2030.

2. Learning from the Global Hunger Index (GHI) Scores

The GHI is a tool fashioned to measure hunger at global, regional, and national levels, Wiesmann (2006). The GHI was created in 2006 by researchers from the International Food Policy Research Institute (IFPRI). Later, GHI became a joint project of *Welthungerhilfe* and *Concern Worldwide*. GHI scores are calculated on a yearly basis to identify and assess progress and setbacks in fighting hunger. It is also a means of comparing levels of hunger among countries, calling attention to countries of the world where hunger is at its peak (von Grebmer *et al.*, 2018). GHI scores are computed using a three-step procedure that utilises available data from several sources to capture the multidimensional nature of hunger in each country (von Grebmer *et al.* 2018). Values are determined using four indicators namely; undernourishment, child wasting, child stunting and child mortality (FAO *et al*, 2017; FAO, 2017b; von Grebmer *et al.*, 2018). The computation process, described in von Grebmer *et al.*, 2018, results in GHI scores on a 100-point GHI Severity Scale, where 0 is the best score (no incidence of hunger) and 100 (the worst); *low* (< 9.9), *moderate* (10.0-19.9), *serious* (20.0-34.9), *alarming* (35.0-49.9) and *extremely alarming* (≥ 50).

The 2018 GHI showed that the level of hunger and under-nutrition globally had fallen into the *serious* category, with a value of 20.9, reducing from 29.2 in year 2000. There have been consistent reductions in each of the four GHI indicators since year 2000. The share of the world's population (based on the 119 countries covered by the GHI) experiencing undernourishment reduced from 17.6% in 1999-2001 to 12.3% (2015-2017). For stunting, there was a reduction from 37.1% (1998-2002) to 27.9% (2013-2017). Wasting recorded a 0.4% drop from 9.7% in 1998–2002 to 9.3% (2013-2017). Furthermore, the under-five mortality rate reduced to 4.2% in 2016 from 8.1% in 2000 (von Grebmer *et al.*, 2018). With these remarkable improvements globally, what is the current hunger situation in Africa and will Africa achieve SDG 2 by 2030?

2.1 The Hunger Situation in Africa

The major causes of hunger in Africa are poverty, severe pre- and post-harvest losses due to high incidence of pests and diseases, unemployment, conflicts, wars, insurgencies, poor climatic conditions and corruption. Conflicts, wars and insurgencies play devastating roles in Africa. Nations like the Central African Republic (CAR), Somalia, Chad and South Sudan that have been engaged in prolonged crises have very high undernourishment and under-five mortality rates when compared to those that are not affected by conflict (FAO, 2017a; UN IGME, 2017; Tamashiro, 2010; FAO GIEWS, 2017; UNHCR, 2018a; UNHRC, 2015; USAID, 2017a; FEWS NET, 2017b; FEWS NET, 2018b; FAO, 2018f). High incidences of pests and diseases have also contributed to reduced harvests, high food prices and loss of livestock. Cassava mosaic and brown streak virus disease are major diseases affecting Cassava (*Manihot esculenta*), the main food crop, in the Great Lakes region of East and South Africa while the Fall Armyworm (*Spodoptera frugiperda*) is a major pest of maize (*Zea mays*) and sorghum (*Sorghum bicolor*) in South Sudan (FAO, 2018e). Bird Flu (*Avian influenza*) caused huge economic losses for poultry farmers in many African countries during the 2006-2008 and 2015-2017 outbreaks (Otekunrin, 2007; Ntsefong *et al.* 2017; Fasanmi *et al.* 2018; Otekunrin *et al.* 2018). Unemployment is a serious challenge for many African governments. Congo ranked highest with a 46.1% unemployment rate, followed by Namibia (34%) and South Africa (27.5%) (NBS, 2018b). Another factor contributing to increased hunger levels in Africa is poor climatic condition, worsened in 2015 and 2016 by the *El Niño* phenomenon that led to loss of livestock and reduced harvests as a result of prolonged droughts. It is also important to note that poverty and hunger go hand-in-hand though not every poor person is hungry but almost all hungry people are poor. Nigeria, Democratic Republic of Congo (DRC) and Ethiopia have 86.9, 60.9 and 23.9 million persons respectively of their populations living in abject poverty (Kazeem, 2018).

Table 1 shows the GHI scores for African countries for year 2000, 2005, 2010 and 2018 respectively with their corresponding 2018 GHI ranks. Some African countries were not captured in Table 1 because of insufficient or lack of data for all the four GHI indicators. These include Burundi, Democratic Republic of Congo, Equatorial Guinea, Eritrea, Libya, Somalia and South Sudan. The Central African Republic (CAR) had the highest 2018 GHI score of 53.7 in the world (out of 119 countries) falling in the *extremely alarming* category. CAR has been engulfed in crises since 2012 and as of December 2017, more than 1 million people have been displaced, out of a population of 5 million people (IDMC, 2018). The crises have prevented the displaced people from

participating in any agricultural activity leading to very severe food insecurity (FAO, 2018a; FAO, 2018b). Another worse hit African country is Chad (ranked 118th) with a score of 45.4 in *alarming* category. Chad is affected by conflicts in neighbouring countries (Chad is bordered on the north by CAR), low economic development and climate change (FAO, 2018c). Moreover, some countries like Ghana and Senegal previously known for high hunger levels achieved *moderate* category status in 2018 GHI scores. Tunisia, Algeria and Morocco, from North Africa, have very low GHI scores (between 7.9 and 10.4 inclusive) when compared to the scores of other African countries.

Table 1: GHI Scores for Africa (2000, 2005, 2010 and 2018)

Rank	Country	2000	2005	2010	2018
28	Tunisia	10.7	8.6	7.6	7.9
39	Algeria	15.6	12.9	10.6	9.4
44	Morocco	15.7	17.8	10.2	10.4
47	Mauritius	15.9	15.2	14.1	11.0
60	South Africa	18.1	20.8	16.1	14.5
61	Egypt	16.4	14.3	16.3	14.8
62	Ghana	29.0	22.2	18.2	15.2
63	Gabon	21.1	19.0	16.7	15.4
66	Senegal	37.3	27.8	24.1	17.2
71	Cameroon	41.2	33.7	26.1	21.1
75	Gambia	27.3	26.2	22.3	22.3
76	Swaziland	28.9	27.6	26.7	22.5
77	Kenya	36.5	33.5	28.0	23.2
78	Lesotho	32.5	29.7	26.3	23.7
80	Benin	37.5	33.5	28.1	24.3
80	Namibia	30.6	28.4	30.9	24.3
80	Togo	39.1	36.4	27.1	24.3
84	Botswana	33.1	31.2	28.4	25.5
85	Cote d'Ivoire	33.7	34.7	31.0	25.9
87	Malawi	44.7	37.8	31.4	26.5

88	Mauritania	33.5	29.7	24.8	27.3
89	Burkina Faso	47.4	48.8	36.8	27.7
90	Mali	44.2	38.7	27.5	27.8
91	Rwanda	58.1	44.8	32.9	28.7
92	Guinea	43.7	36.8	30.9	28.9
93	Ethiopia	55.9	45.9	37.2	29.1
93	Guinea Bissau	42.4	40.3	31.0	29.1
95	Angola	65.6	50.2	39.7	29.5
95	Tanzania	42.4	35.8	34.1	29.5
98	Djibouti	46.7	44.1	36.5	30.1
99	Congo, Rep.	37.8	37.2	32.2	30.4
99	Niger	52.5	42.6	36.5	30.4
101	Comoros	38.0	33.6	30.4	30.8
102	Mozambique	49.1	42.4	35.8	30.9
103	Nigeria	40.9	34.8	29.2	31.1
105	Uganda	41.2	34.2	31.3	31.2
107	Zimbabwe	38.7	39.7	36.0	32.9
108	Liberia	48.4	42.0	35.2	33.3
112	Sudan	-	-	-	34.8
114	Sierra Leone	54.4	51.7	40.4	35.4
115	Zambia	52.0	45.8	42.8	37.6
116	Madagascar	43.5	43.4	36.1	38.0
118	Chad	51.4	52.0	48.9	45.4
119	Central Africa Republic	50.5	49.6	41.3	53.7

