

# Assessment Of The Types And Causes Of Perturbations In Rural Agricultural Settings Of Benue And Nasarawa States Nigeria

**Kuza, Y.**

Department of Agricultural Education, College of  
Education, Akwanga, Nasarawa State, Nigeria

**V. A. Okwoche**

**A. I. Age**

**M. O. Agada**

Department of Agricultural Extension and Communication,  
University of Agriculture, Makurdi, Benue State, Nigeria

*Abstract: The study assessed perturbations in rural Benue and Nasarawa States in North Central Nigerian agricultural settings; types and causes. Three hundred and fifty (350) respondents were selected for sampled size using multi-stage sampling techniques. Primary data were collected using a structured questionnaire. Both descriptive and inferential statistics such as frequency, percentages and mean were employed in data analysis. Pooled results showed that majority (66.0%) of the respondents were males, 55.0 % were married, 41.7 % acquired land through inheritance, 57.7% used family labour, earned income of and 80.3 % were members of associations. On the average, respondents were 39 years of age, had 11 years of formal schooling and farming experience respectively; house hold size of 7 persons, 3.2 hectares of farm land and earned annual income of ₦94,000.00 only. It was found that the major type of perturbation was the natural type (77%) and the major causes of perturbations were erosion ( $\bar{x}=2.68$ ), flood ( $\bar{x}=2.64$ ), herdsman-farmers conflict ( $\bar{x}=2.54$ ), pest and disease outbreak ( $\bar{x}=2.50$ ), communal conflict ( $\bar{x}=2.50$ ), drought ( $\bar{x}=2.45$ ), overgrazing ( $\bar{x}=2.45$ ), bush burning ( $\bar{x}=2.42$ ), low education ( $\bar{x}=2.41$ ), climate change ( $\bar{x}=2.40$ ), price fluctuation ( $\bar{x}=2.40$ ), deforestation ( $\bar{x}=2.40$ ) and Population pressure ( $\bar{x}=2.35$ ). The study recommends that government should encouraged human resources development programme, rural farmers should adopt clustered settlement pattern to enhance mitigation of perturbation cause by conflict, government should reactivate policy on sustainable use of environmental resources and it should be properly implemented. This will help address perturbations in agricultural settings in the study area in particular and Nigeria in general.*

**Keywords:** perturbations, agricultural settings, environment, types, causes.

## I. INTRODUCTION

### A. BACKGROUND TO THE STUDY

Natural disasters and poor management of environmental resources by rural farmers cause degradation in the environment which on the long run affect agricultural settings directly or indirectly (Mahama, 2012). Agricultural settings refer to the environment or place where agricultural activities take place. Environment is the totality of the places and surroundings where living and non living things are found,

live, work and interact with one another (Fagbohun 2010). Environmental disasters such as earthquakes, landslides, flood, drought, fire, and hailstorms are natural calamities that occur every year, at any point and anywhere, and they disturb agricultural activities and the livelihoods of farmers. Disasters can cause loss of human lives, growing crops in the field, agricultural equipment/materials, and their supply systems (e.g. infrastructure) as well as associated indigenous knowledge, thus disrupting not only the immediate growing season but also future seasons (Jay and Scott, 2011).

Perturbation is defined as the disturbance due to external forces which cause change in the normal function of a system, thereby altering the activities/function in the system (Asthana, 2013). The disturbances could emanate from natural happenings or through interaction of man in the environment (Hyde and Reeve, 2011). Chen (2005) posited that human-beings currently face global perturbations which affect the environment in the perspective of climate change, productivity, access to freshwater, eco-system degradation, soil erosion and biodiversity loss.

According to Joseph (2009), perturbations in agricultural settings are classified into natural and artificial. Natural perturbations refer to disturbances in the environment that are naturally sudden, unexpected and consequently, cause severe damages to agricultural activities, infrastructure, destroy lives and properties in rural areas. Examples include: floods, drought, erosion, desertification, climate change, hailstorm, frost and land slide (Raufus, 2010).

Artificial perturbations are those disturbances and changes that are influenced or induced by man through some elements of human error, negligence or intent. Examples include deforestation, pollution of environment, poor land management, overgrazing, intensification of land utilization, wrong dosage of chemicals, fertilizers and pesticides application

## B. STATEMENT OF THE PROBLEM

The problem of sustaining growth in agricultural activities in Nigeria emanates from unplanned use of environmental resources and inability to give adequate attention to causes and effects of perturbations to the physical, biological and ecological environment which have implications on the development of rural agricultural settings (Ogunkunle, 2010). Improper resources management, conflicts in rural communities among ethnic groups and between herdsmen-arable crop farmers seem to affect rural agricultural production in Nigeria.

