Pattern of food security in Ondo state Nigeria

Ogundahunsi, I.I., Ifabiyi, I.P., Olanrewaju, R.M.
Department of Geography and Environmental Management,
Faculty of Social Sciences, University of Ilorin
Corresponding Email: ogundahunsiifedayo@gmail.com

Abstract

Food insecurity is one of the major challenges faced by developing nations of the world and attempts to solve the problem has been abortive. This study examined the incident of food security in Ondo State. This was done through a designed Food Security Index (FSI) questionnaire and attempted the interpretation using Elliot (2014) food security score. The findings showed that food security vary from one senatorial district to the other (Northern 57.6%, Southern 48.8% and central 47.0%); the overall result for the state showed that Ondo State has FSI of 51.1%, showing the state to be partially secured compared to global standard of 42%. It was discovered that there has been no productive measure taking by the government and individuals to eradicate food insecurity menace in the study area. The study recommends that government at all levels should encourage food crop farmers with proactive measures such as grants and interest free loan so as to improve food production in the state.

Key Word: FSI-Food Security Index, WFS- World Food Summit, FAO-Food and Agriculture Organization

Department of Geography and Environmental Management, Faculty of Social Sciences, University of Ilorin, Ilorin, Nigeria
Corresponding Author: ogundahunsiifedayo@gmail.com

Introduction

The Food and Agriculture Organization (FAO) in the World Food Summit of 1996 defines food security as a situation that exists when all people, at all times, have physical, social, and economic access to sufficient, safe, and nutritious food that meets their dietary needs and food preferences for an active and healthy life. Food security includes both physical and economic access to food that meets people's dietary needs as well as their food preferences. According to the World Health Organisation (2012), food security is built on three pillars which include: first, food availability: sufficient quantities of food available on a consistent basis; second, food access: having sufficient resources to obtain appropriate foods for a nutritious diet; third, food use: appropriate utilization of the available food based on knowledge of basic nutrition and care, as well as adequate water and sanitation. Basically, food security is concerned with fulfilling each individual's human right to food and it relates to issues of agricultural policy, economic development and trade (Garwe, 2012). In some developing countries, the problem of under nourishment is often linked to the lack of access to food and poor distribution. The availability of sufficient food within a country does not indicate that every individual has access to sufficient food. Food security at an individual level implies that people either have sufficient income to purchase food or they are capable of producing their own food through subsistence farming. There is a link between poverty and food security where the poor are more prone to food insecurity. Sufficient income is therefore a crucial factor in guaranteeing food security. Odjugo (2011), defined the components of food security to include: availability: The existence of food in a particular place at a particular time; access: The ability of a person or group to obtain food; utilization: The ability to use and obtain nourishment from food. This includes a food's nutritional value and how the body assimilates its nutrients; and stability: The absence of significant fluctuation in availability, access, and utilization. Food systems encompass (i) activities related to the production, processing, distribution, preparation and consumption of food; and (ii) the outcomes of these activities contributing to food security (food availability, with elements related to production, distribution and exchange; food access, with elements related to affordability, allocation and preference; and food use, with elements related to nutritional value, social value and food safety). The outcomes also contribute to environmental and other securities (e.g.,

income). Interactions between and within bio-geophysical and human environments influence both the activities and the outcomes." (Drimie et al., 2011).