Source: Authors' compilation from von Grebmer et al., 2018

Note: Countries with the same 2018 GHI have the same rank (for example, Angola and Tanzania are both ranked 95th)

GHI and Corruption Perceptions Index (CPI) in Africa

Corruption is a major factor aggravating the level of poverty and hunger in many countries. Resources that could potentially ameliorate poverty and hunger are often misused (Gelb and Decker, 2012; Shuaib, 2015). Table 2 shows the 2018 GHI scores of African nations and their corresponding CPI 2018 ranks. *Figure 1* reveals the scatter plot between 2018 GHI scores and CPI

2018 ranks of African countries, with a Correlation Coefficient r = .56. This shows the existence of a positive association between the two variables confirming the assertion that corruption and hunger are related in most African countries. This result is in agreement with the findings of Smith and Haddad (2015) who examined the roles of five dimensions of governance (bureaucratic effectiveness, law and order, political stability, restraint of corruption and democratic accountability) in facilitating reductions in child undernutrition. They reported that all the five indicators contributed in some way to reductions in child stunting (one of the indicators of GHI). CPI is an annual publication of the *Transparency International*, an organisation that measures perceived levels of public sector corruption in 180 countries and territories. The CPI is the most widely used index for measuring corruption perception on country basis with available data annually but not without its shortcomings. The index scores is on scale of zero (highly corrupt) to 100 (very clean) (Transparency International, 2019). According to Transparency International, 2019, Denmark was ranked number 1 (1/180) globally with score of 88 (88/100) while Somalia was ranked the most corrupt country in the world ranking 180 (180/180) with a score of 10 (10/100). Nigeria was ranked 144 (144/180) alongside Comoros, Kenya, Guatemala and Mauritania with a score of 27 (27/100).

Table 2: 2018 GHI Scores with CPI 2018 Ranks, Unemployment Rates and Total Population in Extreme Poverty of African Countries

| S/No	Country	2018 GHI Scores	CPI 2018 Ranks	Unemployment Rate (%)	Total Population in Extreme Poverty (%)
1	Tunisia	7.9	73	15.50	0.3
2	Algeria	9.4	105	11.10	0.3
3	Morocco	10.4	73	10.00	0.2
4	Mauritius	11.0	56	7.00	0.2
5	South Africa	14.5	73	27.50	24.5

6	Egypt	14.8	105	10.00	0.5
7	Ghana	15.2	78	2.40	12.2
8	Gabon	15.4	124	19.60	2.5
9	Senegal	17.2	67	15.70	29.1
10	Cameroon	21.1	152	4.20	21
11	Gambia	22.3	93	9.50	9.3
12	Swaziland	22.5	89	26.40	41.3
13	Kenya	23.2	144	11.5	16.9
14	Lesotho	23.7	78	27.25	53.9
15	Benin	24.3	85	2.50	46.4
16	Namibia	24.3	52	34.00	19.6
17	Togo	24.3	129	1.80	45.8
18	Botswana	25.5	34	18.10	15.9
19	Cote d'Ivoire	25.9	105	2.60	20.5
20	Malawi	26.5	120	5.90	70.9
21	Mauritania	27.3	144	11.80	3.7
22	Burkina Faso	27.7	78	6.30	37.5
23	Mali	27.8	120	7.90	37.4
24	Rwanda	28.7	48	16.00	39.9
25	Guinea	28.9	138	4.50	76.7
26	Ethiopia	29.1	114	16.80	25
27	Guinea Bissau	29.1	172	6.10	56.1
28	Angola	29.5	165	20.00	5.5
29	Tanzania	29.5	99	10.30	30.5
30	Djibouti	30.1	124	-	14
31	Congo, Rep.	30.4	165	10.95	42.1
32	Niger	30.4	114	0.40	37.5
33	Comoros	30.8	144	4.30	20.7
34	Mozambique	30.9	158	25.04	56.9
35	Nigeria	31.1	144	23.10	46.5
36	Uganda	31.2	149	2.10	31.8
37	Zimbabwe	32.9	160	5.16	25.8
38	Liberia	33.3	120	2.40	36.4
39	Sudan	34.8	172	12.70	22

40	Sierra Leone	35.4	129	4.50	36.9
41	Zambia	37.6	105	7.79	52.5
42	Madagascar	38.0	152	1.80	77
43	Chad	45.4	165	5.89	38.5
44	Central Africa Republic (CAR)	53.7	149	6.00	72.9
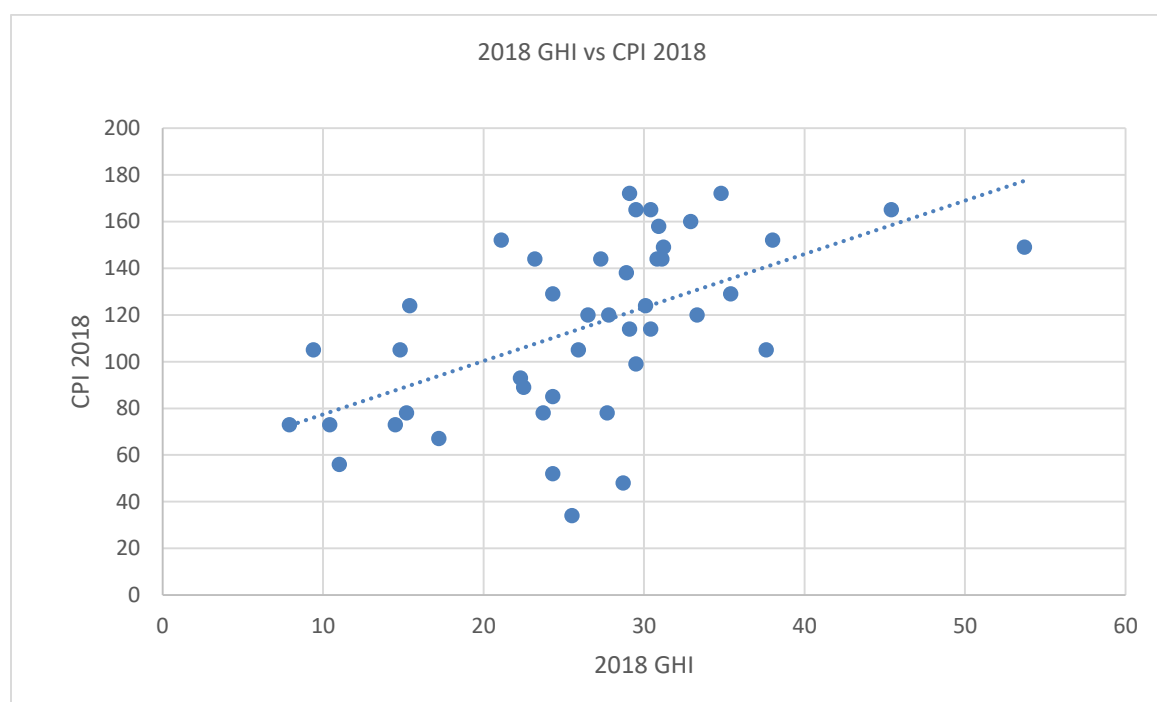
Figure 1: Scatter plot with trend line showing the relationship between 2018 GHI and CPI 2018 of African countries.