Oyekale (2012) reported that decline in agricultural output in rural areas of Nigeria is attributable to degradation in environmental resources and it is a major challenge on the development of rural agricultural settings. Okwoche (2013) observed that despite all the agricultural programmes introduced by the Federal Government to increase food production and alleviate poverty, perturbations in agricultural settings constitute serious threats to means of survival in agriculture and livelihoods of farmers. According to Age (2017), economic and rural development of any nation cannot take place without rural and agricultural development. According to him, there can be no meaningful development of the agricultural sector without a substantial development of the rural sector. He added that recently, it has been found that natural and artificial perturbations seem to affect rural and agricultural development in Benue and Nasarawa States, Nigeria. The consequences of perturbations in agricultural settings have led to economic losses, destruction of ecological resources, food shortage, food insecurity and absolute poverty. This development is not only worrisome but despicable.

Perturbations in rural agricultural settings in Nigeria may cause problem in food security, maintenance of farm produce

quality, livelihood insecurity in most rural communities, rural-urban migration of youths and the decline in the standard of living of rural farmers. Albeit a lot of research work had been done on incessant conflict between Herdsmen – crop farmers, little or no research work has been done on perturbations in rural North Central Nigerian agricultural settings. For instance, Mailumo (2011) carried out a research on environmental degradation and mitigation response by rural farmers in Danko/Wasagu LGA of Kebbi State, North Western Nigeria and found that farmers were using multiple cooperative approaches as mitigation strategies. However, none of the studies was on perturbations in rural North Central Nigerian agricultural settings. This, therefore, forms the research gap which this study intended to fill.

## C. OBJECTIVE OF THE STUDY

The broad objective of this study was to assess perturbations in rural Benue and Nasarawa States agricultural settings. The specific objectives of the study were to;

- ✓ describe the socio economic characteristics of the respondents in the study area ;
- ✓ identify the types of perturbations in agricultural settings in the study area;
- ✓ identify the causes of perturbations in agricultural settings in the study area;

### *TYPES OF PERTURBATIONS IN AGRICULTURAL SETTINGS*

Agricultural settings refer to the environment where agricultural production and activities takes place. According to Fagbohun (2010), environment is the totality of the places and surroundings where we live, work and interact with other people. Akinagbe and Umukoro (2011) stated that perturbations in agricultural settings are of two types namely; natural and man-made perturbations.

Natural perturbations refer to the disturbances in the environment which happen as a result of natural phenomena such as floods, drought, erosion, desertification, climate change, and frost. These lead to alteration in the normal function of natural systems and change the activities of living organisms in the ecosystem within the environment where they occurred. The natural type of perturbations mostly occur unexpectedly and accidentally, thus affecting agricultural production and the environment at varying levels. They lead to economic losses when they are severe and could destroy agricultural production (crops and animals), properties and human lives.

Man-made perturbations refer to disturbances that alter normal way of carrying out activities and functions in a system due to human influence. This type of perturbation emanate from man-environment interaction. Man-environment interaction that could form man-made perturbations include improper land management practices, land intensification/ utilization for agricultural production, application of over dosage of chemicals fertilizers, pesticides, herbicides, overgrazing, use of heavy machine, pollution from waste by products, land degradation, custom, norms, crisis, conflicts

and war (Pretty, 2013). The above mentioned practices have been classified as man-made perturbations because such man-environment interaction (human activities) over time causes alteration in the ecosystems within an environment. Therefore, it directly or indirectly disrupt the normal function of ecosystems in the environment. For instance, use of herbicides in the control of weeds may affect the biosphere organism systems because the erosion of the chemicals into the rivers has dangerous effects on lives living in the rivers and those using the water (Pretty, 2013).

**Causes of Perturbations in Agricultural settings:** Causes of perturbations in agricultural settings emanate from natural causes and man-interaction in the environment. Natural causes of perturbations include; drought, floods, erosion and climate change. Man-made causes of perturbations include; deforestation, excessive use of chemicals, conflicts, improper land management practices, population pressure, use of heavy machines on the land and environmental pollution from waste (Akinagbe and Umukoro, 2011).

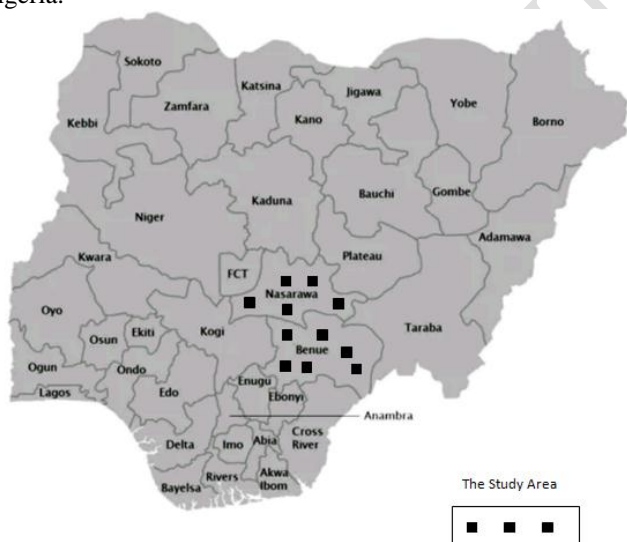
## II. METHODOLOGY

### A. RESEARCH DESIGN

This study employed a community survey, using research questionnaire.

