REPORT

JOINT CILSS/FEWS/NET/FAO/WFP/JRC/EU
2017/2018 PRE-HARVEST ASSESSMENT MISSION IN
NIGERIA

October, 2017

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ACRONYMS

AGRHYMET	Centre Régionale de Formation et d'Application en Agrométéorologie et Hydrologie Opérationnelle (French)
CPI	Consumer Price Index
CILSS	Comité Inter-Etats pour la Lutte contre la Sécheresse au Sahel (French)
FAO	Food and Agriculture Organization of United Nations
FCT	Federal Capital Territory
EU	European Union
FEWS NET	Famine Early Warning Systems Network
FGN	Federal Government of Nigeria
GHI	Global Hunger Index
IFAD	International Fund for Agricultural Development
NAERLS	National Agricultural Extension and Research Liaisons Services
NBS	National Bureau of Statistics NGOs
NGOs	Non-governmental Organizations
NEMA	National Emergency Management Agency
NiEWG	Nutrition Emergency Working Group
NIHSA	Nigeria Hydrological Services Agency
NiMeT	Nigeria Meteorological Agency
NPC	National Population Commission, Nigeria
OCHA	United Nations Office for the Coordination of Humanitarian Affair
SEMA	State Emergency Management Agencies
UNICEF	United Nations International Children Education Fund
USAID	United States Agency for International Development
WEP	World Food Programme

I. INTRODUCTION

1.**1: Background Information**

The 2017/2018 Joint CILSS/FEWS/NET/FAO/WFP/JRC/EU Pre-harvest Assessment Mission in Nigeria was carried out from 16th to 20th October, 2017. Generally, the report provides an insight into the 2017/2018 cropping season with emphasis on food production estimates, market situation, price level of some food items especially cereal crops, agro-meteorological conditions, phytosanitary and agro-pastoral conditions across the country. In addition, it also highlighted the nutritional status as well as areas in Nigeria at high risk of food insecurity.

1.2: The Team Members of the 2017 Mission

TRAORE Sy Martial	- CILSS/AGRHYMET Regional Center, Niamey, Niger
Dr. Agali Alhassane	- CILSS/AGRHYMET Regional Center, Niamey, Niger
Prof Johson Onyibe	- NAERLS/ABU Zaria, Nigeria
Prof Christogonus K. Daudu	- NAERLS/ABU Zaria, Nigeria
Prof Ikani I. Emmannuel	- NAERLS/ABU Zaria, Nigeria
Engr. A.O. Lawal	- NAERLS/ABU Zaria, Nigeria
Baba Dahiru	- NAERLS/ABU Zaria, Nigeria
Atiku Mohammed Yola	- FEWS-NET, Nigeria
Dr Christopher Okonjo	- FAO, Nigeria
Agwu Okorie Ama	- NPFS, Nigeria
James Adamu	- NiMet, Nigeria
Yahaya Husseini	- FAO, Nigeria
Yadinka Charles	- WFP, Nigeria
Adeyinka Timothy	- WFP, Nigeria
Dr Julius Ajah,	- Consultant (University of Abuja, Nigeria)

1.3: Specific Objectives of the Mission

The broad objective of the 2017 Joint Mission is to assess the situation and the progress of the crop year in close collaboration with national structures/institutions, Non-governmental organizations and other partners involved in the monitoring of crop and food security situations in Nigeria and other West African Sub-regions in general. The specific objectives are to:

  i. review the progress of the 2017/2018 cropping year,
 ii. analyze the information to estimate the 2017/2018 production of cereals and other food commodities across the country,
iii. collect available information/data on the functioning of cereal and livestock markets and prevailing price levels in the cropping season,
 iv. assess the Nigeria's food security situation and identify areas at risk and the populations likely to be affected, and
  v. collect statistical information/data necessary to prepare the 2017/2018 provisional food and cereal balance sheets.

II   PROGRESS OF THE 2017/2018 CROPPING SEASON
2.1.0: Rainfall situation in the country
2.1.1: Overview of 2017 rainfall situation across the country
In Nigeria, the onset date for the growing season was predicted to run from February 25 over the coastal states to June 16 in the far North. The length of the growing season was predicted to range from 100 days in the far north to 287 days in the southernmost areas. On the other hand, cessation dates was predicted to start from October 4 in the extreme North and around December 25 in the coastal states found in the southern part of Nigeria (NiMeT, 2017). Although the onset date for the growing season was predicted to start from February 25 in the coastal states, report by NiMeT (2017) indicated that some parts of south like Lagos, Oyo, Ogun, Ekiti and Cross Rivers States experienced mild-to-Severe wetness in January 2017. Similarly, in February, mild wetness was experienced in parts of Lagos and Ogun while Negative rainfall anomalies of mild-to-severe intensities were observed in some South-south States. In March, parts of Lagos, Ogun, Oyo, Bayelsa and Rivers States experienced mild to moderate wetness. Though the rainy season had fully set in over most parts of the southern States, places in and around Ogun, Oyo, Osun, Ondo, Ekiti, and Enugu States were yet to fully recover from dry season conditions in March (NiMeT, 2017). From April to June 2017, there was an increase in wetness over large portions of the country. Severe-to-extreme wetness dominated parts of the south. In the north, places in around Jigawa, Yobe, Zamfara, Taraba and Adamawa States had early rainfall that was above normal. On the other hand, places in and around Ogun, Ondo and Niger States experienced moderate rainfall while other parts of the country were under normal rainfall conditions. By the end of June, rainfall had progressively reached the frontline states but there was moderate dryness over Potiskum and mild over Ogoja and Abeokuta. From the months of July to September, there were heavy rainfalls in some locations leading to pronounced soil moisture saturation that resulted in flooding (NiMeT, 2017). However, dry spell (August Break) was observed in August as follows: Sokoto (9 days), Potiskum (8 days), and Katsina (8 days) (NiMeT, 2017).

2.1.2. Comparing Rainfall between 2016 and 2017
Presented in Figure 1a is the comparative analysis of the percentage difference in rainfall between 2016 and 2017. The analysis shows a reduction in rainfall amount in 2017 compared with the 2016 observed rainfall over Sokoto, Potiskum, Bida, Minna, Abuja, Ilorin, Shaki, Oshogbo, Akure, Ikom and Eket axis. Conversely, surplus to normal rainfall amounts were recorded across other parts of Nigeria with highest positive anomaly over Jos and Awka axis. The percentage difference in rainfall between 2016 and 2017 reveals a reduction in rainfall amount over Bauchi, Kano, Maiduguri, Minna, Zaria, Yola, Abuja, Abeokuta, Oshogbo, Iseyin, Ilorin, Shaki, Eket, Warri, Ikom and Awka. However, normal-to-positive anomaly were observed across other cities in Nigeria. Figure 1b provides additional information on the level of deviation or variation of the 2017 rainfall from 2016 across the country. Generally, it should be noted that the percentage deviation in rainfall in most of the places were very low (±20%). This suggests that there was relative stability in rainfall across the country, and all things being equal, it can be used to predict crop and livestock performance.
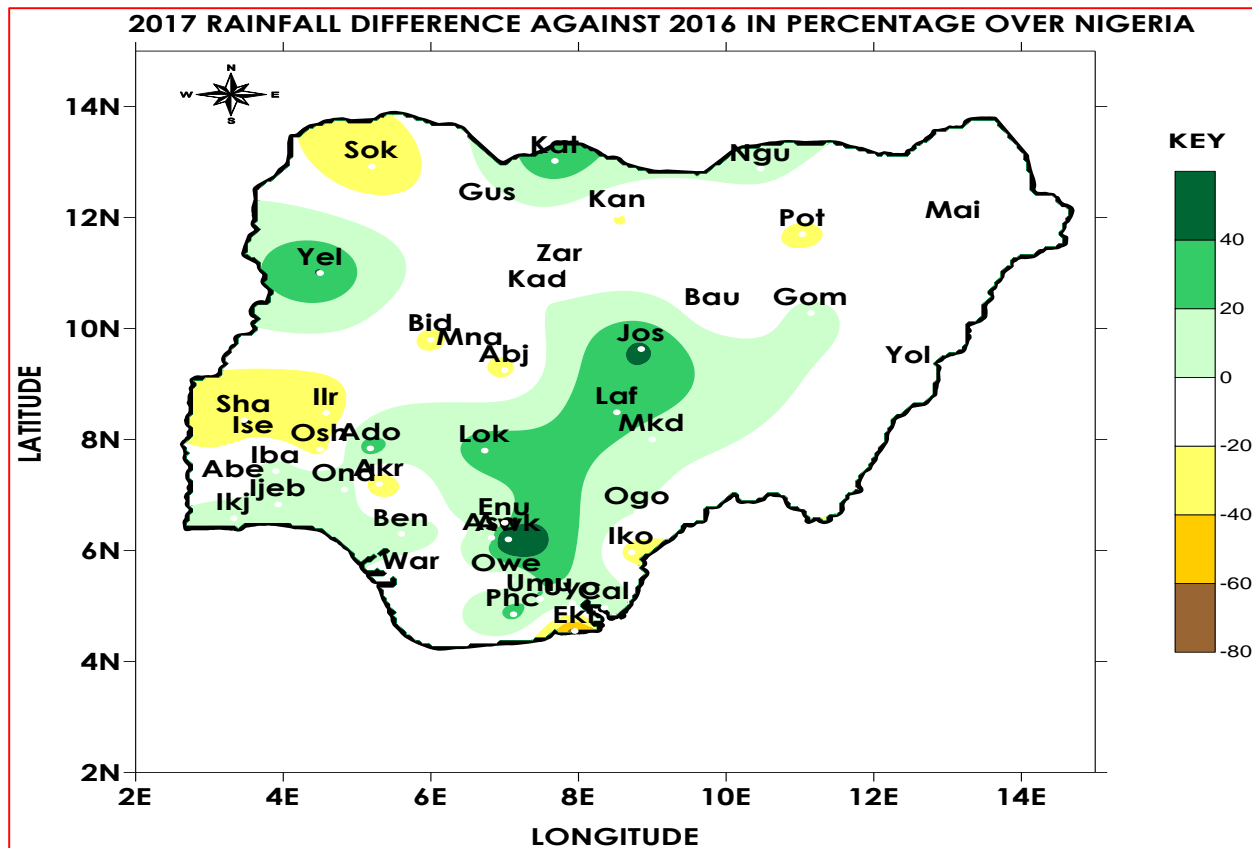
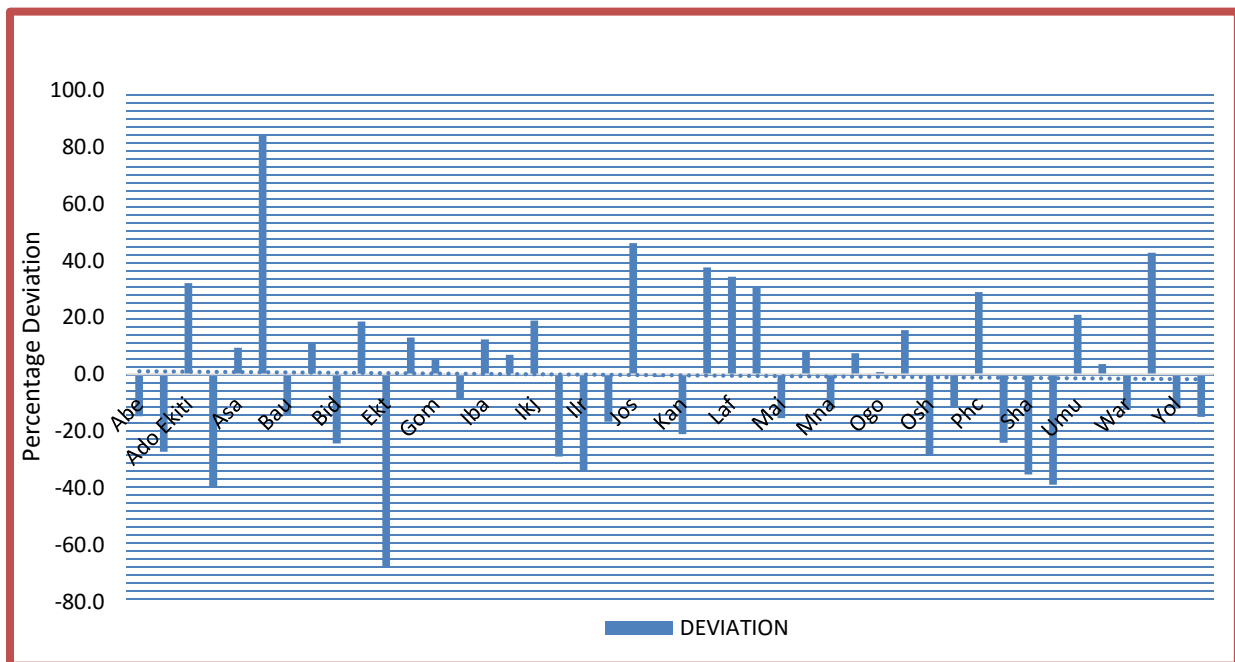**Fig 1a: Percentage difference in rainfall between 2016 and 2017**