In May 2007, at the 33rd Session of the Committee on World Food Security, FAO issued a statement to reaffirm its vision of a food-secure world. This vision is that there should be a world without hunger where most people are able, by themselves, to obtain the food they need for an active and healthy life, and where social safety nets ensure that those who lack resources still get enough to eat (FAO, 2007). Food and Agricultural Organization (2017) warns that without additional effort to the state of agricultural practices, the target of ending food insecurity and hunger in 2030 will not be met. The population of the world by 2050 will need increment of 50percent food production to feed itself, and FAO reported that the yield growth of some major crops since the 1990's experience increases of just 1percent per annum. Agriculture in Africa remain a huge potential that needs to be fully maximized, despite the fact that the continents home more than half of the world unused arable land, it still remains food unsecure with millions of people experiencing chronic hunger and famine. The increasing population growth demand improvement in crop yield in Africa continent and the world at large (Allis Gleaner Corporation, 2018). Per capital food production have continue to decrease in more than 5 decades in Sub Sahara Africa (SSA), due to stagnation in the yield of main cereal crops at less than 25percent of potentially attained yield. This was traced to water availability and climate among others (James and Shamie, 2013). Africa will have a population of 2billion people by 2050 with women and youths with higher proportion. This prediction projected an agricultural challenge and a treat to food availability in the continent (Zuma, 2013). Andrew et al. (2013) linked food to the productive capacity of a nation, reason been that poorly fed people will not produce viable economic value, this is why policy maker, practitioners and academics all over the world should take appropriate measure to address food insecurity and its menace. Attempt to reduce food insecurity problems in most of the developing countries brought the G8 (Group of Eight) countries together in 2009, to provide resources to the less privileged regions and this requires greater attention (Barrett, 2010), but these regions have little or no information. These regions where the anomalies stress have reduced crop production drastically, have little experimental evidence for crop performance projection (Lisa, 2012).

FAO's statistics showed that the number of undernourished individuals in Africa continent grew from 181.7million people in 1992 to 232.5million in 2016. This showed that there is food

security challenge in the continent. West Africa from 30.4 million in 2012 to 33.7million people before the end of 2016. Nigeria do not meet the Millenium Development Goals (MDGs) and World Food Summit (WFS) goals of halving the number of hungry people by 2015, while others reduced or maintained the number of undernourished people below 5percent since 1992, Nigeria case grew in 2015 estimations (FAO, 2015), this also affected the study area. FAO's 2017 statistics shows a declining figure in agricultural product in Nigeria. Example of three major food crops between 2006 and 2016 namely, maize, yam and tomatoes. For example, yam reduced from 120,988 in 2006 to 85,487 tons in 2016. Maize and tomato drop from 83,160 to 39,051 and 18,182 to 15,913 tons respectively. Nigeria food production is faced with poor harvest loses and waste. Then the agricultural sector remains the largest sector of the Nigeria economy and employ more than half of the labour force, reduction in food production has shifted the performance of the sector. The value added by the sector for the past 20 years have an increment of less than 1percent compared to the country's growing population (FAO, 2018) resulting to rising food importation and declining national food sufficiency.

The shortfall in food production experienced in Nigeria does not exclude Ondo State. For example, the National Bureau of Statistics (NBS) (2013) report showed that food expenditure for Ondo State in 2004 was the highest in the southwest. However, subsequent report has showed a reduction in the yield of yam yield from 22.79 metric ton in 2013 to 18.37 metric ton in 2016. Tomatoes on the other hand declined from 10.94 metric ton in 2006 to 6.47 metric ton in 2016, while maize yield remained constantly low (about 2.8 metric ton) (Ondo State Agricultural Development Program, 2018). Most food security researches at global and national level have been on perception studies and constraints without measurement (Rafeal and Ana, 2008; Tunde, 2011; Abu and Soom, 2016). Many author also use one indicator, for instance, the work of Lisa and Ali (2007) concentrated on household expenditure survey while Elliot (2014) centred his work on utilization. There is therefore the need to find out instances of food security using all its components i.e., availability, access, utilization and stability. This work examined how secured Ondo State and give a viable recommendation for improvement and general good of the dwellers.

The study area

Ondo State, Nigeria as shown in figure 1, is located between latitudes 6°45′ and 7°10′ North of the equator and between longitudes 5°05′ and 5°15′ East of the Greenwich meridian (Shown in Figure

1). Two distinct climatic seasons are experienced in the state. These are wet season which is experienced from April to October and dry season which is characteristically dry and experienced from November to March (Ikudayisi, 2007). The soils derived from the Basement complex rocks are mostly well drained and they are largely ferrallitic and hydromophic soils, with a medium texture. The soils, classified as Ondo Association, are of high agricultural value for both tree and arable crops. Population of Nigeria by States (2019 Estimate) showed that the population of Ondo State is 3,441,024 people, this makes the state the 18th most populous state in the country. Agriculture is the mainstay of the economy, crops produced in high quality in the state are; yams, corn (maize), coffee, taro, cassava, vegetables, and fruits.