GHI and Unemployment rates in Africa

Generally, unemployment rate is regarded as one of the factors compounding the hunger situation in Africa. Table 2 shows the 2018 GHI scores of African nations and their corresponding unemployment rates while *figure 2* shows the scatter plot with trend line between these two variables. The Correlation Coefficient r = -0.25 implies that there is a very weak negative correlation between the two variables. Some countries with high GHI scores are not accompanied with corresponding high unemployment rates but rather, unemployment rates are significantly low in those countries (for example, Madagascar with 2018 GHI score of 38 has an unemployment rate of 1.8%; Sierra Leone with GHI score of 35.4 has an unemployment rate of 4.5%). Thus, unemployment rates and hunger might not be related in most African countries.
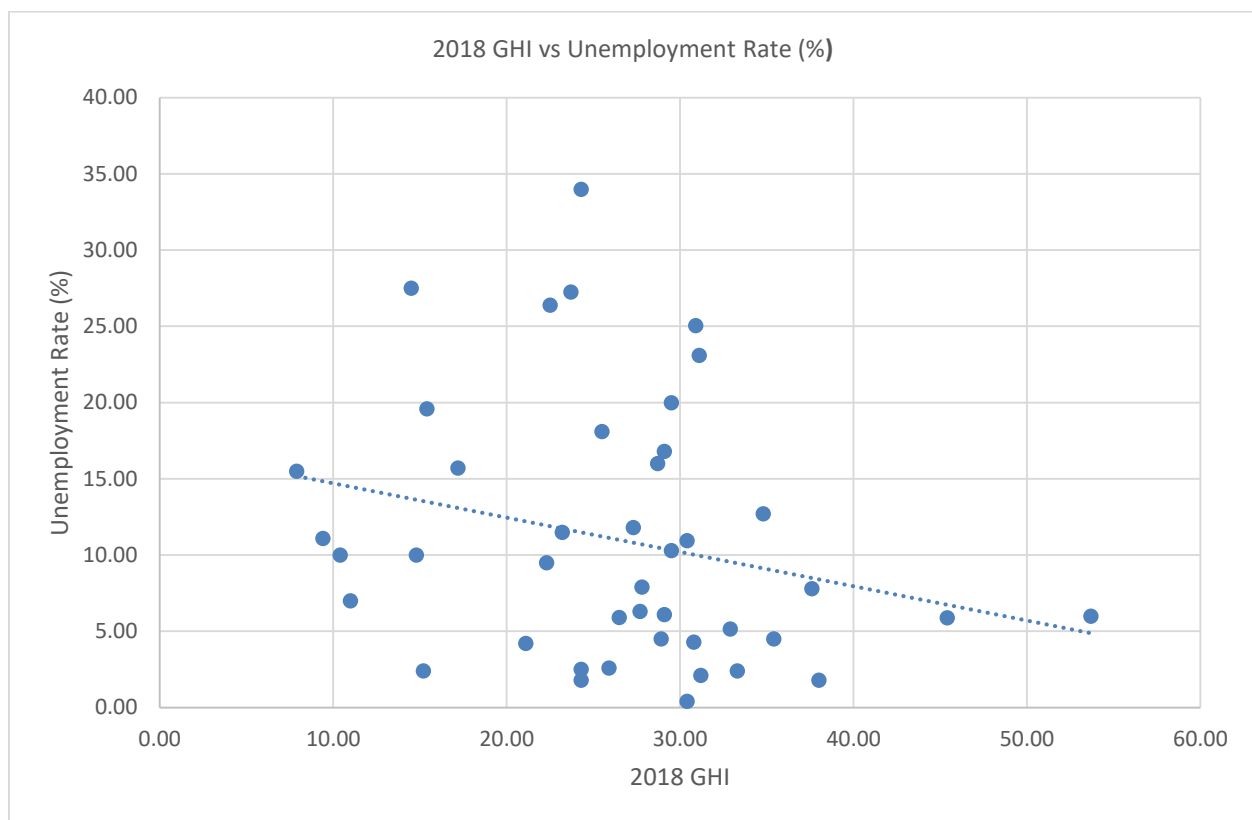

Figure 2: Scatter plot with trend line showing the relationship between 2018 GHI and Unemployment rate (%) of African countries.

Source: Authors' graph from von Grebmer et al., 2018 and NBS 2018

GHI and Extreme poverty in Africa

Many African countries have a substantial percentage of their population living in extreme poverty (World Poverty Clock, 2019). Table 2 shows the 2018 GHI scores of African nations and their corresponding percentage of population in extreme poverty while *figure* 3 shows the scatter plot with trend line between the two variables. The Correlation Coefficient r = 0.63 reveals that there is a positive association between the two variables asserting that poverty and hunger are strongly related in Africa. Most African countries with high GHI also have corresponding high percentage of their population living in extreme poverty (for example, CAR with GHI score of 53.7 has 72.9% population living in extreme poverty; Madagascar with a GHI score of 38 has 77% population living in extreme poverty). It is worthy to note that all the North African countries except Libya have less than 3% of their respective populations in extreme poverty.
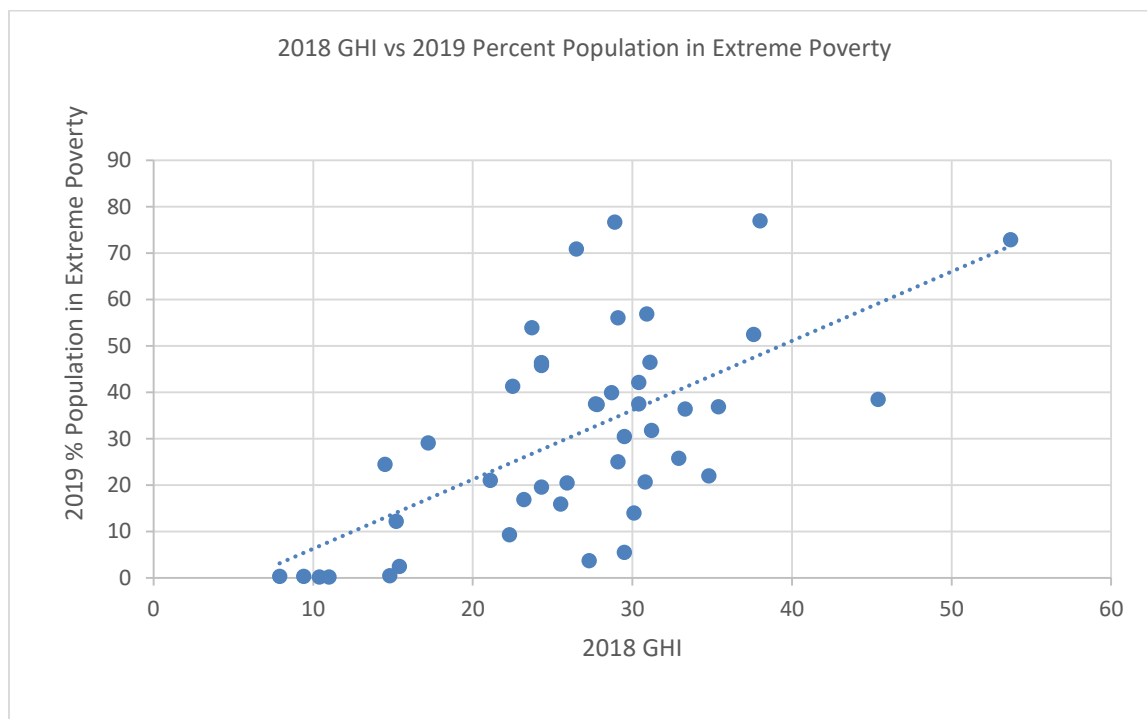
Figure 3: Scatter plot with trend line showing the relationship between 2018 GHI and percentage population in extreme poverty of African countries.
Source: Authors' graph from von Grebmer et al., 2018 and World Poverty Clock, 2019 (19 May 2019)

GHI and Population in Conflict

Many African countries have experienced conflict events at one time or the other. Data on conflict events of some affected African countries are not available. Table 3 shows the 2017 GHI scores of African nations and their corresponding percentage of population in conflict while *figure* 4 shows the scatter plot with trend line between the two variables. The Correlation Coefficient r = .62 shows that there is a positive association between the two variables confirming the relationship between conflict and hunger in Africa.