Fig 1b: Percentage deviation in rainfall between 2016 and 2017

2.1.3: Comparing Rainfall in 2017 with a five-year Average (2012 - 2016)

The analysis of total rainfall from January to August 2017 compared with the last five (5) years is shown in Figure 2a. The observed rainfall difference during the 2017 rainfall period to the 5-year average indicates deficit (below normal) over Sokoto, Kano, Zaria, Bauchi, Potiskum, Gombe (Northern axis), Akure and Oshogbo (Southwest axis) and Ikom, Eket (South-South axis). However, places around Nguru, Maiduguri, Yola, Yelwa, Kaduna, Lafia and Makurdi recorded above normal rainfall. This result is further demonstrated in Figure 2b and indicates a mixture of positive and negative anomalies, most significant over Awka and its environs with about 98.8% increase. Areas with significant increase in rainfall compared to the 5-year average include: Ibadan, Ijebu-Ode, Jos, Lafia, Nguru, Yelwa, and Portharcourt with above 40% increment. Highest significant negative anomaly was over Eket with a 68.0% value. In addition, areas with a reduction in rainfall below 40% include: Sokoto, Kano, Potiskum, Bauchi, Kano, Maiduguri, Nguru, Abuja, Ilorin, Bida, Shaki, Oshogbo, Iseyin, Akure and Ikom. Other cities showed no significant change and this connotes that the rainfall situations in those places were relatively stable over the five years compared to other locations.
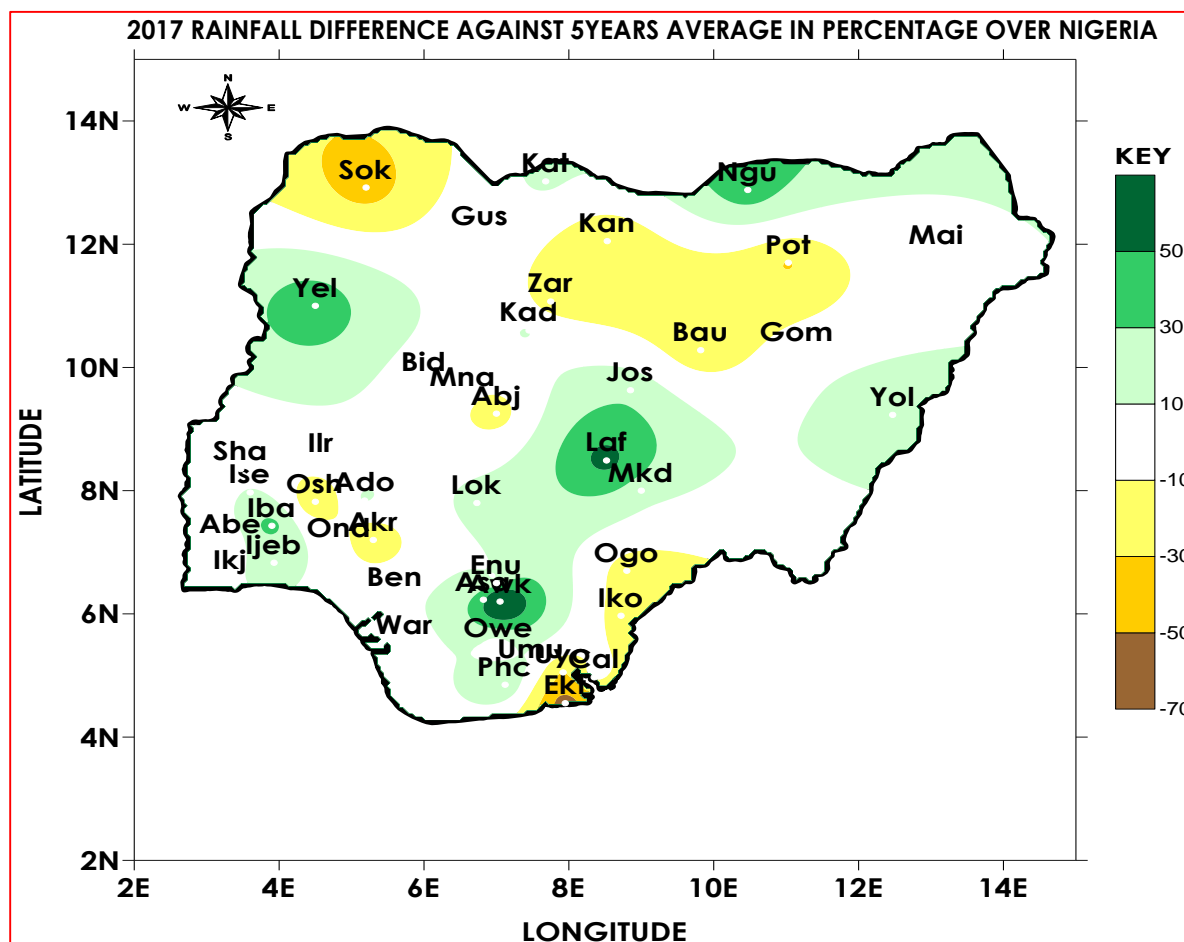

Fig 2a: Comparing 2017 Rainfall against 5-year average (2012-2016)
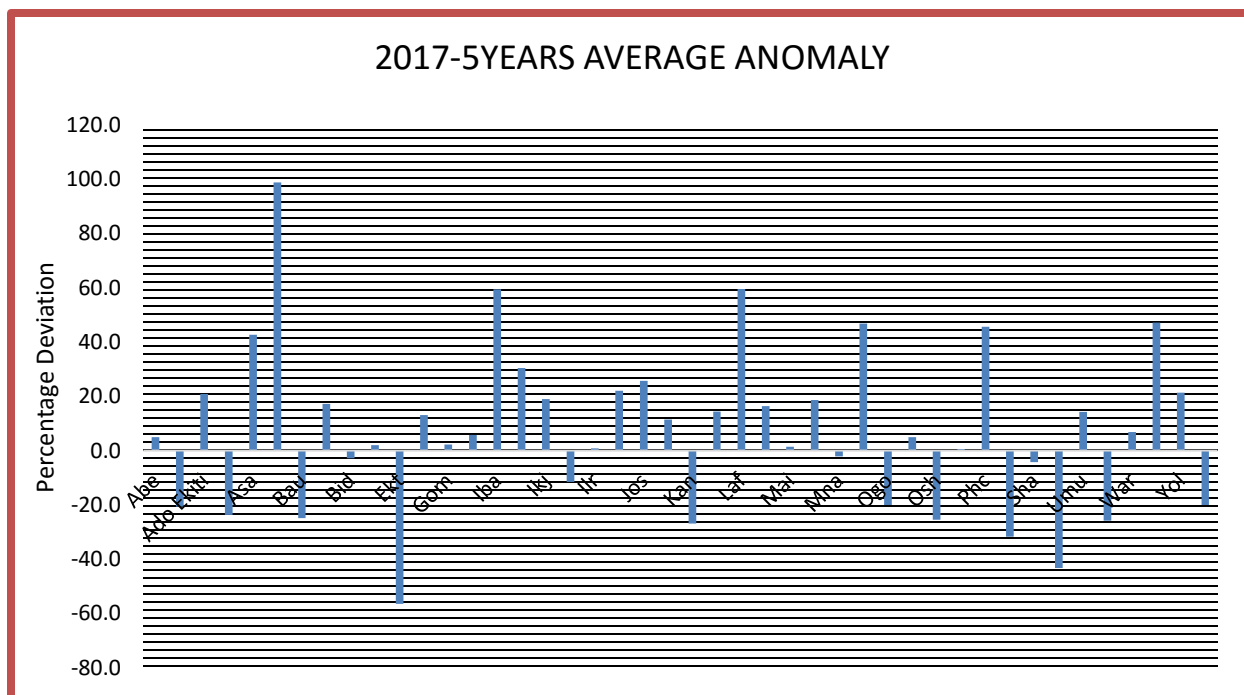
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Fig 2b: Comparing 2017 Rainfall against 5-year average (2016-2017)

2.2. Hydrological Situation

The hydrology of Nigeria is dominated by two great river systems, the Niger-Benue and the Chad systems. With the exception of a few rivers that empty directly into the Atlantic Ocean (Cross River, Ogun, Oshun, Imo, Qua Iboe and a few others), all other flowing waters ultimately find their way into the Chad Basin or down the lower Niger to the sea. River Niger and Benue are regarded as trans-boundary Rivers and their influence contribute to floods that are experienced in some parts of the country. The country is divided into eight contiguous Hydrological Areas (HAs) which serve as hydrological response units for assessment and management of water resources of the country (Fig 3). Hydrological hazards (floods and drought) have increasingly been a major concerns all over the world mainly due to human activities, climate change and rising sea levels. Nigeria is at the downstream of Niger River basin, hence the need to brace up for the flood waters coming from the upstream countries and in particular the upper Niger River basin. Communities in the coastal and riverine areas are under the threat of recurrent coastal flooding and salt water intrusion, while urban flooding and inundation of flood plains have become common place in most of our cities. Among the 22 states were flood occurred in the country, Benue State was the most affected. The flooding experienced in Benue State was due largely to the influence of River Benue and its major tributaries such as River Mada, Ankwa, Katsina-Ala, Dep and Donga with contributed flows from other smaller tributaries. The effects of flood was worsened by torrential rainfall of around 1300mm (annual average for sahelian) that lasted for more than 72 hours within the catchment area in late August, 2017. Although flooding has become an annual disaster for the region in recent years, especially during the peak of the rainy season, this year recorded some of