### B. THE STUDY AREA

The study was carried out in Benue and Nasarawa States, Nigeria. The two states are located in the North Central Nigeria.



Source: Adapted from NADP (2010)

Figure 2: Map of Nigeria Showing the Location of Benue and Nasarawa States

### C. POPULATION OF THE STUDY

The population of this study comprised all rural farmers in Benue and Nasarawa States.

### D. SAMPLE SIZE AND SAMPLING TECHNIQUES

Multi-stage sampling technique was used to select a sample size of 350 respondents for this study. First, Benue and Nasarawa States were randomly selected and defined population for this study was stratified into three zones based on the existing agricultural zones in each State. namely; zones A,B and C for Benue State while Central, Southern and Western zones for Nasarawa State. Secondly, two Local Government Areas (LGAs) from each of the zones (Kastina Ala, Ukum, Guma, Gboko, Oju and Okpokwu LGAs for Benue State, while Akwanga, Nassarawa Eggon, Lafia, Doma, Karu and Nasarawa LGAs for Nasarawa State) were purposively selected due to high occurrences of perturbations. Thirdly, a random sampling technique was also used to select two rural communities in each selected Local Government Areas in the States and a sample was developed using proportional allocation of 20% (0.2) across board. A total sample size of 350 respondents were selected for this study.

### E. INSTRUMENT OF DATA COLLECTION

Data for this study were collected mainly from primary sources. The primary data were collected from the rural farmers in Benue and Nasarawa States of North-Central Nigeria using a well structured questionnaire. The data collection instrument (questionnaire) consisted of sections A-G. Section A dealt with the socio-economic characteristics of the respondents, section B focused on types of perturbations, section C concentrated on causes of perturbations.

### F. METHOD OF DATA COLLECTION

Data for this study were collected mainly through primary sources. Structured questionnaire was used to collect the primary data.

### G. DATA ANALYSIS TECHNIQUES

The data for this study were analyzed using descriptive statistics involving frequency, percentages and mean for objectives 1, 2 and 3.

## III. RESULTS AND DISCUSSION

### A. SOCIO - ECONOMIC CHARACTERISTICS OF THE RESPONDENTS

**SEX:** Table 1 reveals that in Benue State 65.6% of the respondents were males while 34.4% were females. In Nasarawa State, 66.5% of the respondents were males while 33.5% were females. The pooled result indicated that 66.0% were males and 34% were females. This implies that men control agricultural activities and take lead on decisions for their families on farming and non farming activities. This result agrees with the findings of Bamire (2010) who found that male farmers dominate rural agricultural activities and lead their families on most issues in Nigerian rural

communities. The females were considered supporters to men (husbands) in carrying out daily activities.

**AGE:** Table 1 also reveals that in Benue State, 42.2% of the respondents fell within the age group of 31-40 years while 30.6% respondents fall within the age group of 31-49 years. Also, 19.4% respondents were within the age group of 26-30 years with a mean of 35 years. In Nasarawa State, 35.75% respondents were within the age group of 31-40 years while 27.6% respondents were within the age group of 26-30 years with the mean of 38 years. The pooled result showed that the age bracket of 31-40 years (35.4%) and 26-30 (34.4%) years were the majority with the mean age of 39 years. This may imply that majority (70%) of the respondents were within the active age bracket of 26-40 years. They can effectively use their energy to work hard and also stand strong to cope up with perturbations to enable agricultural activities in their localities. This result confirmed the report of Bamire (2010) who observed that active age of farmers enhances agricultural activities in dry savannah of Nigeria.

**MARITAL STATUS:** Table 1 showed that for respondents in Benue State, 48.9% respondents were married, 24.4% were singles, 17.2% were widow/widower and 9.4% were divorced. Furthermore, in Nasarawa State, 55.3% were married, 23.5% were singles, 12.9% were widowed/widower and 8.2% were divorced. The pooled result indicated that 55% of the respondents were married while 25% were single. This suggests that married respondents (55%) were the majority, they could use their family members to carry out farming activities with ease. The advantage of family labour can also help in handling agricultural activities during perturbations in agricultural settings. Nasiru et al. (2006) found that in Nigeria, married farmers used family labour work force in most rural communities for agricultural activities, it saves time and cost of labour.

**HOUSEHOLD SIZE:** Table 1 revealed that for Benue State, 36.7% of the respondents had 1-5 persons, 32.8% had 6-10 persons, 23.3% had 11-15 persons and 7.2% had 16 and above persons with the mean of 7 persons. In Nasarawa State, 43.5% respondents had 1-5 persons, 28.8% had 6-10 persons, 21.2% had 11-15 persons and 6.5% had 16 and above persons with the mean of 8 persons. The pooled result showed that majority (70.8%) of the respondents had household size of 1-10 persons with the mean of 7 persons. This means majority had household size of range of 1-10 persons in the study area. This result is similar to the findings of Akinagbe and Umukoro (2011) who found that most rural farmers in Nigeria had household size range of 6-10 persons. Respondents therefore, may use the advantage of family labour in performing agricultural activities as it may reduce cost of farm labour.