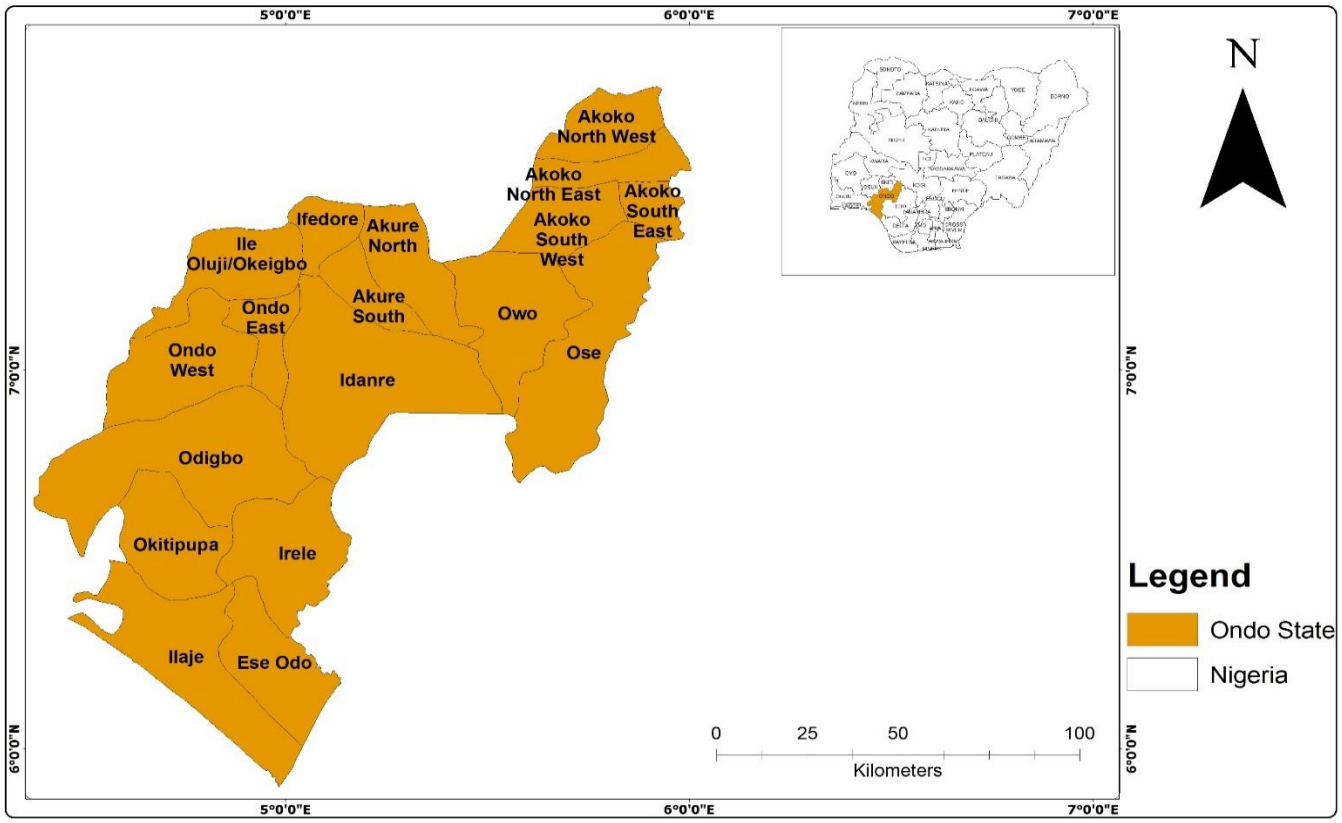

Figure 1: Inset: Nigeria showing Ondo State.