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the worst cases. The frequency, magnitudes, and its adverse socio-economic consequences have increased and deserve serious and urgent attention.
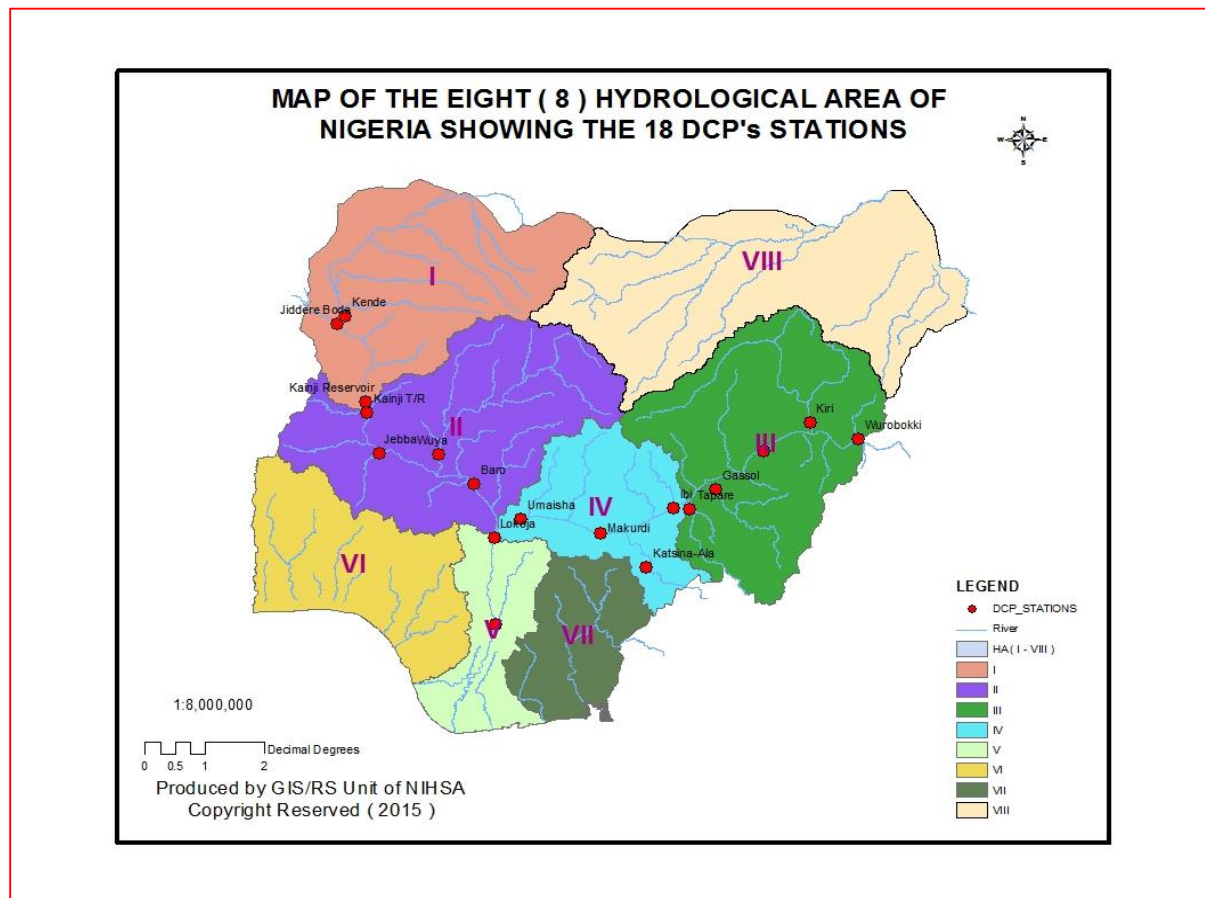
Fig. 3: The Eight Contiguous Hydrological Areas (HAs) in Nigeria
NIHSA, 2017

2.3. Crop Situation

The natural vegetative zones that exist in Nigeria are governed by the combined effects of temperature, humidity, rainfall and particularly, the variations that occur in rainfall. This forms a major influence on the type of indigenous plants that grows successfully in different parts of the country. Because of the variations in the agro-climatic and weather conditions, field preparation for crop production in Nigeria depends on the onset of rainfall in a particular area. According to NiMeT (2017), parts of Lagos, Oyo, Ogun, Ekiti and Cross Rivers States experienced mild-to-Severe wetness in January 2017 while rainfall in and around Warri, Benin, Port-Harcourt, Eket, Calabar, Owerri, Enugu, Ijebu-Ode and Ibadan were normal. Other parts of the country according to NiMeT (2017) had no rainfall due to prevailing dry season. Based on the distribution of rainfall, farmers in the southern part of Nigeria started field preparation in January while those in the northern part commenced around April/May. The year progressed with early green harvests of maize, vegetables, fruits and yams in the south and groundnut/potatoes in the north zone. Maize

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and rice were among the cereal crops planted in all parts of Nigeria. However, irrigated maize was available in some parts of Nigeria (e.g, Abuja, Kaduna, Kano States) throughout the year. The production of major cereal crops like sorghum, millet and wheat is not popular in the southern part but in the northern with suitable ecology. Generally, adequate rainfall in 2017 facilitated crop development in most parts of the country except the locations marked by conflicts like northeast zone. It should be noted that because of recession, prices of food stuff/items were very high and this pushed so many people into agriculture.

2.4. Phytosanitary Situation

Crop pests and diseases are some of the challenges confronting farmers across Nigeria. In 2017, there were some reports of outbreak of pests and diseases in some states. One of the pests is the African Armyworm (*Spodoptera exempta*) also called Nutgrass. Armyworm - an African moth, capable of destroying many crops including maize, rice, sorghum, millet, cotton, cocoa, e.t.c. Some of the states affected by the pest include: Adamawa, Taraba, Abia, Ondo, Oyo, Ekiti, Nasarawa, Kogi, Kwara, Abuja, Benue, Kano, Katsina, Kaduna, Niger, Jigawa, Yobe, Osun Akwa Ibom, Gombe. Nigeria is one of the countries in Africa affected by Fall Armyworms to the extent that   FAO offered to assist Nigeria in tackling the scourge (FAO, 2017a). The Federal Government of Nigeria revealed that ₦2.98 billion would be needed to fight army worms' invasion on an estimated 700,000 hectares of farmland in the country and this shows the seriousness of the problem. Apart from Army Worm, some millet farmers in Borno State (Northeast Nigeria) suffered from the devastating effect of millet stem-borer (*Coniesta-gnefusalis*). On the other hand, there were also cases of tomatoes disease outbreaks in Gombe State. The infestation was caused by *Tuta Absoluta* also called *Tomato Ebola* by local farmers. All these pests have the potential to reduce output and productivity of crops and unfortunately, the damages are difficult to quantify.

2.5. Pasture and Livestock Situation

The distribution of pasture from the southern to the northern part of Nigeria was favourable in 2017. There was no remarkable drought or prolonged dry season hence pastures were abundant and available especially after the commencement of the rainy season. Water sources like earth dams, ponds, streams, rivers, lakes and dams, were also available and accessible to livestock farmers across the country. Livestock farmers especially, herdsmen migrate to water points during dry season. The movement of livestock farmers in search of water and pasture often results in frequent clashes between crop farmers and pastoralists with subsequent loss of lives and properties. Most of the violent clashes also lead to displacement of both crop farmers and herders due to the destruction of houses and farm lands. The clashes were experienced across the country in 2017 with unquantifiable damages. The farmer-herder conflicts are some of the hindrances in the actualization of food security and stability in Nigeria. In terms of livestock, there were cases of disease outbreaks caused by Avian Influenza or Bird Flu. The total number of birds culled was 3,736,824 while the number of farms affected was about 800. Government need ₦1, 813, 893, 320, to pay the affected poultry farmers as compensation (Vanguard Daily Newspaper June, 3. 2017). This amount is only to pay compensation to farmers with 3,000 birds and below (This Day News Paper, June 2, 2017). The worse hit states by the virus are Kaduna, Kano, Katsina, Bauchi, Nasarawa, Plateau and FCT. Some of these cases affected livestock production across the country

and invariably influenced the lives of the people who directly or indirectly depend on them for their livelihoods.

III.   THE 2017/2018 CEREAL AND OTHER FOOD PRODUCTION FORECAST
3.1. Reminder of the Methodology
The 2017/2018 Pre-harvest Assessment Mission was conducted in Nigeria from 16th -20th October, 2017. Before the arrival of the team on October 16, 2017, the Director, National Programme for Food Security (NPFS) had written letters to key partners like FAO, Nigerian Meteorological Agency (NiMeT), Nigeria Hydrological Service Agency (NIHSA), National Bureau of Statistics (NBS), Famine Early Warning Systems Network (FEWS-NET) and NAERLS to inform them of the Mission and the need to actively participate to make the mission a success. On arrival, the Team visited and interacted with the management and technical staff of FAO, NiMeT and FEWS-NET in Abuja. This report, therefore, is based on secondary data and information from the above organisations and other agencies like National Emergency Management Agency (NEMA). Specifically, the estimated outputs of cereal crops like maize, sorghum, rice, millet and other crops were estimated using the National Agricultural Performance Survey data conducted by NAERLS. The data were presented in a meeting in ABU Zaria and it was critically assessed and adopted by the mission. We also adopted the method of convergence of evidence in addition to the opinions of technicians who represented various organizations in the mission.

3.2. Cereal Production Estimates
Table 1 shows the 2017 cereal crops production estimates for four crops (maize, sorghum, millet and rice). Information on wheat output was not available hence it was not included in the analysis. Across the country, a total maize output of 9598.36mt was produced in 2016 against 11082.96mt estimated in 2017 representing 15.47percent increase (Table 2). Similarly, the total output of sorghum in 2016 was 6461.299mt but it decreased to 6298.15mt in 2017. This amounts to a decrease of 2.53 percent. On the other hand, the total estimated output for millet in 2016 was 1444.242mt against 1510.39mt in 2017 and this is equivalent to 4.58 percent increase. Furthermore, the output of rice in 2016 was 5897.213mt but it was estimated at 8050.88mt in 2017 representing 36.52 percent increase. Comparing the estimated output of the cereals in 2017 with a 5-year average (2012-2016), the result indicated that the outputs of maize, sorghum and millet deceased by 8.60, 16.26 and 12.26 percent respectively while that of rice appreciated by 6.29 percentages (Table 2). Generally, the decrease in the output of some cereal crops in 2017 compared with the 5-year average (2012-2016) may be attributed to so many things that have intensified within the last five years. First, the destabilization and displacement of farmers in the northeastern Nigeria by Boko Haram increased within the last five years in Borno, Yobe and Adamawa States. It affected crop production because the farmers in this region are known for cereal production but unfortunately most of them are still in camps where they are receiving aids. Second, in the states not affected by Boko Haram, there are farmer-herder conflicts. This was initially prominent in the north central zone which is also known for grain production but the conflicts have spread to other states in the country thereby becoming a nation-wide problem. Third, communal clashes arising from land disputes across the country is a factor. Fourth, the impact of climate change on crops

and other associated exogenous variables like flooding that displaced and damaged properties including farm lands. Fifth, the incidence of pests (e,g.*Fall Army Worm)* and livestock diseases (e.g. Avian Influenza) that have intensified in recent years.

