

A SURVEY OF PEOPLE’S PERCEPTION OF THE IMPACTS OF CLIMATE CHANGE ON SOCIO-ECONOMIC CHARACTERISTICS OF THE HOUSEHOLDS IN OORELOPE LOCAL GOVERNMENT AREA OF OYO STATE.

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Abstract

This paper focuses on the effects of climate change on socio economic characteristics of the households and their means of livelihoods using, Oorelope local government as a case study. The data used for this study were extracted from both primary and secondary sources. The primary sources of data involved questionnaire administration, oral interview and group discussion. The secondary sources were based on a review of collected data through various published and unpublished sources. This data were analysed using, simple percentages and frequency tables. One sample test was equally used in the analysis. It was found out that, the land resources like forest, water resources, agricultural cropland among others have been greatly impacted by climate change. It was evident that activities involving fishing at the nearby rivers by the villagers, early yam harvesting among others have been negatively affected by climatic variations. It was also discovered that the occupation of people which is majorly farming has been affected due to low yield of farm products observed. Many of the residents were said to have been forced out of the farm leading to shortage of farm products and low income among the residents in the study area. It was therefore recommended that government should assist the rural dwellers to have access to quality information as regards climate change as to avail their adequate preparation. It was also suggested that government at the state and federal levels should adequately fund the ministries concern for proper monitoring of climate change and ensure adequate preparedness among the residents. Also irrigation farming in the study area should be improved upon; this could be by government training the farmers through government agencies. It was also suggested that governments through their agencies should train the households for a better afforestation.

Keywords: *Perception, Climate change, Socio- economic characteristics.*

Introduction

The impacts of climate change can be broadly grouped under three headings: ecological, social, and economic. The ecological impacts of climate change include shifts of vegetation types and associated impacts on biodiversity; change in forest density and agricultural production; expansion of arid land; decline in water quantity and quality; and stresses from pests, diseases, and wildfire. Salient social impacts may include changes in employment, equity, risk distribution, and human health, and relocations of populations. Economic impacts include increased risk and uncertainty of forest or agricultural production, alteration in productivity for crops and forest products, reduction in supply of ecosystem goods and services, increased cost of utilities and services, and altered energy needs (Intergovernmental Panel on Climate Change, 1994).

The climate change arena – broadly speaking, the United Nations Framework Convention on Climate Change (UNFCCC) and the Intergovernmental Panel on Climate Change (IPCC) frameworks, and the array of research and advocacy entities that interact with these – has tended to identify increased human vulnerability to climate extremes as a likely outcome of climate change. As such, it has advised and undertaken research on vulnerability, produced an array of vulnerability assessments and to a lesser extent, advised and undertaken assessments of climate change adaptation (Abramovitz, 2001).

Although the climate change community is guiding and encouraging analysis and assessment, its work remains largely scientific and theoretical, and does not yet involve practical, ground level action. In fact, researchers and policy makers in this arena have yet to make concrete and specific recommendations for *how* adaptation ought to be undertaken, and have not actively engaged in responses to specific instances of human vulnerability (Banuri et al., 2001).

Furthermore, the concrete recommendations that have been made have tended to involve large-scale structural adjustments. The disasters community, on the other hand, which is starkly aware of the rising toll of climate extremes, is directly engaged in developing and applying tools for disaster response and vulnerability reduction. This research work attempts to examine the effect of climate change on socio- economic activities of the indigent residents and their means of livelihoods in the study area.

Aim and Objectives of the study

The aim of this study is to critically examine the impacts of climate change on socio-economic characteristics of rural dwellers and the manner in which they sustained themselves using Oorelope local government as a case study.

Objectives of the Study

- i. To assess the socio- economic impacts of climate change and the condition of living among the residents in the study area.
- ii. To evaluate the state of environmental resources and the condition of living among the residents in the study area.
- iii. To analyze some the determinant factors of the recent climatic variations that are obvious in agricultural farm and forest products that have drastically reduced in the study area.

- iv. To suggest some of the precautionary measures that would be of important in reducing the effects of climate change in the study area.

Statement of the problem

The environment that sustains human population is used by people in many ways. Farm and forests supply nations with wide range of important raw materials: timber wood and fruits which are further processed into manufactured goods such as juice, pharmaceuticals among others. These raw materials and finished products are important to the economic security of the country and to the food security of its citizens. Water resources are essential for life, and are harnessed as a critical input for economic growth; including agriculture and industry. Natural resources also provide rural people with food, medicines, honey and other goods that are exchanged or used for secondary processing and contribute greatly to rural subsistence economies.

Yet, many countries are experiencing a decline in availability and condition of their resource base. The causes of environmental change are stem from different levels- from global and national to individual farms and households. This study therefore examines the position of residents in the study area concerning the impacts of climatic variations on their socio economic activities with a view to suggesting some of the important solutions that would be of help in reducing the adverse effects of climate change.

Literature Review

The climate change literature specifically addressing social and economic effects of climate change in rural versus urban areas is limited. Although potential threats to urban and rural populations have been described in recent reports (e.g., USGCRP 2009), information delineating the impacts of climate change specifically on rural communities is scarce (Falkenmark, 1990).