**YEARS OF SCHOOLING:** Table 1 indicated that in Benue State 40% respondents spent 1-6 years in formal schooling while 31.7% respondents spent 7-12 years in formal schooling with the mean of 12 years. In Nasarawa State, 42.9% respondents spent 7-12 years in formal schooling while 30.6% spent 12 above years in formal schooling with the mean of 11 years. The pooled results showed that 70% of the respondents had formal education with the mean of 11 years. This finding is contrary to the discovery of Ezech (2008) who found that farmers in rural areas are not educated. For this study, this

means respondents were educated to certain limit, thus this could give them knowledge and understanding to identify perturbations in the study area and be able to apply certain mitigation strategies on prevailing perturbations.

**SOURCES OF FARM LABOUR:** The result in Table 1 showed that 51.7%, 40% and 8.3% depended on family, hired and communal labour respectively in Benue State. For Nasarawa State, 64.2%, 22.9% and 12.9% depended on family, hired and communal labour for farming activities respectively. The pooled result showed that majority (57.7%) depend on family labour, this implies that they may spend less money on farm labour for farming activities. Use of family labour could also save time and other challenges associated with using hired labour in rural communities. This agrees with the findings of Ezech (2008) who observed that family source of labour is the dominant labour source for rural farmers in Nigeria. He discovered that most rural farmers in Nigeria are subsistence farmers, they do not rely on hired labour for farming activities instead use family labour.

**FARM SIZE:** The result on farm size revealed that 40%, 34%, 21% and 5% respondents had farm size of 1-2, 3-4, 5-6 and 7 above hectares respectively in Benue State with the mean of 3.5 hectares. In Nasarawa State 52%, 25.9%, 14.1% and 7.6% respondents had farm size of 1-3, 4-6, 7-10 and 11 above hectares respectively with the mean of 3 hectares. The pooled result showed that majority 46% of the respondents had farm size of 1-5 hectares with a mean of 3.2 hectares. This connotes that majority of the respondents are small-scale farmers. This confirms the report of Yuguda (2013) who reported that majority of rural farmers in Nigeria are small scale producers and had farm size between 1-5 hectares.

**LAND ACQUISITION:** Table 1 revealed that method of land acquisition. In Benue State, 41%, 36%, 20% and 6% respondents acquired land through inheritance, hired, purchase and lease methods respectively. In Nasarawa State, 42.4%, 28.8%, 20.6% and 8.2% respondents acquired land through inheritance, hired, purchase and lease method respectively. The pooled result showed that majority (41.7%) of the respondents acquire land through inheritance. It implies that access to land by inheritance is the dominant land acquisition method in Benue and Nasarawa States. This result agrees with the findings of Bello (2010) who found that land acquisition by inheritance was the major source of land acquisition by most rural farmers in Northern Nigeria.

**YEARS OF FARMING EXPERIENCE:** The results in table 1 on years of farming experience revealed that in Benue State, majority 40% of the respondents had 6-10 years while 27.2% respondents had 11-15 years of farming experience with the mean of 12 years. In Nasarawa State, 34.7% respondents had 11-15 years, 26.5% had 6-10 years, and 19.4% had 16 above years of farming experience with the mean of 10 years. The pooled result shows that majority (33.42%) of the respondents had farming experience of 6-10 years with the mean of 11 years of farming experience. This means respondents had experience that could enable them identify and mitigate the prevalent perturbations in their locality. This result supports the discovery of Ladan (2014) who reported that farmers in rural areas of North Central Nigeria had 10 and above years of farming experience.

**INCOME:** Result in table 1 showed that 72.8% of the respondents earned annual income of ₦1-100,000.0, 23% earned ₦101-300,000.0 and 11.2% earned ₦ 300,000.0 and above in Benue State with the mean of ₦110,000.0. For Nasarawa 64.1% respondents earned annual income of ₦1-100,000.0, 24.7% respondents earned ₦101-300,000.0 and 11.2% earned ₦ 300,000.0 and above in Nasarawa State after perturbations with the mean of ₦92,000.0. The pooled result revealed that 68.6% of the respondents earned annual income of ₦1-100,000.0 and 10.9% earned annual income of ₦300,000.0 with a mean annual income of ₦144,000. This indicates that there is a fall in respondent's annual income. This is because 52% respondents earned annual income of ₦201,000 to ₦300,000 before perturbations. This result means that perturbations negatively affected the level of income of the respondents. Bello (2010) found that disturbances in an environment affect income generating activities of people in rural communities of Doma Local Government Area of Nasarawa State.

**MEMBERSHIP IN COOPERATIVE ASSOCIATIONS:** The result showed that 95% of the respondents were members of cooperative associations and 5% were not members of cooperative associations in Benue State. For Nasarawa State, 64.7% of the respondents were members of cooperative associations and 35.3% were not members of cooperative associations. The pooled result indicates that 81.3% of the respondents were members of cooperative associations and 9.7% were not members of cooperative associations. This result showed that respondents in Benue and Nasarawa States were into cooperative associations. It implies that joint effort could be mobilize and enjoined in both States to cope with perturbations. Membership of cooperative associations enable pull of resources together and promote the spirit of working as a team to achieve a common goal. This result agrees with the findings of Ladan (2014), who reported that over 60% (majority) of their respondents in North West Nigeria were members of farming associations.