Table 1: Output of Major Cereal Crops in Nigeria (x1000 tons)

Year	Maize	Sorghum	Millet	Rice
2012	9491.24	6851.029	1280.573	5238.23
2013	10379.8	5724.9	1314	5818.2
2014	10901.6	6341.1	1634.9	6690
2015	9540.19	5663.79	1477.26	7573.42
2016	9598.36	6461.299	1444.242	5897.213
2017	11082.96	6298.15	1510.39	8050.88

Table 2: Percentage change in output of major cereal crops (x1000 tons)

Crop	2016	2017	5-year average (2012 -2016)	% change b/w 2016 and 2017	% change b/w 5-year average and 2017
Maize	9,598.36	11,082.96	12,126.162	15.47	-8.60
Sorghum	6,461.23	6,298.15	7,521.490	-2.53	-16.26
Millet	1,444.24	1,510.39	1,721.741	4.58	-12.26
Rice	5,897.21	8,050.88	7,574.413	36.52	6.29

3.3. Tuber and other Crops Production Estimates

The production estimates of yam, cassava, cocoyam, cowpea, groundnut and soybean are presented in Tables 3. The analysis showed that the total national estimated outputs for yam, cassava, cocoyam, cowpea, groundnut and soybean were 56585mt, 64478.6mt, 2159.32mt, 4129.85mt, 2824.61mt and 1368.73mt respectively. The percentage difference in output between 2017 and 2016 (Table 4) for each of the crops was positive implying that there were more output in 2017 compared with 2016 for each of the crops. This may be attributed to increase in the total land cultivated for each of the crops rather than increase in productivity per hectare. Apart from cocoyam and groundnut, the differences between the five-year average (2012 -2016) and 2017 production estimate was positive.

Table 3: Output of other Crops in Nigeria (x1000 tons)

Year	Yam	Cassava	Cocoyam	Cowpea	Groundnut	Soybean
2012	32854	47334	3248	1890	2975	619.6
2013	37723	55143	3316	2032	3081	648.03
2014	36905.9	43700.5	1573.36	4238.10	3075.8	765.60
2015	37329.0	46430.8	1756.37	4197.74	3127.5	901.55
2016	53392.9	61137.8	2100.62	4074.90	2787.76	1323.52
2017	56585	64478.6	2159.32	4129.85	2824.61	1368.73

Table 4: Percentage change in output of other crops (x1000 tons)

Crop	2016	2017	5-year average (2012 -2016)	% change b/w 2016 and 2017	% change b/w 5-year average and 2017
Yam	53,392.9	56,585	39,640.96	6.0	42.7
Cassava	61,137.8	64,478.6	50,749.22	5.5	27.1
Cocoyam	2,100.62	2,159.32	2,398.87	2.79	-9.99
Cowpea	4,074.90	4,129.85	3,286.55	1.35	25.66
Groundnut	2,787.76	2,824.61	3,009.42	1.35	-6.14
Soybean	1,323.52	1,368.73	851.66	3.42	60.71

IV. FOOD SITUATION AND RISK ZONES
4.1. Food Situation
Nigeria is rated as one of the countries in the sub-Saharan Africa that is battling with food insecurity despite the abundant human and natural resources. According to FAO (2017c), Nigeria is one of the 29 African countries requiring external assistance for food and this implies that Nigeria is relatively food insecure. The 2017 Global Hunger Index (GHI) which ranks hunger levels based on four indicators (undernourishment, child stunting, child wasting, and child mortality) scored Nigeria **25.5** and this suggests that the hunger level is serious (IFPRI, 2017). As at September 2017, the CPI (Consumer Price Index) for food and non-alcoholic beverages only was 20.3%. The CPI measures the average change over time in prices of goods and services consumed by people for day-to-day living. The percentage change in this index over a period of time gives the amount of inflation over that specific period. The percentage value is relatively high because of so many issues. First, the depreciation of Naira arising from economic recession increased the prices of local and imported food prices. Second, weather shocks, including floods, hurricanes and droughts compounded the fragile conditions in some of the conflict-affected zones (northeast) resulting in production shortfalls. Although Nigeria is rated as a country that needs food aids, it should be noted that the food situation in Nigeria is not the same in all the states or geopolitical zones. It is worse in the Northeastern region compared with other areas due to insurgence activities initiated by Boko Haram. Food aids are needed in northeast, precisely Yobe, Adamawa and Borno States where poverty and armed conflict contribute to high levels of food insecurity and chronic malnutrition.

4.2.0 Market Situation
4.2.1. General Overview
In 2016, Nigeria battled with economic recession that forced prices of goods and services beyond the reach of the common (poor) masses. The increases in price for domestic and imported food items were driven largely by rapid depreciation of naira on the parallel market coupled with the drastic fall in oil revenues. But, late 2017, evidence showed that the country was coming out recession. Overall, staple prices remain higher than the previous year as well as the two and five-year average levels in most markets in the country. But, as harvests of early maturing crops have begun, staple prices have started declining slightly across most markets. Households will increasingly consume own food and staple prices will remain declining till the main harvest begins. Only the prices of long cycle crops could remain elevated until December. Also, localized high

food prices are expected in restricted production areas due to flooding, pest infestation, and conflicts that have continued to disrupt market activities and keep food prices at high levels.

4.2.2: Price of Sorghum across the country as at August 2017

Figure 4 provides information on sorghum prices across the country in August 2017. Sixteen strategic market locations were surveyed for the study and the result revealed that the price of sorghum per kilogram varied across the country. In the southern part of Nigeria, the price of sorghum in Aba and Lagos was over ₦200/Kg. This is equivalent to over $0.56/Kg (at exchange rate of ₦360 per 1US Dollar). On the contrary, the price of sorghum in most of the market locations in the North including the Northeast was between ₦151/Kg and ₦200/Kg. That is, within the range of $0.42/Kg to $0.56/Kg. Out of the 16 market locations covered in the survey, 10 locations representing 62.5% sold sorghum between ₦151/Kg and ₦200/Kg within the period. This implies that majority of the market locations across the country sold sorghum between ₦151/Kg and ₦200/Kg. Only in four market locations was sorghum sold between ₦126/kg and ₦150/Kg (less than half a US dollar per Kg). The four market locations are: Giwa, Potiskum, Mubi and Maiduguri and they represents only 25.0% of the total markets surveyed. Again, it was hard to see a market location where sorghum was sold for ₦126/Kg within the period. The price of sorghum is expected to come down from December during the harvest period due to so many factors including favourable weather and progress in tackling recession. One of factors contributing to high cost of sorghum in Nigeria is the activities of Boko Haram that displaced farmers who contribute to the production of sorghum in the northeast.
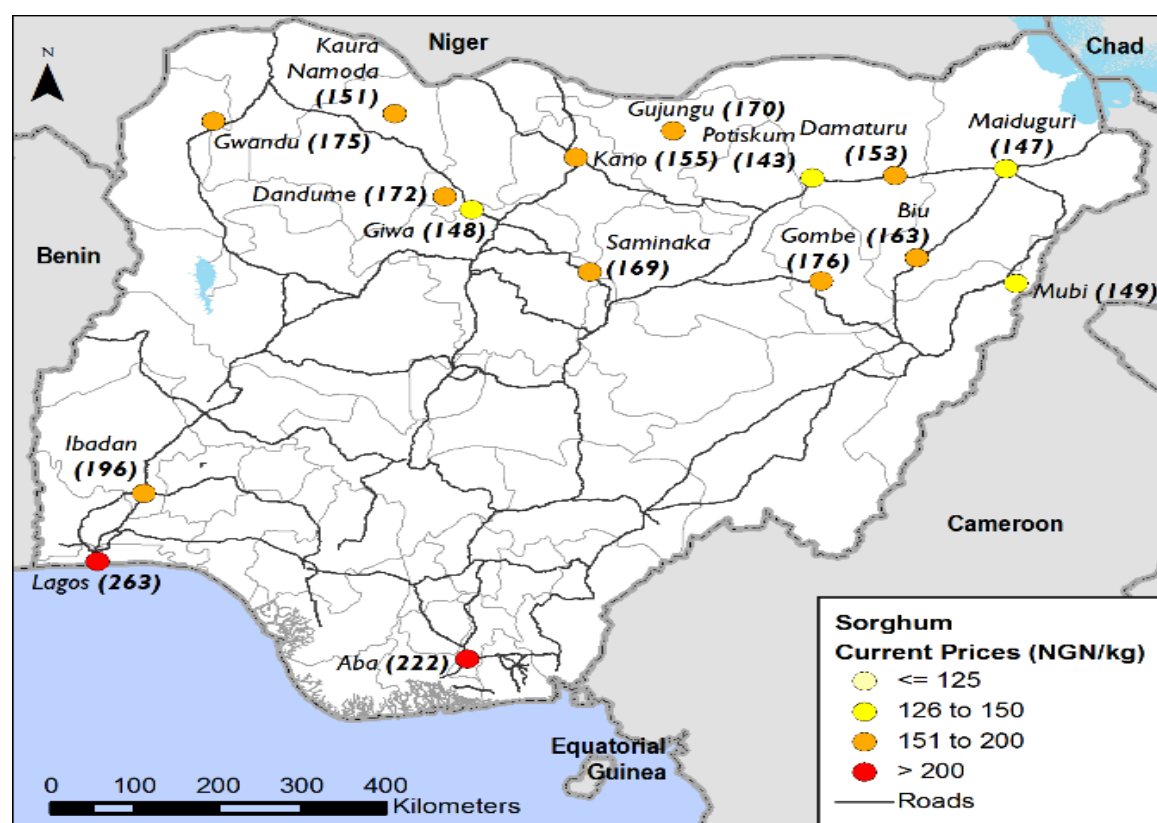

Fig. 4: Average Price of Sorghum as at August 2017

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4.2.3: Comparing Price of Sorghum between August 2016 and August 2017