Table 3: Selected African Countries with Conflict Events

S/N	Country	2018 GHI	2017 Percent of Population in Conflict Situations
1	Central African Republic	53.7	23.40
2	Cameroon	21.1	6.20
3	Chad	45.4	0.65
4	Niger	30.4	0.45
5	Nigeria	31.1	1.33
6	Sudan	34.8	8.66
7	Mali	27.8	1.55

Source: Authors' compilation from von Grebmer et al., 2018 and FAO and WFP 2019
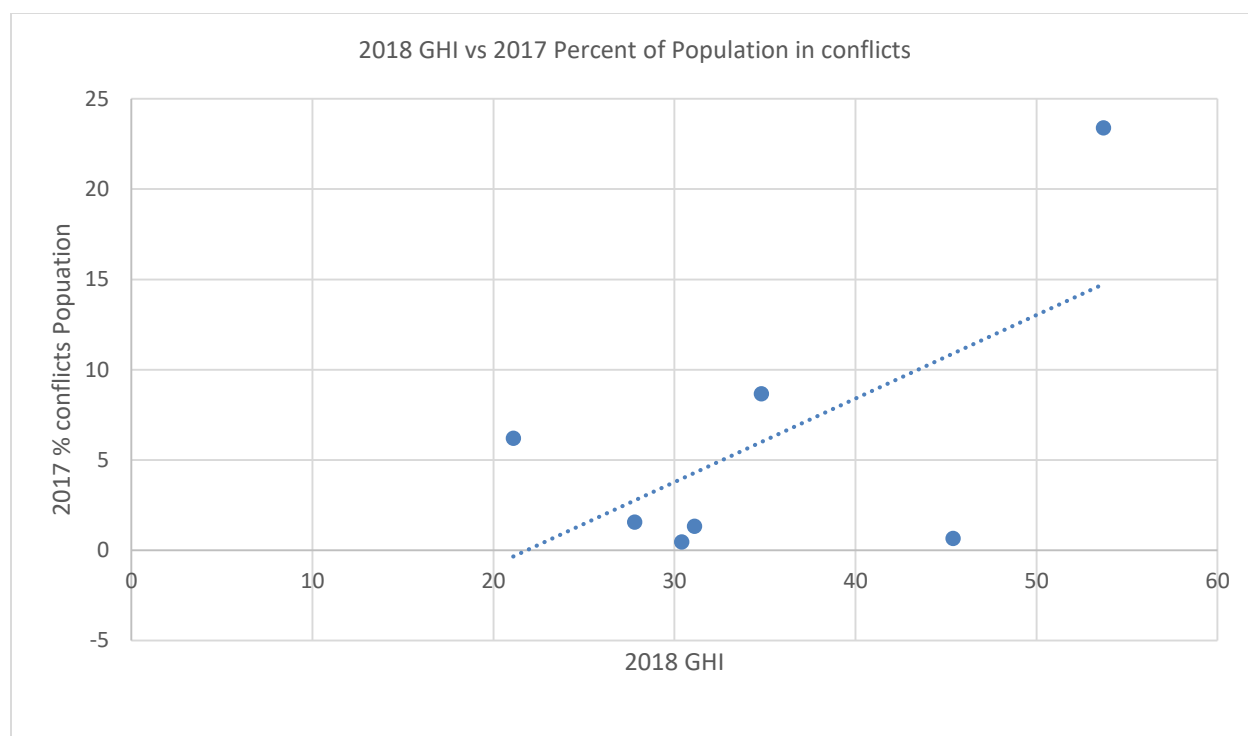
Figure 4: Scatter plot with trend line showing the relationship between 2018 GHI and 2017 Percent Population with Conflict Situations in Selected African countries.

Source: Authors' graph from von Grebmer et al., 2018 and FAO and WFP 2019

2.2 The Hunger Situation in Nigeria

Nigeria, with an estimated population of 193 million persons, is the most populous nation in Africa (NPC and NBS, 2018). Nigeria has an estimated growth rate of 2.43 percent per annum and a high dependency ratio of 88 percent. It is projected that the population of Nigeria will reach 390 million by 2050. (NPC and NBS, 2018; Matemilola and Elegbede, 2017). The most populous states in the country are Kano (13 million) and Lagos (12.5 million) while the least populous state is Bayelsa with just over 2 million people. The population is generally young with an estimated 42 percent of the population being within the 0 -14 years age bracket (IITA, 2017).

Nigeria, the 10th largest crude oil producer in the world, achieved a status of a middle-income country in 2014. In spite of Nigeria's oil wealth, 68% of Nigerians live below the poverty line of $1.25 per day (FGN, 2014). Nigeria's GHI scores for 2000, 2005, 2010 and 2018 are included in Table 1. The score increased to 31.1 in 2018 from 29.2 in 2010. This might not be unconnected with the poor economic situation the country is currently grappling with. Nigeria slipped into economic recession in Q1 of 2016 but recovered in Q2 of 2017 with an initial growth rate of 0.72%.