School	Benue State n=180	Mean (%)	Nasarawa State n=170	Mean (%)	Pooled n=350	Mean (%)
1-6yrs	57	31.7	45	26.5	102	30.0
7-12 yrs	72	40.0	12	52	124	35.0
13 yrs above	51	28.3	73	42.9	124	35.0
<b>Total</b>	180	100	170	100	350	100
<b>Source of Labour</b>						
Family	93	51.7	109	64.1	202	57.7
Hired	72	40.0	39	22.9	111	31.7
Communal	15	8.3	22	12.9	37	10.6
<b>Total</b>	180	100	170	100.0	350	100.0
<b>Farm size</b>						
1-3Ha.	72	40.0	89	52.4	161	46.0
4-6Ha.	61	34.0	3.5	44	25.9	3.2
7-10Ha.	37	21.0	24	14.1	61	17.4
11Ha. & above	10	5.0	13	7.6	23	6.6
<b>Total</b>	180	100	170	100	350	100

Table 1: Distribution of the Respondents According to Socio economic Characteristics in Benue and Nasarawa States (n=350)

Table one cont.

	Benue State n=180 Freq.	%	Mean	Nasarawa State n=170 Freq.	%	Mean	Pooled n=350 Freq.	%	Mean (x̄)
<b>Land Acquisition</b>									
Inheritance	74	41.0		72	42.4		146	41.7	
Hired	65	36.0		49	28.8		114	32.6	
Purchase	35	20.0		35	20.6		70	20.0	
Lease	6	3.0		14	8.2		20	5.7	
<b>Total</b>	180	100		170	100		350	100	
<b>Farm Yield Before</b>									
101-200kg/ha	103	57.2		1	0.6		104	29.7	
101 - 200kg/ha	-		190kg/ha	68	40.0		68	19.4	180kg/ha
201 and above	77	42.8		101	59.4		178	50.9	
<b>Total</b>	180	100		170	100		350	100	
<b>Farm Yield After</b>									
1-100kg/ha	110	61.1		108	63.5		218	62.3	
101 -200kg/ha	64	35.6	145kg/ha	45	26.5		109	31.1	144kg/ha
201 and above	6	3.3		17	10.0		23	6.6	
<b>Total</b>	180	100		170	100		350	100	
<b>Income before</b>									
N1-100,000	5	3.0		1	6.0		7	2.0	
N 101,000-200,000	118	65.0	200,000.0	65	33.0	100,000.0	182	52.0	110,000.0
N301,000 and above	57	32.0		104	61.0		161	46.0	
<b>Total</b>	180	100		170	100		350	100	
<b>Income after</b>									
N1-100,000	131	72.8		109	64.1		240	68.6	
N 101,000-300,000	42	23.0	110,000.0	42	24.7	92,000.0	84	21.0	94,000.0
N301,000 and above	19	11.2		19	11.2		26	11.0	
<b>Total</b>	180	100		170	100		350	100	
<b>Years in Farm</b>									
1-5 yrs	48	26.7		33	19.4		81	23.1	
6-10 yrs	72	40.0	12	45	26.5	10	117	33.4	11
11-15 yrs	49	27.2		59	34.7		108	30.9	
16& above	11	6.1		33	19.4		44	12.6	
<b>Total</b>	180	100		170	100		350	100	
<b>M/cooperative</b>									
No	9	5.0		60	35.3		69	19.7	
Yes	171	95.0		110	64.7		281	80.3	
<b>Total</b>	180	100		170	100		350	100	

Source: Field Survey; 2019.

Table 2

Variables	Benue State n=180 Freq.	%	Mean (x̄)	Nasarawa State n=170 Freq.	%	Mean (x̄)	Pooled n=350 Freq.	%	Mean (x̄)
<b>Sex</b>									
Male	118	65.6		113	66.5		231	66.0	
Female	62	34.4		57	33.5		119	34.0	
<b>Total</b>	180	100		170	100.0		350	100.0	
<b>Age</b>									
18-25	35	19.4		35	19.4		70	20.0	
26-30	76	42.2		47	27.6		123	34.4	
31-40	55	30.6	35	59	35.7	38	124	35.4	39
41 and above	14	8.8		29	17.3		43	12.2	
<b>Total</b>	180	100		170	100.0		350	100.0	
<b>Marital Status</b>									
Married	70	48.9		77	55.3		147	55.0	
Single	62	24.4		57	23.5		119	25.0	
Widowed	31	17.2		22	12.9		53	15.0	
Divorced	17	9.4		14	8.2		21	5.0	
<b>Total</b>	180	100		170	100		350	100	
<b>House hold</b>									
1-5	66	36.7		74	43.5		140	40.2	
6-10	59	32.8		49	28.8		108	30.8	
11-15	42	23.3	7	36	21.2	8	78	22.2	7
16 above	42	7.2		11	6.5		24	6.8	
<b>Total</b>	180	100		170	100.0		350	100.0	
<b>Years in</b>									