The percentage variation in the price of sorghum between August 2016 and August 2017 is shown in Figure **5.** The analysis indicated that, across the country, only Lagos axis recorded over 50% increase (precisely 95%) between August 2016 and August 2017. Again, about six market locations (Biu, Giwa, Gombe, Potiskum, Kano and Maiduguri) representing 37.5% had at most 10% increase or decrease in the price of sorghum within the period compared. Further analysis showed that a total of nine market locations (Mubi, Damaturu, Gujungu, Gwandu, Dandume, Aba, Saminaka, Ibadan and Kaura Namoda) representing 56.25%, recorded between 11% - 30% increase in the price of sorghum. This indicates that greater proportion of the country recorded not more than 30% increase in the price of sorghum within the period. The percentage variation in the price of sorghum presents the picture of the dynamics of sorghum marketing across the country as influenced by so many variables including agro-climatic and socio-economic factors.
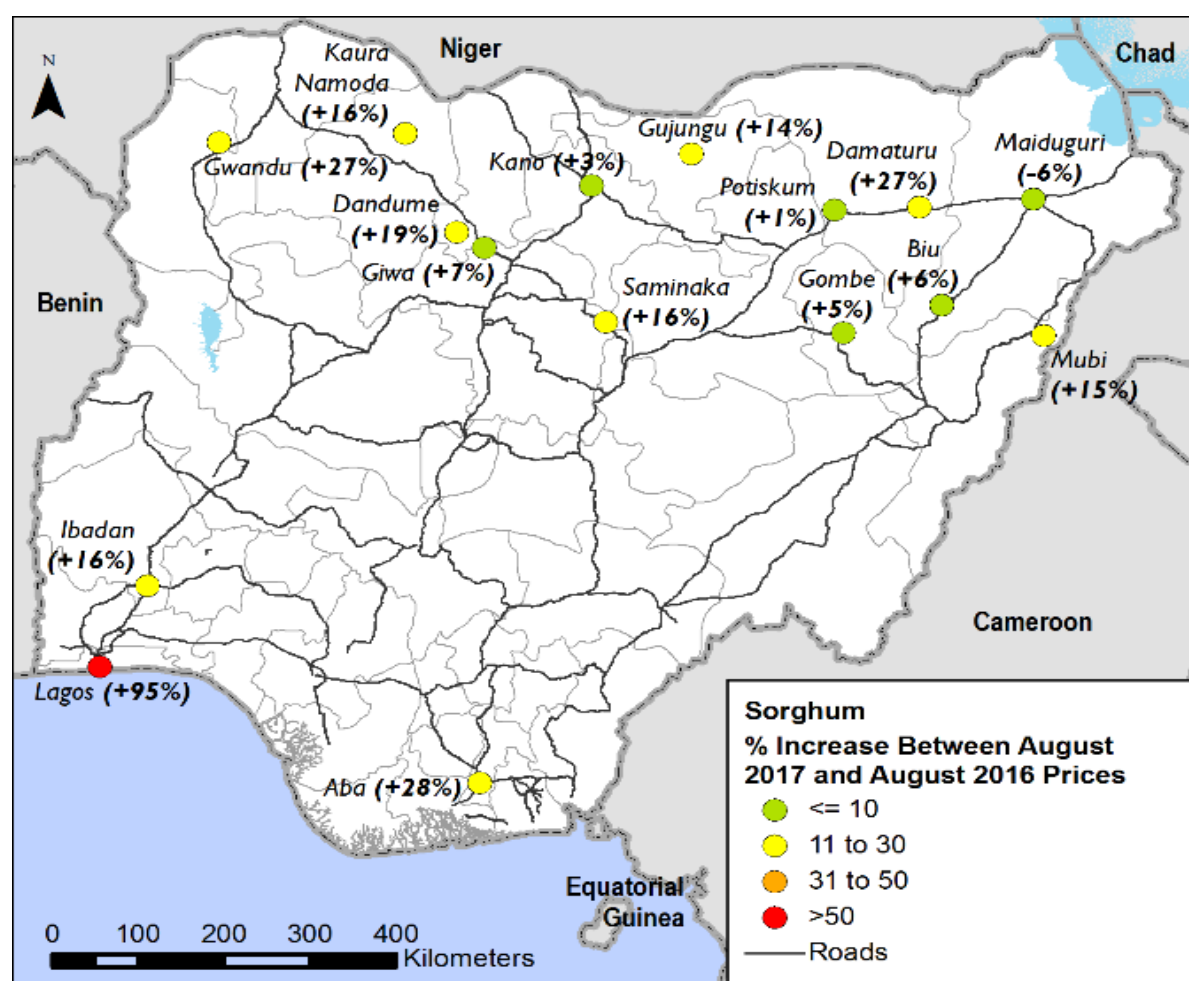

Fig 5: Percentage changes in sorghum price between August 2016 and August 2017

4.2.4: Price of Maize across the country as at August 2017

Maize is one of the most important cereal crops in Nigeria and unlike other cereals, it is grown in virtually all parts of Nigeria. It is one of the crops that can be grown two to three times a year depending on the location. The changes in the price of maize in 2017 as surveyed across the

country is shown in Figure 6. Like sorghum (Fig. 4), only in the southern part of the country (Lagos and Aba) was maize sold for over ₦180/Kg. In the North, the situation was different because, none of the market locations sold maize above ₦180/Kg. This amounts to $0.5/Kg at an exchange rate of ₦360 per 1US Dollar and it shows that maize was comparatively cheaper than sorghum within the same period. In the North (including Northeast), about ten (10) market locations (Mubi, Maiduguri, Gujungu, Gwandu, Dandume, Saminaka, Kano, Potiskum, Biu and Giwa) representing 62.5% sold maize within ₦141/Kg to ₦160/Kg. Other market places like Damaturu, Gombe, and Giwa, sold maize between ₦161/Kg and ₦180/Kg while market locations in Ibadan axis sold less than ₦160/Kg and this is costlier compared with what it was by August 2016. Market supply of maize will start increasing gradually from September 2017 as more harvests continue and the price is expected to vary towards the end of the year. One of the factors that stabilizes the price of maize across the country is irrigated maize which makes it relatively available all the year round especially in the northern part of the country.
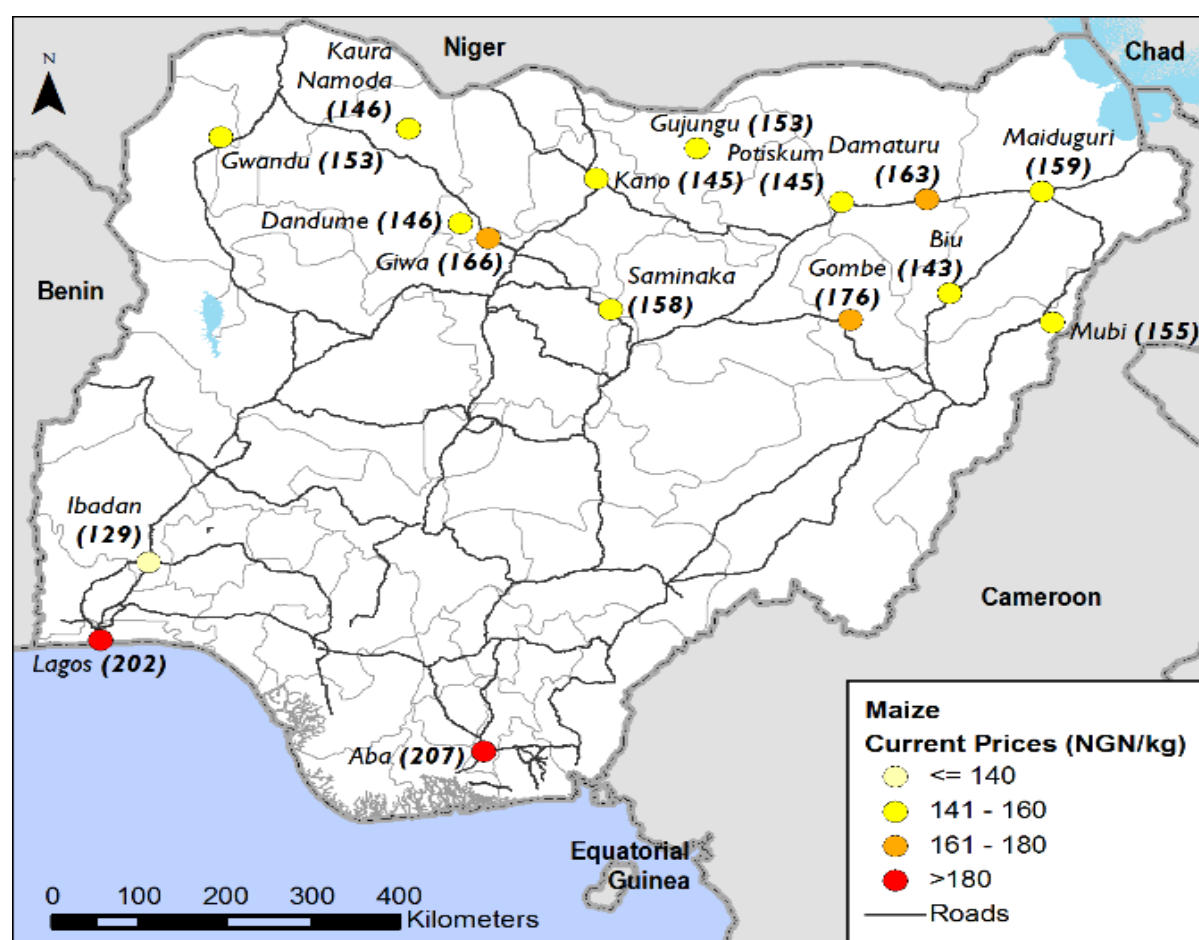

Fig. 6: Average Price of maize as at August 2017

4.2.5: Comparing Price of Maize between August 2016 and August 2017
The percentage change in price of maize between August 2016 and August 2017 in some key market locations in Nigeria is presented in Figure 7. The result indicated that it was difficult to get a market location where the percentage change in the price of maize between August 2016 and

August 2017 was up to 50%. Out of the 16 market locations surveyed, 12 representing 75% recorded less than or equal to 10% change in price of maize. Among those that recorded less than 10% increase, there was no change in price in Kaura Namoda axis while areas like Potiskum, Gujungu, Ibadan and Gombe sold maize cheaper in 2017 than in 2016 period. Only about 25% of the market locations recorded between 10% and 50% increase in price while others like Dandume, Giwa as well as Lagos recorded between 11% and 30% increase. These three market locations account for only about 18.75% of the total locations surveyed while the rest (6.25%) recorded between 31% to 50% increase. Considering the importance of maize in the diet of Nigerians and its industrial needs including livestock production, the percentage variations in price across the country is normal. Presently, World Bank, through TRIMING Project (Transforming Irrigation Management in Nigeria) is helping to improve irrigation facilities in Nigeria and this will help to increase output and stabilize the price of maize and other crops.
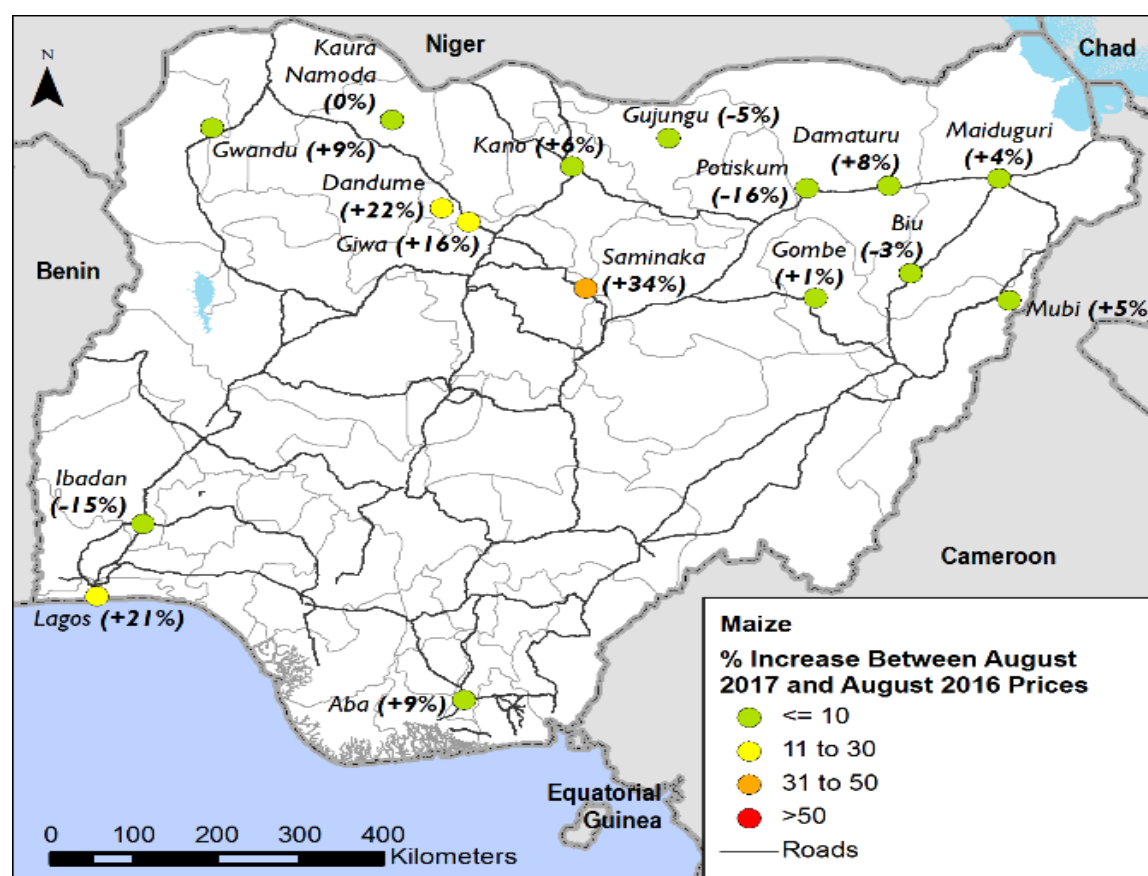