But this has not resulted into any significant impact on the overall livelihood of Nigerians. Extreme poverty in Nigeria is growing by six (6) persons every minute and as at May, 2018; 86.9 million Nigerians are living in extreme poverty making her a nation with the highest number of people living in extreme poverty in the world that is the world poverty capital (Business Day, 2018). It is interesting to know that the poverty situation in Nigeria is escalating, the World Poverty Clock of 19 May, 2019 showed that 91.78 million Nigerians now live in extreme poverty. This implies that an additional 4.88 million Nigerians have further slipped into poverty within the 12-month period. *Figure 5* shows the poverty levels of the six geo-political zones in Nigeria with North-West (71.4%) and North-East (69.1%) being the two zones with high poverty levels in the country while the South-West has the least poverty level (49.8%). Meanwhile, from *figure* 6, the 2018 GHI score of Nigeria is 31.1, in the *serious* category. The child stunting, child wasting and under-nourishment rates increased significantly when compared to their 2010 rates; with all values greater than 5%. This is an indication that Nigeria is not making progress on these indicators. The only indicator that showed remarkable progress is the child mortality rate which declined from 13% in 2010 to 10.4% in 2016. Overall, Nigeria needs to do more on all the four indicators of GHI in achieving the SDG 2 target by 2030. It is very difficult to influence GHI scores in the short run; however, it is possible if hunger is given a very high priority and the political will is there.
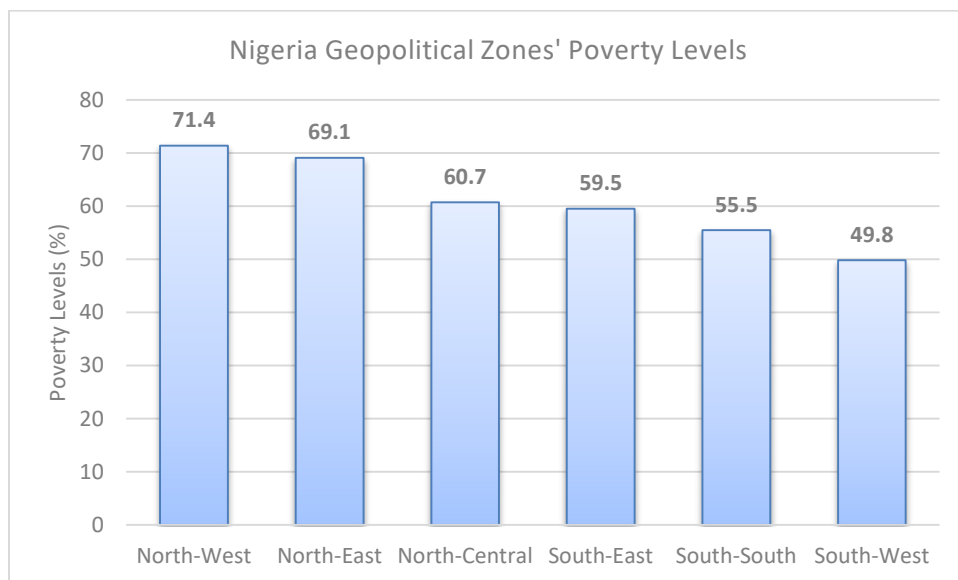
Figure 5: Poverty Ranking in the Six Geo-Political Zones in Nigeria.
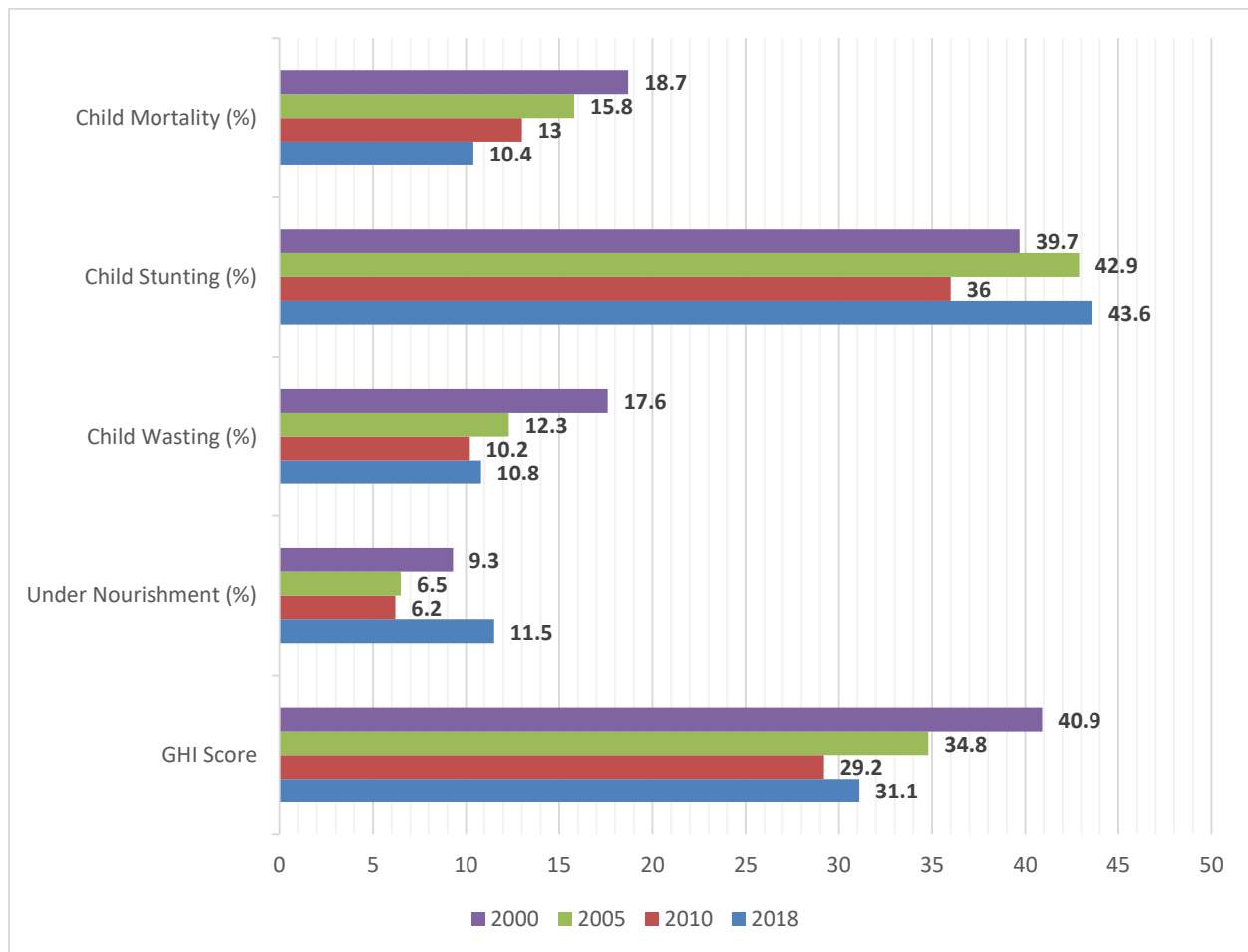
Figure 6: Nigeria's GHI scores and Indicator Values for year 2000, 2005, 2010, and 2018

Source: Authors' graph using von Grebmer et al., 2018

Note: Data for GHI scores, child stunting and child wasting are from 1998–2002 (2000), 2003–2007 (2005), 2008–2012 (2010), and 2013–2017 (2018). Data for undernourishment are from 1999–2001 (2000), 2004–2006 (2005), 2009–2011 (2010), and 2015–2017 (2018). Data for child mortality are from 2000, 2005, 2010, and 2016 (2018).

The unemployment situation in Nigeria is also a source of concern as the nation moved from one digit unemployment rate in 2015 first quarter (7.54%) to all time highest unemployment rate of 23.1% at the end of third quarter of 2018 ranking 13th in the world and 7th in Africa among countries with highest unemployment rate. Also, chronic and seasonal food insecurity occur in every part the country, worsened by high food prices, impact of conflict and other unpredictable circumstances. The North-East, North-Central and South-South are the three geo-political zones