**B. TYPES OF PERTURBATIONS IN AGRICULTURAL SETTINGS IN BENUE AND NASARAWA STATES**

Table 2 showed that in Benue State, natural perturbation had 67% while man-made had 33%. For Nasarawa State, natural perturbation had 76% while man-made perturbation had 24%. The pooled result in Table 2 indicated that natural perturbations had 71% and man-made 29%. This result means natural perturbations (71%) was the major type of perturbations in Benue and Nasarawa States. Pretty (2013) reported that man-environment interaction perturb the environment greatly such that the ecosystem is altered. Similarly, Akinagbe and Umukoro (2011) observed that natural disturbances alter the normal function of the natural systems, this affect socio economic activities of rural people at different levels.

This result implies that flood, erosion, and climate change among others were the prominent natural perturbations in the study area. This may be due to excessive rainfall and over flow of water from rivers in raining season which could result to washing away of farm land, destruction of houses, crops and animals in the field leading to losses at varying degrees. Furthermore, man-made type of perturbations involves all activities that perturb the environment, they include herdsmen-able crop farmer crisis, low level of education, and use of agro-chemicals among others. The occurrence of identified perturbations are influence by human activities in the environment. Madu (2010) reported that intensive utilization of natural resources for agricultural production and non agricultural activities has led to increase in man- made types of perturbations on the environment globally.

Types of Perturbations	Benue n =180		Nasarawa n = 170		Pooled n = 350	
	F.	%	F.	%	F.	%
Natural	120	67	130	76	250	71
Man-made	60	33	40	24	100	29
<b>Total</b>	<b>180</b>	<b>100</b>	<b>170</b>	<b>100</b>	<b>350</b>	<b>100</b>

Source: Field survey 2019

Table 2: Distribution of the Respondents Based on Types of Perturbations in Benue and Nasarawa States (n=350)

**C. MAJOR CAUSES OF PERTURBATIONS IN BENUE AND NASARAWA STATES**

**MAJOR CAUSES OF PERTURBATIONS IN BENUE STATE:** Table 3 showed that in Benue State, the causes of perturbations were erosion ( $\bar{x} = 2.73$ ), flood ( $\bar{x} = 2.72$ ), herdsmen –farmers conflict ( $\bar{x} = 2.63$ ), drought ( $\bar{x} = 2.63$ ), pests/disease-outbreak ( $\bar{x} = 2.56$ ), overgrazing ( $\bar{x} = 2.48$ ), communal conflict ( $\bar{x} = 2.47$ ) low education ( $\bar{x} = 2.43$ ), climate change ( $\bar{x} = 2.48$ ), price fluctuation ( $\bar{x} = 2.48$ ), population pressure ( $\bar{x} = 2.43$ ), bush burning ( $\bar{x} = 2.41$ ) and deforestation ( $\bar{x} = 2.39$ ). Others include government policy ( $\bar{x}$

= 2.39), land fragmentation ( $\bar{x} = 2.37$ ) and land tenure ( $\bar{x} = 2.32$ ).

**MAJOR CAUSES OF PERTURBATIONS IN NASARAWA STATE:** In Nasarawa State, the major causes of perturbations in order of seriousness were deforestation ( $\bar{x} = 2.62$ ), bush burning ( $\bar{x} = 2.51$ ), herdsmen –farmers conflict ( $\bar{x} = 2.44$ ), drought ( $\bar{x} = 2.41$ ), pests/disease-outbreak ( $\bar{x} = 2.43$ ), overgrazing ( $\bar{x} = 2.42$ ), flood ( $\bar{x} = 2.43$ ), communal conflict ( $\bar{x} = 2.36$ ) low education ( $\bar{x} = 2.38$ ), climate change ( $\bar{x} = 2.31$ ), price fluctuation ( $\bar{x} = 2.32$ ) and erosion ( $\bar{x} = 2.31$ ). Others include population pressure ( $\bar{x} = 2.26$ ), land fragmentation ( $\bar{x} = 2.27$ ), land tenure ( $\bar{x} = 2.32$ ) and government policy ( $\bar{x} = 2.21$ ).