Fig 7: Percentage changes in maize price between August 2016 and August 2017

4.2.6: Price of Millet across the country as at August 2017
Millet is one of the cereal crops that is grown in Nigeria especially in the northern region including North Central Zone. It is not a popular food item in the southern Nigeria but it constitutes a major diet in the entire north where it is also produced for export. The prevailing market price of millet in August 2017 is presented in figure 8. Only in the southern part of Nigeria (Ibadan, Aba and

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Lagos) was millet sold for over ₦190/Kg. This is equivalent to over $0.53/Kg (at exchange rate of ₦360 per 1US Dollar). In the North, there were variations in the price of millet. For instance, in Potiskum, Kano, Kaura Namoda, and Gwandu axis, millet was sold for less than or equal to ₦150/Kg while on the contrary, the price was between ₦151/Kg to ₦170/Kg in Damaturu, Dandume, Maidugri and Biu axis. Other market locations like Giwa, Gombe, Saminaka and Gujungu sold millet between ₦171/Kg to ₦190/Kg. The high cost of millet in the south relative to north is not necessarily because of increase in demand but due to carrying-cost including transportation from the North to the South. With this relatively high price of millet, farmers may be tempted to increase land area under millet production in 2018 and this will help to boost national output and stabilize price.
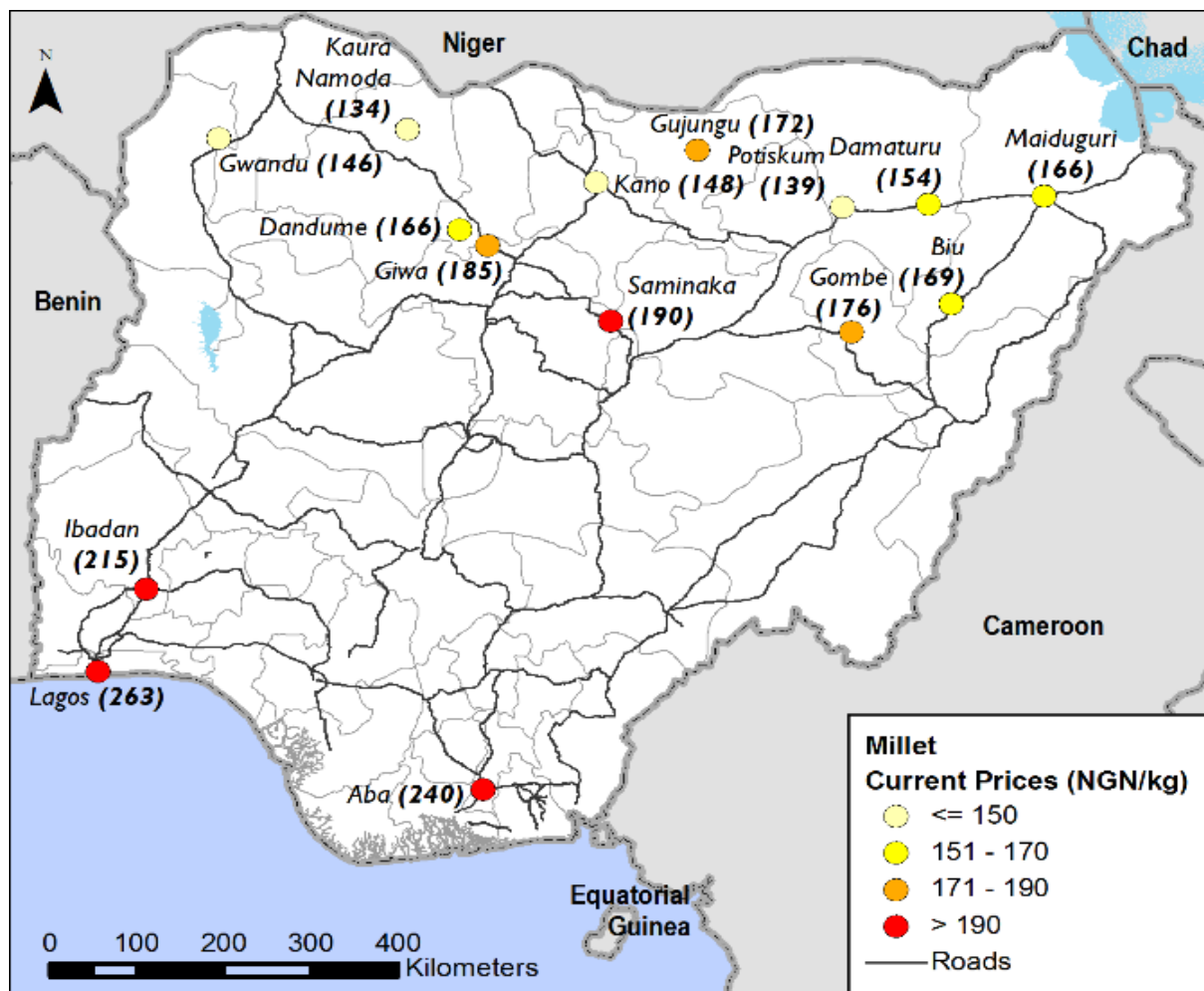

Fig 8: Average Price of millet as at August 2017

4.2.7: Comparing Prices of Millet between August 2016 and August 2017
The market analysis showing the percentage changes in the price of millet between August 2016 and August 2017 is shown in Figure 9. Within the period compared, all the key market locations sampled in the northern part of Nigeria including northeast had less than 50% increase in price. In some locations like Kaura Namoda (Northwest) and Potiskum (Northeast), there were decreases

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in price to the tune of 6% and 1% respectively. In the South, Aba and Ibadan recorded less than 50% while markets within the Lagos axis had over 50% increase in price. In terms of market locations surveyed, about 93% recorded less than 50% increase in millet price. This is similar to what was obtained for sorghum market analysis (Fig. 5) but differed from maize that recorded less than 50% increase across the country. Generally, the percentage variations in the price of millet across the country was normal in view of the fact that Nigeria is just coming out of recession that pushed the prices of food stuff high in 2016 and 2017. Now that Nigeria is recovering from recession, there are tendencies that the price may gradually decrease as the year comes to an end with an increasing harvest. It should be noted as well that the problem in the northeast is also affecting the price of millet because the zone contributes significantly to millet production.
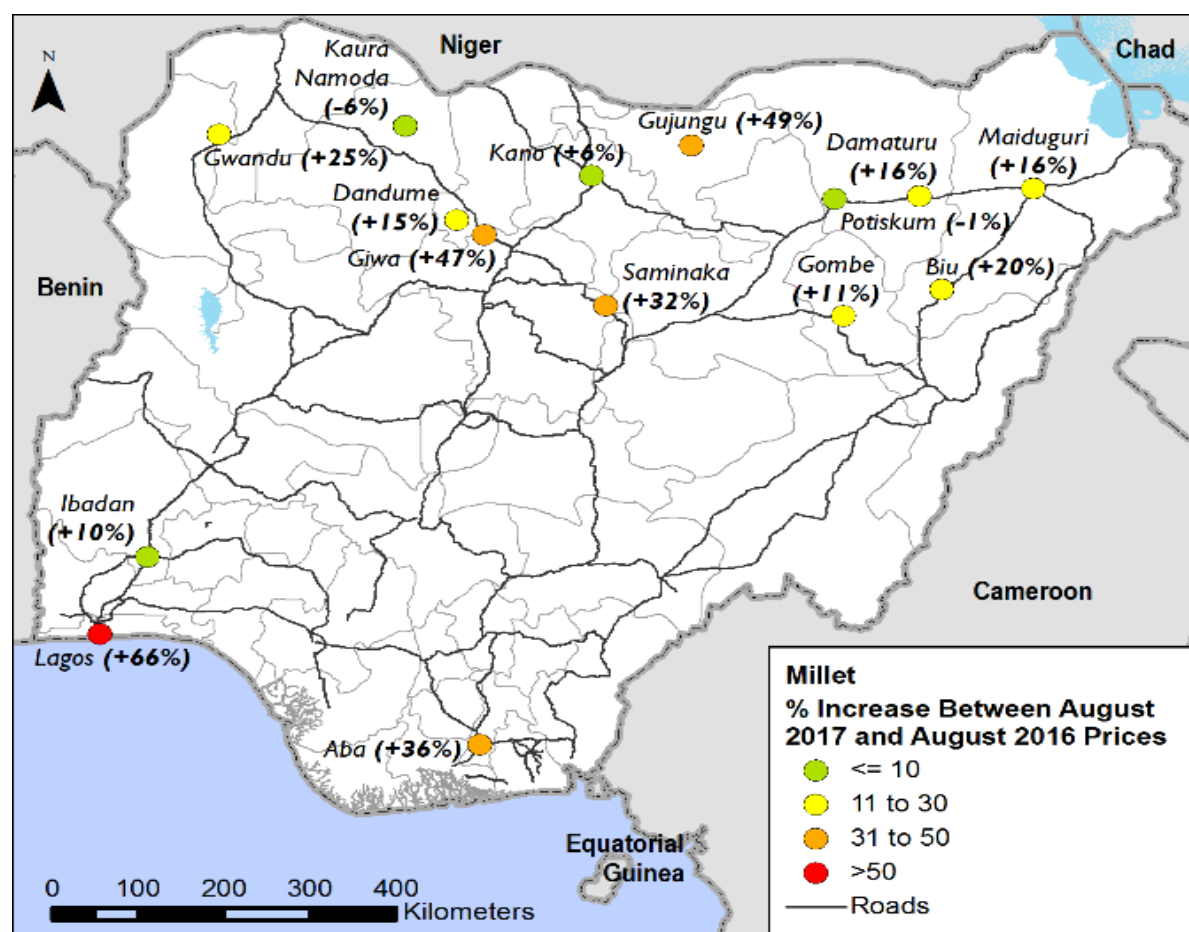