mostly affected by conflicts in Nigeria. In *figure 7*, the reoccurring conflict events are terrorism in the North-East (73%), land or resource access in the North-Central (55%) and cultism/criminality in the South-South (36%) (NBS/World Bank, 2018). As of August 2017, more than 1.7 million people had been displaced by conflict within the country while about 205,000 people were forced to flee to neighboring countries making food accessibility difficult (FEWS NET, 2017a). Agriculture, a major source of livelihood for people in these areas, and other income-generating activities were disrupted leading to reduced household income and limited access to food (USAID, 2017b). The current food security situation in the country is displayed in *figure 8*. Humanitarian groups distributed food supplies to about 2.5 million people across the three northeast states of Borno, Yobe, and Adamawa in April, 2018 (FEWS NET, 2018). In Borno State, about 12.8% of the population are severely food insecure (WFP, 2017a).
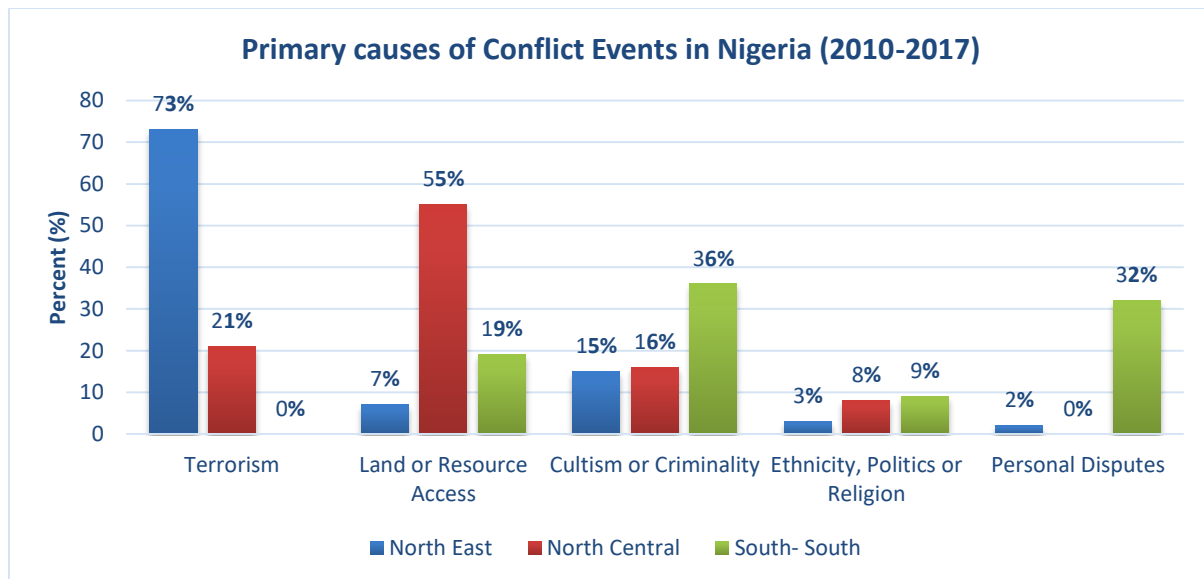
Figure 7: Primary cause of conflicts in three Geo-political zones (2010-2017)
Source: Authors' graph using NBS/World Bank (2018)
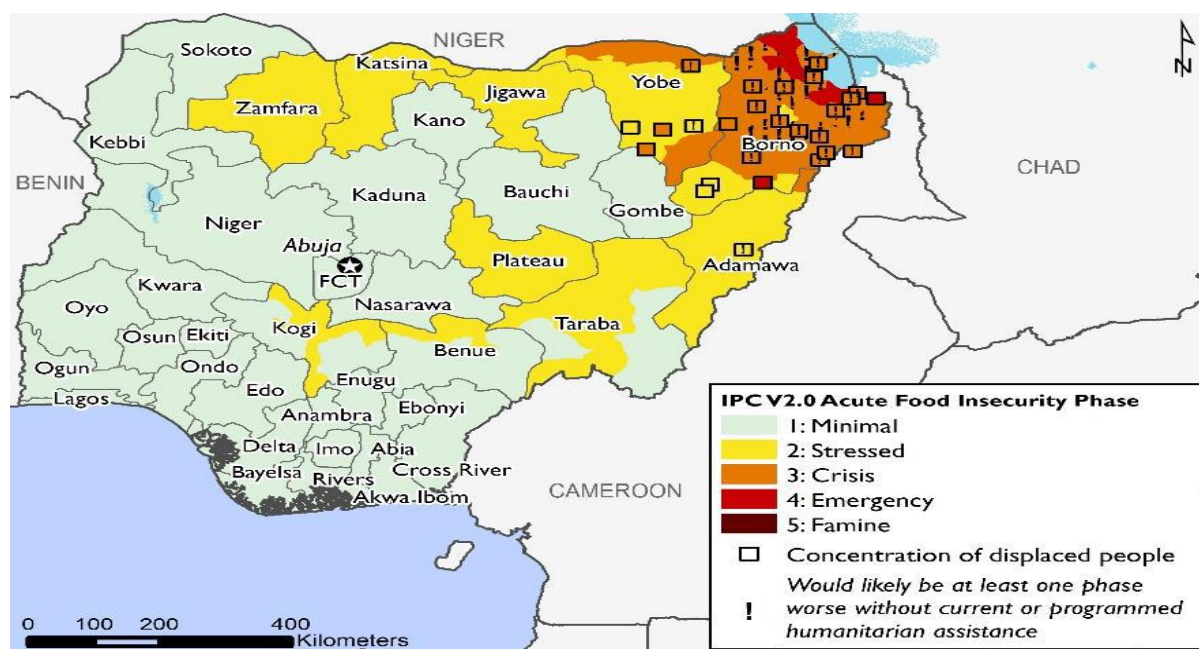
Figure 8: Current Food Security Outcomes in Nigeria as at June, 2018

Source: FEWS NET, 2018a

2.2.1 **SWOT Analysis of the hunger situation in Nigeria**

In order to further reiterate the critical hunger situation in Nigeria, Table 4 presents the SWOT analysis of the situation.

Table 4: *SWOT Analysis of the hunger situation in Nigeria*

Items	*Hunger situation in Nigeria*
Strengths	❖ Nigeria is the highest producer of Cassava globally and Cassava is globally regarded as a food security, high calorie crop. ❖ Nigeria has large area of land suitable for agricultural Production ❖ More States have started the implementation of National Home Grown School Feeding (NHGSF) Programme introduced by the present government in the country. ❖ Vulnerable members of the population in Nigeria are being identified and assisted via the Government National Cash Transfer Programme (NCTP) ❖ Small businesses are supported via Government Enterprise and Empowerment Programme (GEEP) also referred to as "MarketMoni".

Weaknesses	❖ Smallholder or small-scale agriculture is still prevalent in Nigeria. ❖ Inadequate handling and transportation of farm prod ❖ Low literacy about what food nutrition is all about especially among the rural dwellers in Nigeria. ❖ Poor implementation of social safety net programmes. ❖ Poor implementation of government's policies on agriculture and nutrition. ❖ Insurgencies and ethno-religious conflicts which impact negatively on agricultural production especially in the northern regions of the country. ❖ Poor postharvest practices, lack of capacity, equipment or infrastructure. ❖ Weak research extension-farmer-linkage
Opportunities	❖ Nutrition sensitive/nutrition related government policies and programmes for example Agricultural Transformation Agenda (ATA), Growth Enhancement Support Scheme (GESS), The Nigerian Incentive-based Risk-sharing System for Agricultural Lending (NIRSAL), National Strategic Plan of Action for Nutrition (NPAN), Agricultural Promotion Policy (APP), Zero Hunger Initiative (ZHI), National Policy on Food and Nutrition (NPFN) among others. ❖ Provision of support and interventions from international organisations like the Food and Agricultural Organisation of the United Nations (FAO), Scaling Up Nutrition/Nigeria (SUN-Nigeria), United States Agency for International Development (USAID), World Health Organisation (WHO), World Food Programme (WFP) among others. ❖ Interest of small-scale farmers based on incentives for example; Anchor Borrower Scheme ❖ Evolving food demands can create jobs and boost incomes; upsurge in number of commercial farms and food processing companies ❖ Taking advantage of the growing and underutilized youth population for entrepreneurial initiatives.
Threats	❖ Cultural Belief: culture may limit eating of certain food regardless of their nutritive potentials. ❖ Low literacy level in the country especially in the rural areas ❖ Low financial ability from the supply (to increase production) and demand (to procure food items by consumers) sides ❖ Frequent herdsmen-farmers clashes mostly in the North eastern and central parts of the country which negatively affect food production drive in these areas. ❖ Lack of political will to implement nutrition-sensitive policy and programmes.

Source: Authors' own construct

3. Nigeria's Social Safety Net Programmes

Social safety nets are programmes that distribute transfers to most vulnerable low-income households. These programmes boost income among vulnerable household members and build resilience through curbing destitution or chronic hunger situation brought about mainly by assets loss during wars and conflicts (Ruel *et al*. 2013). The transfers can be in form of cash or food. Between 750 million and 1 billion people in low income and middle-income countries have been offered cash support (DFID, 2011).