Research Methods

Data required for this study includes; Population of the study area, socio-economic characteristics of respondents, respondents' food availability, access to food, food utilisation, and food stability. This was done through a designed Food Security Index (FSI) questionnaire and observations from the study area. The sampling frame for the study is the population of Ondo State, in which six local

government areas were selected systematically from the three senatorial districts of the state (North, Central and Southern) in which two local government were selected in each senatorial district. The population of Ondo State was projected from NPC 2006 population census data. The population was projected using a growth rate of 2.87% per annum as given by Demographic and Vital Statistics Unit of Ondo State in 2009, using the projection formula given as:

$P_2 = P_1 (1+r)$ ^n

Where P_2= Projected population,

P_1= Current population,

r = growth rate, and

n = numbers of year

Table 1: Sample frame and sample size

S/N	Local Gov. Area	2006 Population *	Projected 2018 population **	Number of Households**	Numbers of Respondents**	Senatorial district
I	Akoko NE.	179,092	251,502	50,300	64	Northern
II	Akoko NW.	211,867	297,525	59,505	76	Northern
III	Akure North	130,765	183,635	36,727	47	Central
IV	Ifedore	176,372	247,682	49,536	63	Central
V	Irele	144,136	202,412	40,482	51	Southern
VI	Okitipupa	234,138	328,804	65,761	83	Southern
	Total	**1,076,370**	**1,511,560**	**302311**	**384**	

Source: * National Population Commission, 2006. **Authors Compilation, 2019.

Number of households was introduced based on FAO (2008) assertion that accessibility index of food security is better done at the household level. Three Hundred and Eighty-Four (384) households were sampled with questionnaire using Research Advisors (2006) sample size for research activities. Systematic sampling techniques was used to select households for the study. This was done by selecting the 1st, 5th, 9th, 13th etc. till the required number of households is

achieved. Selection was done in major towns of selected local governments i.e., the headquarters and extended to the hinterlands where the headquarters are not enough. Table, charts and Simple Percentage were employed in interpretation of the Food Security Index (FSI). Food security measurements and indicators were derived from; International Federation of Red Cross and Red Crescent Societies (2006), Food and Agriculture Organization (2008), Samaritan's Purse International Relief (2014) and Elliot (2014). Overall score was interpreted using Elliot (2014) food security scores, ranging from poor (<28%), borderline (28.5 – 42%), and acceptable (>42%).

Result and Discussion

Socio-economic and Demographic Characteristics of Respondents

The result in Table 2, revealed that 48% of the respondents were male while 52% were female. This showed the level of tolerance of people (male and female) in the study area to respond to the questions for the purpose of the study. The Table also showed that the high proportion of the respondents (87%) have lived above 30 years. Also, 18 percent of the respondents were single, 71.1 percent were married, 7.6 percent widowed while 3.4 percent were divorced. This implies that 82 percent of the respondents contributed to food consumption in their household, either by providing, preparation or determination of what to prepare. The household size in the study area as shown in Table 2 above is reasonable enough when compared with the average household size in Nigeria i.e., 5, with more than average number (50.3%) of respondents' household not more than 5. Education qualification of respondents showed that 6.8 percent have no formal education background, 16 percent had primary school leaving certificate, 37.8 percent with secondary school certificate and 39 percent with tertiary certificates. This implies that at least 76.8 percent of the respondents should be able to understand the questions raised with little or no explanations. Occupation status of the respondents shows that 24.2 percent were employed by the government, 29.9 percent are traders, 13.8 percent artisans, 16.4 percent are farmers while 15.7 percent of them were involved in other activities. Table 2 above also showed that 51.8 percent respondents have less than 5 children in their household, 47.4 percent have 5 and above while 0.8 percent do not give the numbers of children in their household. This shows that household size in the study area is generally low compared with some states with more than 10 numbers of children in their household. The monthly income of respondents revealed that 32.3 percent earn less than ₦20,000 monthly, 34.9 percent earns between ₦20,000 and ₦40,000, 17.7 percent earn between ₦41,000 and ₦60,000 while only 15.1 percent earn ₦61,000 and above. This shows that 67.2 percent of the

respondents earn ₦40, 000 and below. The implication of this is that the food access of the respondents might be affected.