Fig 9: Percentage changes in millet price between August 2016 and August 2017

4.2.8: Price of Rice across the country as at August 2017

Rice is one of the most important cereal crops produced and consumed in Nigeria. Like maize, it is one of the crops produced in virtually all parts of Nigeria. The price of rice across major markets in the country is presented in Figure 10. Among the cereal crops captured in the market survey, it is the costliest per kilogram. The price of rice in Maiduguri, Potiskum and Aba was over ₦400/Kg. This is equivalent to over $1.10/Kg (at exchange rate of ₦360 per 1US Dollar). In Saminaka, Gombe, Biu, Dandume and Lagos axis, the price was between ₦351/Kg to ₦400/Kg while it was

between ₦301/Kg to ₦350/Kg in Giwa, Kaura Namuda, Gwandu, Mubi and Ibadan axis. The price of rice was less than ₦300/Kg in Kano and Damaturu. The high price of rice across the country compared with other cereals may be attributed to government's restriction policy on the importation of rice. Most of the foreign rice that enters the country pass through the porous borders. There is hope that the price may come down because there are so many private, national and international efforts aimed at improving rice production. For instance, Dangote Group, launched 25,000 ha of Rice Out-growers Scheme while IFAD promoted new varieties of rice in six States - Ebonyi, Niger, Taraba, Anambra, Benue and Ekiti. The Federal Government of Nigeria commissioned WACOT Rice Mill in Argungu, Kebbi State. This rice mill is currently the largest in the West African sub-region that is capable of producing top-quality rice.
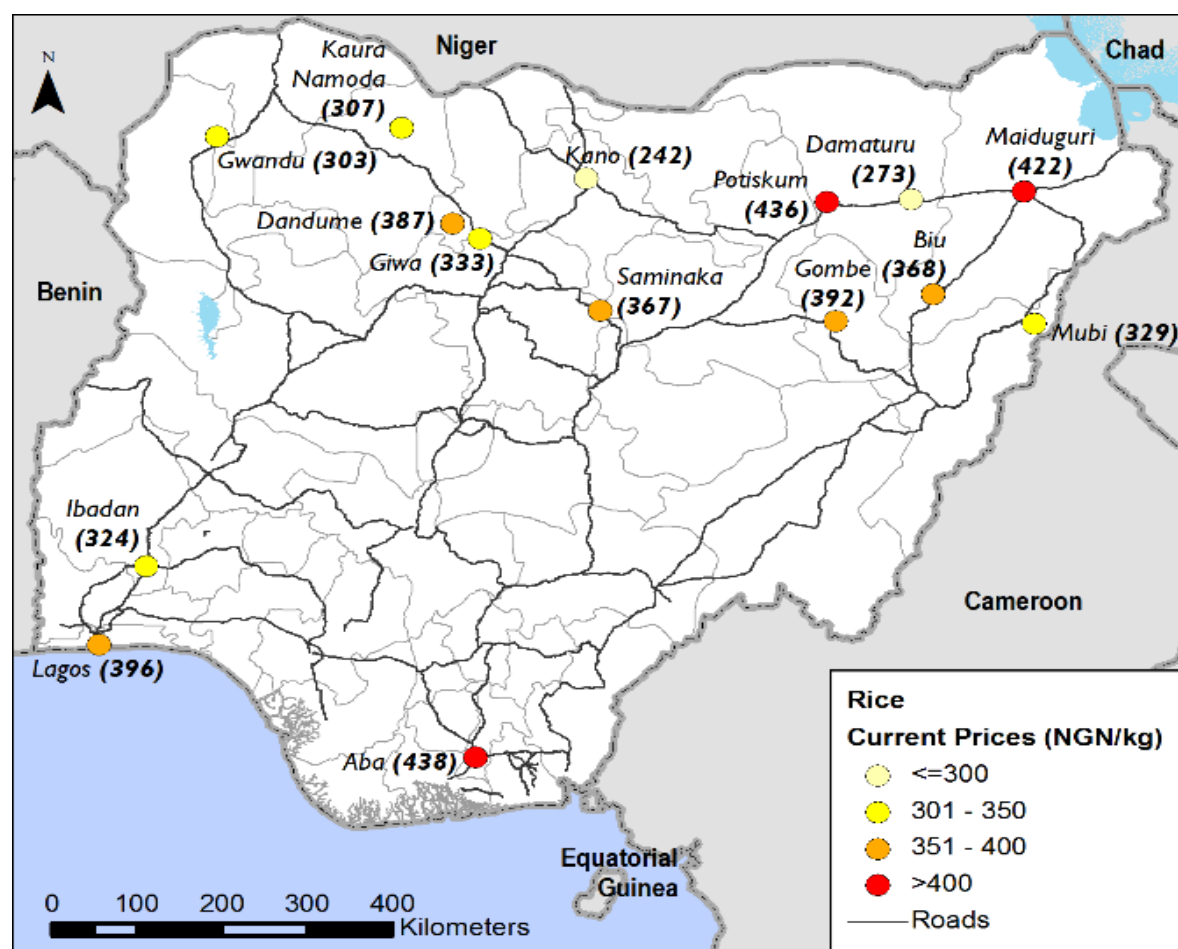

Fig 10: Average Price of Rice as at August 2017

4.2.9: Comparing Price of Rice between August 2016 and August 2017

Presented in Figure 11 is the percentage change in price of rice between August 2016 and August 2017. Except Maiduguri, Biu and Danadume, other market locations recorded at most 10% change in the price of rice. In other words, 79% of the market locations surveyed recorded less than or equal to10% change in price. In fact, in some places like Kaura Namoda, Damaturu, Mubi, Lagos, Ibadan and Aba, there were decreases in the percentage change in price between 2016 and 2017. This shows that rice was cheaper in these locations in 2017 than in 2016 and one of the reasons is

inflation arising from economic recession in 2016 which is gradually reducing in 2017. Compared with sorghum, millet and maize, it should be noted that the percentage change in the price of rice between 2016 and 2017 was relatively more uniform and stable within the period compared.
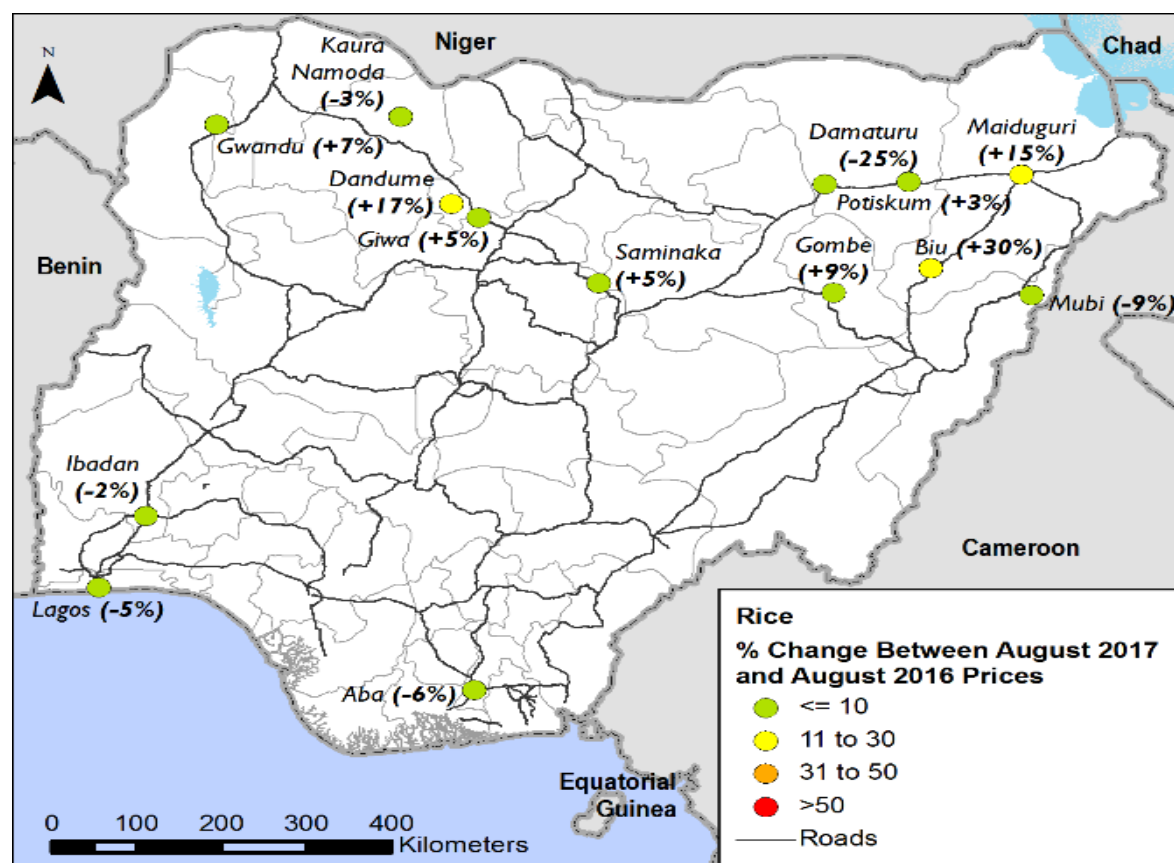

Fig 11: Percentage increase in Rice price between August 2016 and August 2017

4.3. Nutritional Situation

The estimated population of Nigeria according to NPC (2017) is 182 million with more than half under 30 years of age. With a growth rate of 3.5 percent, it is estimated that the country's population could double by 2035. This growth rate calls for a serious attention because across the country, NiEWG (2017) estimated that about 46 percent of the population is below the poverty line. Also, report by UNICEF (2017) further indicated that an estimated 2.5 million Nigerian children under the age of five suffer from Severe Acute Malnutrition (SAM) every year. This malnutrition condition is an extremely dangerous condition that makes children nine times more vulnerable to die from common childhood illnesses (diarrhea, pneumonia and malaria). Similarly, documented evidence by IFPRI (2017) revealed that over 11 million children in Nigeria are stunted as child stunting ranges widely between 8 and 63 percent with a national average of around 35 percent – a huge drain on the future of the country. There are malnourished children in every Nigerian state but the problem is more widespread in the northern region. In the north, the worse hit States are in the northeast and they include Borno, Adamawa and Yobe States. For instance, an estimated 450,000 children under five years of age suffered from Severe Acute Malnutrition in Borno, Adamawa and Yobe. (OCHA, 2017). The recent sharp depreciation in naira on the parallel

market, coupled with economic downturn, population displacements and severe civil insecurity in northern areas are worsening the nutritional status of the people.