The National Social Investment Programmes (N-SIP), launched in 2016, is a portfolio of programmes which the present government is using to assist the most vulnerable in the society. The programmes are:

(i) National Cash Transfer Programme (NCTP)

(ii) National Home Grown School Feeding (NHGSF) programme

(iii) N-Power Programme

(iv) Government Enterprise and Empowerment Programme (GEEP)

3.1 National Cash Transfer Programme (NCTP)

Previous studies have shown that Conditional Cash Transfer (CCT) have assisted in achieving real increase in school enrolment and attendance (Behrman *et al.* 2005; Baird *et al.* 2014; Ganimian and Murnane, 2016). In Nigeria, NCTP is one of the programmes implemented in 2016 to directly support the poorest of the poor in the population by improving their nutrition, increase household consumption, and enhancing the development of human capital. Cash benefits of ₦5,000 are paid to this group of people on a monthly basis. Also, household with pregnant women as well as school aged children are given double of the cash benefit (₦10,000) monthly. The cash transfer programme has tremendously assisted in addressing the problem of hunger, malnutrition and extreme poverty (SDG 1 and 2) among the vulnerable groups in Nigeria with over 300,000 households benefiting since inception in 2016. The NCTP has helped in improving maternal and child health (Okoli *et al.* 2014; Onehi, 2017).

3.2 National Home Grown School Feeding (NHGSF) Programme

NHGSF is another major N-SIP initiative established by Nigerian government to reduce hunger and malnutrition especially among school-age children so as to stimulate learning process. It is

designed to provide minimum of one meal a day to each school pupil. It focuses on providing food and fruits to school children (food based safety net) which will indirectly help improve food security in the beneficiary households. The preparation of the meals will include the supply of protein rich foods like poultry products (fish, beef, chicken and eggs) and other carbohydrates. The NHGSF programme helps to deliver a government-led, cost-effective school feeding programme with a specific focus on development of smallholder farmers and local procurement to enhance growth in the local economy (FGN N-SIP, 2018; FAO, 2019)

Children will benefit from a hot, nutritionally balanced school meal; farmers will benefit from improved access to school feeding markets; and communities will benefit from new jobs across the supply chain such as catering, processing and food handling jobs. Besides the direct benefits, the NHGSF can act as an important catalyst to drive agriculture-nutrition policies given the direct nutritional components of HGSF menus, and smallholder market participation with spill-over effects on broader public agriculture commodity procurement.

In October, 2018, Nigeria's Vice President, Prof. Yemi Osinbajo stated that over 183 million dollars have been invested in the school feeding programme with about 9 million primary pupils benefitting per day in 26 states across Nigeria (Vanguard, 2018). As at May 2019, 31 states have started implementing the programme with about 9.3 million pupils in 56, 506 public primary schools across Nigeria (Punch, 2019).

3.3 N-Power Programme

The N-Power programme is also part of the National Social Investment Programmes (N-SIP) launched in 2016. N-Power is the employability and enhancement programme of the Federal Government of Nigeria with the main objective of inculcating the learn-work-entrepreneurship culture in youths aged 18-35. This programme will help in reducing the high rate of unemployment in the country by providing a structure for large scale economy. The N-Power programme is sub-divided into eight categories. These are:

(a)   N-Power Agro
(b)   N-Power Tax
(c)   N-Power Build
(d)   N-Power Creative
(e)   N-Power Health
(f)   N-Power Teach

(g)   N-Power Tech Hardware

(h)   N-Power Tech Software

The N-Power programme helps in deploying trained graduates who will bring massive improvement in the public services like health, education among others. The N-Power volunteers are paid a monthly stipend of ₦30, 000 and equipment/devices with relevant content for continuous learning are provided so that each volunteer is able to successfully start the selected vocation at the end of the three month training period.

As at 2018, there were 200,000 existing beneficiaries with another 100,000 trainees selected for in-demand economic jobs (FGN N-SIP, 2018).

3.4 Government Enterprise and Employment Programme (GEEP)

The GEEP (also referred to as "MarketMoni") was established with the main purpose of providing financial support and training to businesses at the bottom of the financial pyramid. The GEEP targets the provision of micro lending to about 1.66 million businesses. The target groups include traders, enterprising youth, market women, farmers, women cooperatives and agricultural workers. A no collateral interest loan of between ₦10,000 and ₦100,000 payable within 6 months is obtained through application from the Bank of Industry (BOI). The major prerequisites are membership of a cooperative association and the assurance of credibility and timely payment of the loan by their cooperative leaders.

As at 2018, the government has been able to make a total of 308,737 loan disbursements in all 36 states while 4,084 Cooperative societies have been established (FGN N-SIP, 2018).

4. Nigeria's Strategic Plans towards achieving the SDG 2 (Zero Hunger) by 2030

Nigeria had enacted several policies and strategies aimed at reducing the level of food and nutrition insecurity. Some of these are discussed below:

4.1 National Policy on Food and Nutrition (NPFN)

This document, developed by the national committee on food and nutrition of the National Planning Commission in 2002, focused on Food and Nutrition Security (FNS) in different sectors and classes of the society. It targeted a 50% reduction in the incidence of vitamin and mineral deficiencies disorders such as iodine deficiency disorder by 2010 (IITA, 2017; Olomola, 2017). The NPFN was faced with a lot of challenges. These included poor funding, little or no coordination among implementing agencies and poor monitoring of the implementation processes

(FGN, 2016a; Olomola, 2017). The Ministry of Budget and National Planning stated that the NPFN did not bring about the much needed improvement in nutrition (FGN, 2016a; Olomola, 2017) necessitating its revision in 2016 to enhance maximal impact.

4.2 Agricultural Transformation Agenda (ATA) (2011-2015)

This programme was designed and implemented by the Federal Ministry of Agriculture while food security and agricultural productivity were the main targets of the programme. The components of ATA were:

(i) The Growth Enhancement Support Scheme (GESS) designed to enhance the provision of modern agricultural inputs to farmers at subsidized prices.

(ii) The Staple Crop Processing Zone (SCPZ) designed to enhance clustered food production (for example, cassava, fishes, rice and so on) based on the comparative advantage of each region. (iii) Agricultural Commodity Value Chain Development (ACVCD) designed to harness key commodities in crop and livestock sub-sectors in different agro-ecological zones.

(iv) Agricultural Marketing and Trade Development Corporations (AMTDCs) were established to enhance farmers' access to markets.

(v) The Agricultural Extension Transformation Agenda (AETA) designed to improve dissemination of information and adoption of innovations.

(vi) The Nigerian Incentive-based Risk-Sharing System for Agricultural Lending (NIRSAL) designed to overcome the bottlenecks associated with agricultural commodity and financing value chains.

About 12 to 14 million farmers benefitted from means-based input subsidies provided by ATA between 2011 and 2014. Formal lending for agricultural purposes also increased from 1 to 6 percent by 2015 and specific commodity marketing boards were also reestablished (Olomola, 2017). Other achievements and challenges of ATA are presented in Olomola and Nwafor (2018).

4.3 National Strategic Plan of Action for Nutrition (NPAN) (2014 to 2019)

The objectives of NPAN are to:

i.   promote the delivery of effective interventions that will ensure adequate nutrition to all Nigerians, especially vulnerable groups;

ii. enhance the capacity to deliver effective and appropriate nutrition interventions;

iii. contribute to the control of diet-related non-communicable diseases;

iv.   promote and strengthen research, monitoring, and evaluation;

v.   promote and facilitate community participation for nutrition interventions;

vi.   promote and strengthen nutrition coordination and collaboration.

According to FGN (2014), effective implementation of these objectives is expected to:

i.   reduce the number of under-five children who are stunted by 20% by 2018;

ii.   reduce low birth weight by 15% by 2018;

iii.   ensure no increase in the rate of overweight children by 2018;

iv.   reduce and maintain childhood wasting to less than 10% by 2018;

v.   reduce anemia in women of reproductive age by 50% by 2018;

vi.   increase exclusive breastfeeding rates in the first six months to at least 50% by 2018.