Table 2: Socio-economic and Demographic Characteristics of Respondents

S/N	Item	Frequency	Percentage (%)
I	**Sex**		
	male	184	48.0
	Female	200	52.0
II	**Age**		
	21 – 30	50	13.0
	31 – 40	97	25.3
	41 – 50	147	38.3
	51 – 60	69	18.0
	60 and above	21	5.5
III	**Marital Status**		
	Single	69	18.0
	Married	273	71.1
	Widowed	29	7.6
	Divorced	13	3.4
IV	**Household Size**		
	1 – 5	193	50.3
	6 – 10	160	41.7
	11 and above	31	8.0
V	**Education Qualification**		
	None	26	6.8
	Primary	63	16.4
	Secondary	145	37.8
	OND	52	13.5
	Tertiary education.	98	25.5
VI	**Occupation**		
	Civil Servant	93	24.2
	Trading	115	29.9
	Artisan	53	13.8
	Farmer	63	16.4
	Others	59	15.7
VII	**Number of Children**		
	2	48	12.5
	3	62	16.1
	4	89	23.2
	5	93	24.2
	6 and above	89	23.2
	No response	3	.8
VIII	**Monthly Income (₦)**		
	<20,000	124	32.3
	20,000-40,000	134	34.9
	41,000-60,000	68	17.7
	61,000 and above	58	15.1

Source: Author's field survey, 2019.

Analysis of Food Security in Ondo State, Nigeria

Estimation of Food Security across the Study Area

This section shows the result of the Food Security Scores and comparism of the indices in the study area and at global level.

Food Security Index Measurement

The four food security components of Ondo State which is a subdivision of Nigeria, showed in Table 3 reflected the following:

i. Food availability: The result showed that index of food availability is 49.2% in the northern senatorial district of the state, 38.8% in the central and it was 40.2% in the south while the average for the state was 42.8%. This means that more food is available in the Northern Zone which is around Akoko and Owo. This area apart from growing food crops happened to be the gateway to the northern states of Nigeria with access to food importations. For example, food such as beans, yam, rice, onions, tomatoes, pepper, and maize would first get to the northern senatorial district before spreading to other parts of the state.

ii. Food accessibility: The result showed that index of food accessibility is 64.4% in the northern senatorial district of the state, 58.0% in the central and it was 56.4% in the south while the average for the state was 59.6%. Food accessibility was higher in the northern senatorial district because they have higher availability and food stuffs are cheaper there than other districts.

iii. Food utilization: The result showed that index of food utilization was 65.2% in the northern senatorial district of the state, 54.4% in the central and it was 56.0% in the south while the average for the state was 58.6%. Food utilization is higher in the northern senatorial district because they have access to different varieties of food than others. The southern led the central because they have proteinous products (fish, crayfish, crabs and others) than the central because of the Atlantic Ocean near Ilaje and Ese-Odo. The central district almost depends on food importation.

iv. Food stability: Index of food stability was 51.6% in the northern senatorial district of the state, 36.8% in the central and it was 40.8% in the south while the average for the state was 43.1%. Like availability in the study area food stability is also at borderline in the state. Though, the future of food is more guaranteed in the northern zone of the state, there is

need for more productions most especially in the central senatorial district that has lesser figure.

Table 3: Food Security Index in Ondo State (percentage).