V. IDENTIFICATION OF RISK ZONES
5.1. Situation in terms of Flooding and other Damages

Report from National Emergency Management Agency (NEMA, 2017) indicated that flood occurred in twenty two (22) states in Nigeria causing so many damages (Table 5 and Figure 12). The frequency of occurrence was 49 and it affected states like Benue, Kano, Ekiti, Osun, Akwa-Ibom, Kebbi, Niger, Kwara, Kogi, Ebonyi, Enugu, Abia, Oyo, Lagos, Plateau, Delta, Edo, Bayelsa, Katsina, Anambra, Cross-River and Sokoto. Specifically, the devastating effect and extent of flooding were much more pronounced in Makurdi (Benue State), Lekki, Banana Island and Victoria Island (Lagos State), Suleja (Niger State), Okpanam and Oza-Nogogo (Delta State). In Delta State, flood affected rice farmers to the extent that government promised to relocate the rice farmers to areas that are less prone to flooding. Across the country, Benue State was the most affected and it was due largely to the influence of River Benue and its major tributaries such as River Mada, Ankwa, Katsina-Ala, Dep and Donga with heavy flows from other smaller tributaries. Irrespective of state, the number of people affected by flood only was 27,057 and these were mostly low income earners and rural farmers who depend directly or indirectly on agriculture for their livelihood. Out of those affected by flood, 46 persons lost their lives while 1,600 were injured. Windstorm and ocean surge also impacted negatively in some part of the country. As a matter of fact, a total of 69 natural disasters occurred in Nigeria between January and early September 2017 affecting a total of 40,161 persons including 48 that lost their lives and 1,651 that were wounded. In addition, a total of 6,589 household structures and 11 different asserts were destroyed across the country (Table 5). These natural disasters must have as well caused diseases, stress and fear in the minds of the people and these affect overall output and productivity of the country. The occurrence of natural disasters makes it very difficult to estimate total production especially in the agricultural sector that are dominated by small-scale farmers in Nigeria.

Table 5: Summary of flooding and other natural disasters in 2017

S/N	Disaster occurrence	Frequency	Affected population	House structures affected	Lives lost	Injured persons	Missing persons	Farm land affected	Assets destroyed
1	Flood	49	27,057	4,795	46	1,600	-	255	4
2	Rainstorm	5	2,582	1	-	-	-	-	-
3	Windstorm	13	10,522	1,793	2	51	-	-	7
4	Ocean surge	2	-	-	-	-	-	-	-
Total		69	40,161	6,589	48	1,651	-	255	11

Source: NEMA**, 2017**

5.2. Estimation of Risk Zones and Affected Populations

Nigeria has 37 states including Abuja and every state is battling with one problem or the other. Drought and desertification have been encroaching on arable lands in the northern parts of the country while gully erosion and landslide are taking their toll in the south east. Some of the problems are directly caused by man, natural disasters or both. Natural disasters like flood, rainstorm, windstorm, ocean surge, erosion and drought are seasonal and can be predicted hence they pose seasonal risks to the affected population. A typical example is Benue State that was devastated by flood. But, before the flood the Nigerian hydrological Services Agency (NIHSA) had advised the people to relocate to safe places. On the contrary, man-made disasters are the most difficult to predict or control and this is why the people in northeast zone especially Borno, Yobe and Adamawa are more prone to risk than other locations in Nigeria. The persistence and destructive activities of Boko Haram in the zone have brought untold hardship to the inhabitants with no end in sight. Available report by WFP (2017), FAO (2017c) and OCHA (2017) indicated that the populations of the Internally Displaced Persons (IDP) in the northeast were 1.62, 1.9 and 1.8 million respectively. Although the estimated values are not the same, it has provided a range for intervention planning. Greater proportion of the population in the northeast are in critical need for humanitarian assistance including shelter, education, food, water, sanitation and health services. Unfortunately, the affected zone fall within the grain producing belt but presently they are surviving through the intervention of humanitarian services. The Nigerian army is making some frantic efforts to recapture some territories from the insurgents but the security situation is still very fragile and unpredictable. Over 80% of Borno State according to FEWS-NET (2017) is rated *high* or *very high* risk for humanitarian workers. Regrettably, there are limited funds to rehabilitate the massive destruction of farmlands and infrastructure to reduce the suffering of the affected citizens. Generally, apart from the activities of Boko Haram, communal clashes, cattle rustlings, farmer-herder conflicts and agitations from different ethnic groups and states call for urgent and serious attention. Though the situation is tough in the northeast and other vulnerable states, it should be noted that Government of Nigeria, national and international agencies including NGOs are making efforts to address the challenges.
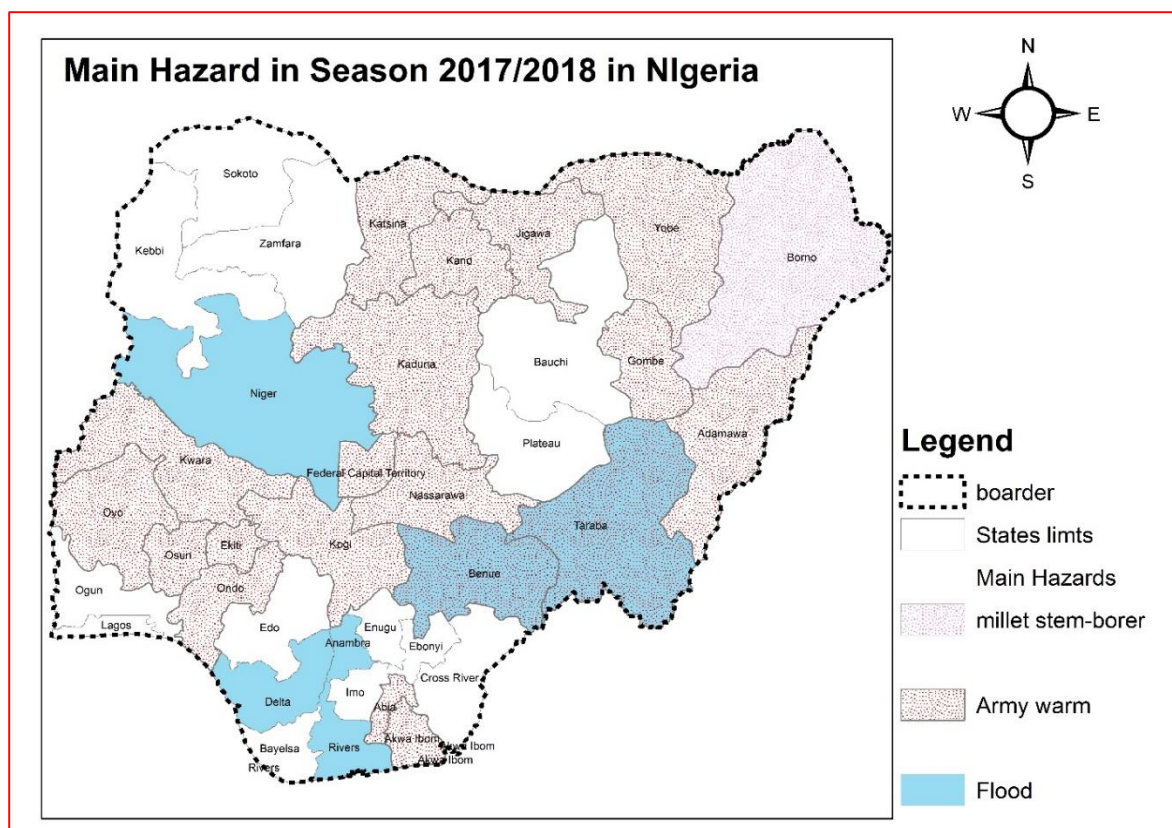
Fig. 12: Locations affected by flood and pests in 2017

VI. CEREAL BALANCE SHEET ITEMS
The cereal balance sheet could not be prepared because of lack of reliable and comprehensive data.

6.1. Population
The population of Nigeria according to National Population Commission of Nigeria (NPC, 2017) is 182 million with more than half under 30 years of age. The estimate, according to the Director-General of National Population Commission, Ghaji Bello, was based on the population of 140 million recorded in the last census a decade ago, using an annual growth rate of 3.5.

6.2. Imports and Food Aids
Nigeria is one of the 29 African countries requiring external assistance for food (FAO, 2017c). This is largely due to the insurgence activities caused by Boko Haram in the northeast region especially in Borno, Yobe and Adamawa States, According to OCHA (2017) almost 7 million people in the affected states are in need of humanitarian assistance. Unfortunately, 50% of those that need humanitarian assistance according to the report were children. This call for a serious and urgent attention from both national and international agencies to rescue the innocent children from the looming danger. To alleviate the situation, the Federal Government of Nigeria through the National and State Emergency Management Agencies and other international and local organizations are distributing food items and other human necessities to the affected population especially the Internally Displaced Peoples (IDPs).

6.3. Stocks

Record on available cereal stock in the country was not comprehensive. Food and Strategic Reserve Department, Federal Ministry of Agriculture and Rural Development, provided information on only maize and millet as 3.883mt and 3.219mt respectively.

6.4. Export

Data available do not capture cereal export. Calculation of the amount and quantity of cereal crops exported is difficult because of porous borders and weak institutions responsible for regulating the import–export activities.

VII. SUMMARY/CONCLUSIONS /RECOMMENDATIONS

7.1. Summary/Conclusions

The 2016/2017 Pre-harvest Crop Assessment took place in Nigeria from October 16th to 20th, 2017. In spite of some challenges, the mission was very successful as the objectives were actualized. The findings indicated that the year progressed with normal rainfall situation across the country. The rainfall started in the Southern region in January and gradually extended to the northern zone. This resulted in early harvests of green maize, vegetables, fruits and yams in the south and groundnut/potatoes in the northern zone. However, dry spell (August Break) was observed in Sokoto (9 days), Potiskum (8 days) and Katsina (8 days). There were reported cases of flooding in 22 states and it affected lives and properties including farm lands. An estimated 255 farm lands were destroyed thereby affecting total output and productivity. Across the country, there was enough pasture for grazing animals and this was largely due to the fact that there was no prolonged drought. Apart from avian influenza which affected birds in some states, there was no major livestock disease outbreak and this favoured livestock production. Analysis of the phytosanitary situations in the country showed that there was serious outbreak of African Armyworm (*Spodoptera exempta*) that destroyed crops especially, maize. The pest did not only increase the cost of production but also reduced the quality and quantity of maize output. Although, some cereal and non-cereal crops were yet to mature or matured but not harvested within the assessment period, available evidence showed that the production of cereals may be slightly higher in 2017 compared with 2016. The variations in output between 2016 and 2017 may be attributed to climate change factors, destabilization and displacement of farmers in the northeastern Nigeria by Boko Haram, frequent clashes between crop farmers and pastoralists and pest infestation. Farmers-herder conflicts was initially prominent in the north central zone which is known for grain and tuber crop production but the situation has spread all over the nation. Insurgency is more in the northeast zone of the country where the activities of Boko Haram have displaced people from their homes. This zone is known for cereal crop production but unfortunately most of the citizens who are mainly farmers are still in camps where they are receiving aids. Generally, the mission concluded that, apart from some natural and human made factors, 2017 was good for crop and livestock production across the country. Hence, to address food insecurity in the country, the Government of Nigeria should invest more in the agricultural sector to boast production. Also, farmers whose crops and/or animals were damaged as a result of flood, conflict or pest/diseases should be assisted so that they will not be subdued by fear that could lead to low investment in agriculture in subsequent years.

7.2. RECOMMENDATIONS

a) Fund and every other logistics should be made available to the institutions responsible for pre-harvest crop assessment early enough to enable them do the work at the appropriate time.

b) The staff of NAERLS and others participating in the Agricultural Performance Survey exercise should be regularly trained to provide them with skills and knowledge needed for effective performance.

c) There should be a strong collaboration among all institutions or organizations interested in crop assessment in Nigeria so that the exercise can be simultaneously done in all parts of the country. To achieve this, AGRHYMET can initiate a meeting to start the process. At the meeting, memorandum of understanding should be reached among the participating organizations so that responsibilities can be shared.

d) There is need to domesticate early warning systems in all the states in Nigeria and FAO has the potential to lead the advocacy.

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