Furthermore, Table 3 showed that the pooled result on causes of perturbations were erosion ( $\bar{x} = 2.68$ ), flood ( $\bar{x} = 2.55$ ), herdsmen –farmers conflict ( $\bar{x} = 2.54$ ), drought ( $\bar{x} = 2.50$ ), pests/disease-outbreak ( $\bar{x} = 2.50$ ), overgrazing ( $\bar{x} = 2.45$ ), bush burning ( $\bar{x} = 2.42$ ), communal conflict ( $\bar{x} = 2.42$ ) low education ( $\bar{x} = 2.41$ ), climate change ( $\bar{x} = 2.40$ ), price fluctuation ( $\bar{x} = 2.40$ ) and deforestation ( $\bar{x} = 2.40$ ). Others include population pressure ( $\bar{x} = 2.35$ ), land fragmentation ( $\bar{x} = 2.32$ ), land tenure ( $\bar{x} = 2.32$ ) and government policy ( $\bar{x} = 2.30$ ). The result showed that causes of perturbations were erosion ( $\bar{x} = 2.68$ ), flood ( $\bar{x} = 2.62$ ), herdsmen –farmers conflict ( $\bar{x} = 2.54$ ), drought ( $\bar{x} = 2.50$ ), pests/disease-outbreak ( $\bar{x} = 2.50$ ), overgrazing ( $\bar{x} = 2.45$ ), bush burning ( $\bar{x} = 2.42$ ), communal conflict ( $\bar{x} = 2.42$ ) low education ( $\bar{x} = 2.41$ ), climate change ( $\bar{x} = 2.40$ ), price fluctuation ( $\bar{x} = 2.40$ ) and deforestation ( $\bar{x} = 2.40$ ). Others include population pressure ( $\bar{x} = 2.35$ ), land fragmentation ( $\bar{x} = 2.32$ ), land tenure ( $\bar{x} = 2.32$ ) and government policy ( $\bar{x} = 2.30$ ). The above mentioned variables were found to have high mean as the causes of perturbations.

Result in Table 3 further revealed that the major causes of perturbations in Benue and Nasarawa States were flood, erosion, drought, climate change, pest and disease outbreak, herdsmen-farmers conflict, price fluctuation, low level of education, deforestation, communal conflict, low level of education, use of agro-chemical and Population pressure. The variables listed above were discovered to be the major causes of perturbations in Benue and Nasarawa States. This implies that the major causes of perturbations revealed in Table 3 are the independent variables of concern causing perturbations in Benue and Nasarawa States. It also means that increase in their occurrence will lead to the probability of increase in perturbations in the study area. This result confirmed the report of Raufus (2010) who found that natural perturbations that are prevalence in Nigeria include: flood, erosion and drought. They are causing damages to agricultural activities at different levels and are responsible for a lot of disturbances in the environment where agricultural activities are carried out.

Variables	Benue State		Nasarawa State		Pooled	
	Mean	STD	Mean	STD	mean(x)	STD
Flood	2.72	0.534	2.43	0.588	2.64	0.567
Erosion	2.73	0.676	2.42	0.576	2.68	0.491
Drought	2.63	0.342	2.41	0.557	2.45	0.554
Climate change	2.48	0.463	2.31	0.548	2.40	0.601
Pest disease outbreak	2.56	0.512	2.43	0.532	2.50	0.585
Densification	2.40	0.489	2.12	0.639	2.26	0.616
Govt. policy	2.39	0.398	2.21	0.625	2.30	0.588
Herdsman farmers conflict	2.63	0.399	2.44	0.587	2.54	0.563
Price fluctuation	2.48	0.432	2.32	0.577	2.40	0.606
Religious practices	2.17	0.553	2.42	0.576	2.15	0.670
Customs /cultural factors	2.18	0.623	2.43	0.556	2.16	0.612
Low education	2.43	0.523	2.62	0.587	2.41	0.558
Deforestation	2.39	0.576	2.42	0.575	2.40	0.572
Overgrazing	2.48	0.599	2.41	0.557	2.45	0.548
Land fragmentation	2.37	0.566	2.27	0.609	2.32	0.578
Communal conflict	2.47	0.574	2.36	0.598	2.50	0.579
Bush burning	2.41	0.558	2.43	0.523	2.42	0.575
Agro chemical application	2.35	0.548	2.42	0.576	2.38	0.579
Population pressure	2.43	0.588	2.26	0.617	2.35	0.570
Use of heavy machines	2.23	0.605	2.08	0.798	2.16	0.634
Land tenure	2.32	0.541	2.42	0.595	2.32	0.541

Cut off mean ( $\bar{x}$ ) = 2.0

Source: Field survey, (2019).

Table 3: Causes of Perturbations in Agricultural Settings in Benue and Nasarawa States (n=350)

#### IV. CONCLUSION

The purpose of this study was to assess the types and causes of perturbations in Benue and Nasarawa States agricultural settings. The study found that natural type of perturbations is the major type of perturbations in the study area. The study revealed the major causes of perturbations were; flood, erosion, climate change and herds-arable farmers conflicts. Others included bush burning, overgrazing, land intensification, communal conflict, population pressure and land tenure. Adopting proactive measures could facilitate coping up with perturbations for sustainable livelihood in the study area in particular, and Nigeria in general.

#### V. RECOMMENDATIONS

- ✓ Human resources development should be encouraged by the government through education of rural farmers on sustainable use of environmental resources this will help in addressing the issue of poor management of environmental resources.
- ✓ Rural farmers should be enlightened to adopt clustered settlement pattern. This will enhance solidarity during perturbations and facilitates use of pull resources by the farmers to cope with perturbations.
- ✓ Policy on sustainable use of environmental resources (land tenure, integrated development and ranches policies) should be reactivated and properly implemented. This could be a means to address causes of perturbations. More efforts should be made by the government, donor agencies and individuals to aid farmers who incurred losses due to perturbations (disasters and crisis), this could help them sustain food production, livelihood activities and reduce the shock of perturbations.