4.4 Agricultural Promotion Policy (APP) (2016-2020):

The Federal Ministry of Agriculture and Rural Development (FMARD) is in charge of the APP. According to (Olomola, 2017), the APP is aimed at:

(i) ensuring national food security by expanding strategic food reserves to enhance food availability.

(ii) making nutritious food available at the local level through school-feeding programs and fortification of food through breeding and post-harvest handling.

(iii) raising awareness about nutritious foods.

(iv) enhancing the quality of food through the control and use of agrochemicals.

(v) encouraging continued expansion of organic farming and the sale of fresh foods in and outside the country.

(vi) creating a standard system for food safety through inspections, origin tracking, and labeling.

4.5 Zero Hunger Initiative (ZHI)

Apart from NPAN, APP, and other government programmes and policies, Nigeria also joined the all-important campaign – the Zero Hunger target (SDG 2) Initiative. The ZHI seeks to concisely formulate a strategic framework for achieving SDG2 in the country using a multi-stakeholder and multi-dimensional approach in which all sectors have specific goals that must be met. The zero hunger strategic review, which was a flagship programme of the ZHI in Nigeria, was convened by former President Olusegun Obasanjo in 2017 with the support of the federal government and

development partners, including the International Institute of Tropical Agriculture (IITA), World Food Programme (WFP), and the African Development Bank (AfDB). The review was to leverage, support and encourage government in the proper and timely implementation of its policies, plans and programmes formulated decades ago, while principally focusing on achieving SDG 2 by 2030 (IITA, 2017).

4.5.1 The Zero Hunger Road Map for Nigeria

The Zero Hunger Road Map for Nigeria summarises the current situation, what needs to be achieved, what actions are required, a time frame for action, and which key partners are required for each of the SDG 2 targets (IITA, 2017). The Road Map constitutes the primary vehicle used by the Nigeria Zero Hunger Forum (NZHF) to implement its work and plans, discuss and add measurable indicators to the Road Map in determining progress toward the most important milestones. The NZHF, formed in January, 2017, comprise the Chairs of Zero Hunger Strategic Review subcommittees and Governors of pilot States, while the supporting technical partners are IITA, AfDB, WFP, FAO, UNICEF and IFAD. They are saddled with the responsibility of monitoring and properly following-up the implementation of the priority actions and key recommendations of the plan, and ensure that the Review contributes to the timely achievement of Zero Hunger in Nigeria by 2025. The roles of the Forum are discussed in IITA (2017). Other responsibilities of the forum are to:

i. establish and oversee a platform for sharing information about Zero Hunger.
ii. propose progressive policies towards the attainment of Zero Hunger.
iii. assist with land availability, preparation and resource mobilization to support Zero Hunger implementation in pilot States (Sokoto, Ebonyi, Benue, and Ogun) in the first two years with each pilot State having a minimum of two crops and one type of livestock as their focal commodities; addition of two more states per zone at the start of the third year and the inclusion of the remaining states at the beginning of the fifth year.
iv. embark on awareness campaigns on the importance of food and nutrition security.

Nigeria's efforts towards the achievement of the SDG 2 target have also received support from various international agencies. The activities of some of these agencies are discussed below.

a. United States Agency for International development (USAID):

Nigeria was selected by the US Government as one of the 12 *Feed the Future* target countries in the US Government's Global Food Security Strategy programme. The aim of this programme is to channel direct investment into nutrition in the selected countries. Table 5 shows the programmes of USAID currently active in Nigeria with a renewed focus on FNS.

Table 5: USAID Nutrition Related Programmes in Nigeria

Selected Projects and Programmes Incorporating Nutrition in Nigeria		
Name	**Dates**	**Description**
Feed the Future Nigeria Nestle Maize Improvement Activity	2017–2020	Smallholder farmers producing maize and soybean are the beneficiaries of this programme. The activity is aimed at reducing levels of contaminants particularly aflatoxins in the aforementioned crops.
Maternal and Child Survival Programme (MCSP)	2014–2019	MCSP is an ongoing programme in Kogi and Ebonyi states aimed at reducing newborn and maternal mortality through increase in the use of quality, key evidence-based interventions in the health facilities of the two states.
Feed the Future Nigeria Livelihoods Project	2013–2018	This project is aimed at reducing poverty and improving household nutrition in Sokoto, Kebbi, Abuja, Adamawa, Borno, and Yobe states of Nigeria. These are being achieved through increased agricultural productivity, provision of proven technologies, improvement in agricultural research and development leading to increased resilience of crops against pests and diseases, better harvests and incomes for the rural smallholder farmers.
Food for Peace (FFP)	Ongoing	The FFP office collaborates with nongovernmental organizations and UN agencies in assisting the conflict-affected populations of Adamawa, Borno, Gombe, and Yobe states of Nigeria. One of their numerous activities is the provision of emergency food and nutrition assistance to affected populations in these areas. The office also provides targeted cash transfers and food vouchers to displaced persons and host community members of these states (especially pregnant and lactating women, households with children under 5 and female-headed households) so as to increase household access to diversified sources of food.

Source: USAID, 2018

b. Food and Agriculture Organisation of the United Nations (FAO)

FAO has continued to offer assistance to Nigerian government especially in the northeastern part of the country. The organisation, in its effort to alleviate food insecurity in conflict-affected areas of northeastern Nigeria, is providing 10,520 households with small ruminants and 88,100 households with dry season and micro-/backyard gardening kits in Adamawa, Borno and Yobe

states under FAO's 2018/19 dry season agricultural programme. FAO has also mobilized USD 19.35 million and is seeking USD 31 million for emergency livelihood support to assist 1.7 million people in the three states (FAO, 2018d).

c. World Food Programme (WFP)

The WFP has embarked on numerous activities in the northeastern part of Nigeria reaching about 1.2 million people with food and nutrition assistance across Borno, Adamawa and Yobe States. The organisation supported about 350,000 young children and women in these states under its preventive nutrition assistance approach activities. Food were distributed to about 722,240 people (most of these people were internally displaced in camps or living in host communities). Also, 438,754 people were assisted with cash or vouchers in areas with functioning markets. Cash-based-transfers were distributed to 38% of the beneficiaries and in-kind food assistance to 62%. Furthermore, under the multi-sectoral Integrated Nutrition Programme, an additional 32,883 pregnant and lactating women received cash transfers and 22,013 children aged 6-23 months were provided with a total of 113 metric tonnes of super cereal (WFP, 2018)

5. Conclusion and Recommendations

Nigerian government is focused on ending hunger by 2030, as part of the global vision of the SDG2 which aimed at achieving zero hunger in all nations by 2030. Moreover, Nigerian government have launched, revised and currently re-launched Food and Nutrition Security (FNS) - related policy documents and action plans centred on achieving zero hunger at the earliest time possible. Relevant stakeholders at local and international levels are working assiduously to implement the intervention programmes so as to achieve the SDG 2 targets.

Therefore, it is imperative for all stakeholders to de-emphasize unwarranted advocacy and politicisation of the intervention programmes; rather, they should advocate for adequate resource allocation by all partners to finance FNS-related programmes.

The Nigerian government should ensure that the policy and institutional frameworks formulated towards achieving SDG2 programmes are properly supported and strengthened financially and in all ramifications.

Also, the Nigerian government should give utmost priority to:

    i.   the fight against corruption.

ii.   quick resolution of armed conflicts in affected areas.

iii.   policies that will lead to significant reductions in unemployment rate.

iv.   policies that will lift people out of poverty.

v.   rural developmental projects which should be handled in a professional manner.

vi.   the National Agricultural Research System so that it can deliver its core mandate.

vii.   the various research institutes so that they are refocused towards delivering their mandate.

viii.   agricultural production and nutrition-related interventions to effectively tackle hunger-related problems of underweight, malnutrition, and mortality, especially among children.

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