S/N	Index	Northern	Central	Southern	Total	State Average
1	Availability	49.2	38.8*	40.2*	128.2	42.8*
2	Accessibility	64.4	58.0	56.4	178.8	59.6
3	Utilization	65.2	54.4	56.0	175.6	58.6
4	Stability	51.6	36.8*	40.8*	129.2	43.1*

Source: Author's field survey, 2019. *Bellow Global Standard

Total and Average Food Security Scores

Food availability and stability in the study area is low i.e. 10.8% each compared to accessibility and utilization which are slightly above average (14.9% and 14.6% respectively) as showed in Figure 31. This is because accessibility and utilization are self-determined while availability and stability are functions of other factors such as, climate, transportation, government policy, pest and diseases outbreak to mention few. This implies that there is need for improved availability and stability index of food security in the study area.

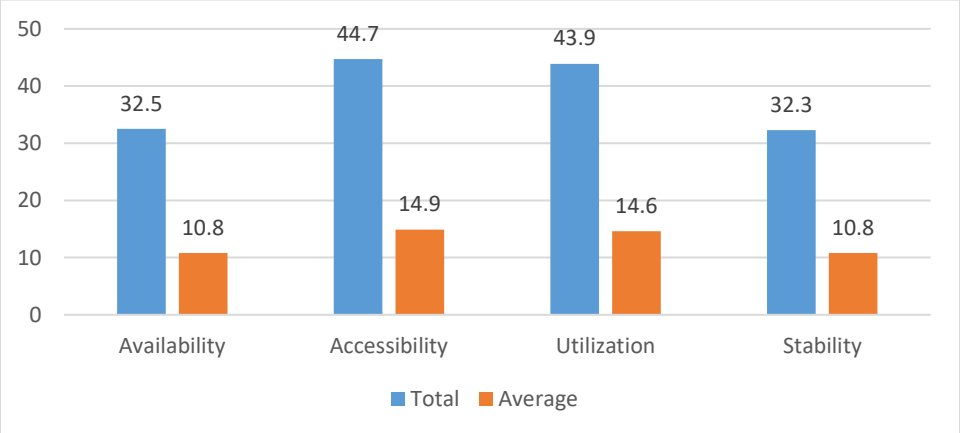

Figure 2: Total and Average Food Score in Ondo State.
Source: Author's Field Survey, 2019.

Overall Assessment of Food Security in Ondo State

The overall score was 51.1 implying that the state is partially secured, going by Elliot (2014) submission that after measurement, there should be an overall score of >42% before a region can be accepted as food secured area. This means that, there are tendencies that level of food security might decline in the state if not proper managed.

Table 4: Overall food security score in Ondo State

Senatorial District	Availability	Accessibility	Utilization	Stability	Total	Bench mark
Northern	12.3	16.1	16.3	12.9	57.6	Accepted
Central	9.7*	14.5	13.6	9.2*	47.0	Accepted
Southern	10.5*	14.1	14.0	10.2*	48.8	Accepted
Total	32.5	44.7	43.9	32.3	153.4	Accepted
Average	10.8*	14.9	14.6	10.8*	**51.1**	Accepted
Benchmark	Borderline	Accepted	Accepted	Borderline		

Source: Author's field survey, 2019. * Non acceptable/borderline

Summary, Conclussion and Recommendations

The food security score showed that availability and stability are generally non acceptable in central and southern senatorial district, but at borderline in the state with 42.8% and 43.1% score lines respectively. These are the variables that are majorly determined by climate out of the four food security measures. Accessibility and utilization which are most time determined by individual income and interests were tested to be accepted with 59.6% and 58.6% respectively. In senatorial order, northern senatorial district was the first with 57.6% score, southern the second (48.8%) and central coming last (47.0%). In all it could be said that Ondo state is partially food secured state

with 51.1% score aligning with Elliot (2014) food security scores. This calls for possible improvement for the state to be fully secured. Food security can only be achieved through the effort of all stakeholders. It was discovered that there has been no productive measure taking by the government to eradicate food insecurity menace in the study area.

The study recommends that the state government should encourage food crop farmers with proactive measures such as grants and interest free loan so as to improve food production in the state.

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