#### REFERENCES

- [1] Age, A.I (2017). Sustainable agriculture and rural development: panacea for national security threat and absolute poverty in Nigeria. Makurdi. Kency Printing Press pp136.
- [2] Akinagbe, O.M. and Umukoro, E. (2011). Farmers' perception of the effects of land degradation on agricultural activities in East Local Government Area of Delta State, Nigeria. Journal of Agricultural Science, 76(2): 131-141.
- [3] Asthana, D. K. (2013). Environment: problems and solution (2nd ed.) New Delhi: S. Chad and Company Limited, 125pp.
- [4] Bamire, A.S. (2010). Effects of tenure and land use factors on food security among rural households in the dry savannas of Nigeria. African Journal of Agriculture, Nutrition and Development, 10 (1): 1982-2000.
- [5] Botkin, D. B. and Keller, E. A. (2012). Environmental Science (8th ed.). New Jersey: John Wiley and Sons publishers, 150pp.
- [6] Chapin, T. (2010). Integrating resilience adaptability and transformability. Journal of Ecological Science, 15 (4):20.
- [7] Chen, P. and Zhang, X. (2005). Climate Change. Newsletter, 1(62): June, 2005, pp5.
- [8] Chivian, P. I. and Bernstein, A. (2008). Analytical situations of land degradation and sustainable management strategies in Africa. Journal of Agriculture and Social Science, 2 (4): 42-52.
- [9] Food and Agricultural Organization (FAO), (2013). Tackling climate change through Livestock, A Global Assessment of Emissions and Mitigation Opportunities. Journal of Food and Agricultural Organizations (FAO) publication, Rome, 3(2):139.
- [10] Federal Ministry of Agriculture and Rural Development (FMARD), (2012). Draft report on agricultural development projects, Abuja, Nigeria, pp5-8.

- [11] Hyde, P. and Reeve, P. (2011). Essentials of environmental management (3rd ed) Leicestershire: Iosh Services Ltd, 250pp.
- [12] Iheanacho, A.C. (2012). Research Methodology for Social Sciences and Education. Stirling-Horden publishers Ltd. Ibadan, 145pp.
- [13] Intergovernmental Panel on Climate Change (IPCC), (2012). The physical science basis. Summary report for policy makers. Fourth assessment report of the Intergovernmental Panel on Climate Change. Geneva Switzerland, 25pp.
- [14] Ilea, R. C. (2009). Intensive livestock farming: global trends, increased environmental concerns, and ethical solutions. Journal of Agricultural and Environmental Science. 2(22):153-167.
- [15] Intergovernmental Panel on Climate Change (IPCC), (2014). Managing the risks of extreme events and disasters to advance climate change adaptation. A special report of working groups I and II of the developing countries studies, 44pp.
- [16] Jay, W. and Scott, B. (2011). Essential environmental science (3rd ed.). San Francisco: Pearson, 155pp.
- [17] Joseph, B. (2009). Environmental studies (2nd ed.) New Delhi, 223-242pp
- [18] Madu, I.A. (2010). Population pressure, agricultural land use and environmental sustainability in Nigeria. Retrieved on 25th, November 2011.
- [19] Mahama, E. S. (2012). The implications of climate change on food security and rural livelihoods in Ghana. Journal of Environment and Earth Science, 2(3): 21-29.
- [20] Mailumo, S.S. (2011). Environmental degradation and mitigation response by farmers in Danko/wasagu LGA of Kebbi State, Nigeria. Nigerian Journal of Agricultural Economics, 2(21):42-55.
- [21] National Bureau of Statistics and Federal Ministry of Agriculture and Rural Development (NBS & FMARD), (2012). Collaborative survey on National agriculture sample survey, 2010/2011 draft report, Abuja, Nigeria, pp5-8.
- [22] Nasarawa Agricultural Development Programme NADP, (2010). Annual situation report on projects. Lafia, 10-15pp.
- [23] National Bureau of Statistics (NBS), (2005). National Bureau of Statistics; National abstract of statistics, Abuja. 15pp
- [24] National Bureau of Statistics (NBS), (2015). National Abstract of Statistics, Abuja, 45pp.
- [25] Ogunkunle, O.A. (2010). Effects of land use on soil degradation and soil productivity decline on alfisols and ultisols in Ogun State in South Western, Nigeria. Journal of Agricultural Science, 75 (1): 9-19.
- [26] Okwoche, V.A (2013); Adoption and Diffusion of Innovations. Department of Agriculture Extension and Communication, University of Agriculture Makurdi. 25Pp.
- [27] Raufus, M. O. (2010). Pattern of land use among selected crop farmers in Osun State. Research Journal of Soil and Water Management. 1 (1):11-45.