The research has largely been sector-specific, such as delineating impacts on agriculture, health, transportation, demography, energy, etc., and has rarely addressed how these impacts might differ across urban or rural communities. Similarly, knowledge of the comparative impacts of climate change in different geographical regions is limited. Because much of the climate change literature does not specifically address social and economic effects of climate change, we make inferences about these effects from national or sector assessments dealing largely with biophysical impacts. In addition, very few studies have attempted to delineate impacts across different spatial scales in terms of severity. Also, it is difficult to compare severity of impacts in light of future uncertainties (Flint and Luloff, 2005).

The capacity of the community to act in response to climate change and community resilience has been largely absent in climate change research (Flint and Luloff, 2005). However, delineating the impacts of climate change on rural populations is critical, as they tend to depend on climate-sensitive livelihoods and are especially vulnerable to climate change events. One difficulty in analyzing the impacts of climate change on rural communities is the lack of a clear demarcation between rural and urban areas, as evidenced by the wide variety of definitions of “rural” employed by researchers and policymakers (Cromartie and Bucholtz 2008).

In central New York, four species of frogs are calling 10 to 13 days earlier than observed during the early 20th century, which may signal a potential shift toward earlier reproductive behavior (Gibbs and Breisch 2001). It also is suspected that a combination of

temporal climate variation affecting ultraviolet radiation and environmental contamination may contribute to declines in amphibian populations (Beebee and Griffiths 2005, Blaustein et al. 2001). This study is therefore aimed at finding out the perception of people regarding the implication of climate change on socio- economic activities of the households in the study area.

Methodology

Area of study

The study area is located approximately along Latitude $7^{\circ} 19^1$ North and Longitude $4^{\circ} 40^1$ East of Greenwich meridian. There are two major settlements in the local government these are: Igboho and Igbope communities. They are also surrounded by neighbouring towns and villages. Igboho community is the seat of the local government. The local government is bounded in the East by Igbeti (Olorunsogo local government and Ilesa Ibaruba/ Baruten local government, Kwara State), in the North by Kisi (Irepo local government), in the South by Saki (Saki West local government and Ogbooro, Sepeteri Ago Amodu in Saki East local government). The two existing banks (Wema bank plc and Osonta Micro Finance Bank) in the study area are both located in Igboho and Igbope. The major occupation of people in the study area is farming. Apart from the roles played by agriculture, large percentages of the households are traders and artisans. There are some periodic markets (such as Bonni market, Oke Igboho market, Owode market etc) which attract traders from within and outside Oorelope local government. It is evident that the reducing rate of these markets is on rise due to low agricultural output that is in association with climatic variations in the area.

The landscape like any other place in Oke - Ogun region consists of old hard rocks and some shaped hills which rise gently from about 500meters in the Southern part and reaching a height of about 1,219 meters above the sea level in the Northern part. The climate of the area is equatorial, notably with dry and wet seasons with relatively high humidity. The dry season lasts from November to March while the wet season starts from April and ends in October. Average daily temperature ranges between $25^{\circ}c$ ($77.00^{\circ}f$) and $35^{\circ}c$ ($95.00^{\circ}f$) almost throughout the year (Adeola, 2005).

Data and methods

The data used for this study were gathered from both primary and secondary sources. The primary data like people's perception concerning low agricultural output, whether there are usually a delay in onset of rain or not, whether the existing rivers or stream consistently maintain their volume at the peak period of rainfall every year, whether timely fishing activities among the youths have reduced or not, whether there is increasing disappearance of trees or not as this may have a great impact on climate itself, whether socio – economic activities have reduced or not, whether cultural practices among the youths and elders have reduced or not, etc, were all collected through interviews and questionnaires. The secondary data like the impacts of climate on the social, economic and the wellbeing of people at different regions, the system of agricultural practices that have resulted to land deterioration and land degradation at different places especially in the developing countries, etc, were extracted from various books and journals. Other pieces of relevant information were also got on internet apart from the data collected from the existing Map of Oorelope local government area. In order to cover the whole area under study, a total of 300 questionnaires were produced and distributed among the residents in the five selected out of ten wards using, random sampling techniques. It was an established facts that a locality/name associated with

one ward might be applicable to the other such that, one/ two wards bearing the same name/locality in the study area.

The table below showing the existing wards and associated name or locality

S/N	Ward	Name associated with ward
1	I	Ebedi, Iya & Obaago
2	II	Oke – Afin
3	III	Bonni, Gbedegun & Okeloko
4	IV & V	Igbope
5	VI	Ago Igisubu & Ago Molaba
6	VII & IX	Modeke
7	X	Okegboho, Ago Okere & Jakuta

Source: Field survey 2016.

In all, 60 questionnaires were produced and distributed in each of the five selected wards (I, II, IV, VI and X) making a total number of 300 set of respondents considered for the questionnaires in the study area. In the process of retrieving the administered questionnaires, 34 copies were either missed or not properly completed and were therefore discarded while the remaining 266 copies were used for the analysis.

Hypotheses Tested

- H₁:** There is no significant relationship between climate change and declining land resources associated with decreasing households' means of livelihood in the study area.
- H₂:** There is no significant relationship between climate change and low economic activities associated with low condition of living among the residents in the study area.
- H₃:** There is no significant relationship between climate change and low socio-economic development among the residents in the study area.

Result and Discussion

H₁: There is no significant relationship between climate change and declining land resources associated with decreasing households' means of livelihood in the study area.

Table 1a

Variable	Ward										Total			
	I		III		IV		VI		X		Yes Freq	%	No Freq	%
	Yes Freq	No Freq	Yes Freq	No Freq	Yes Freq	No Freq	Yes Freq	No Freq	Yes Freq	No Freq				
Fishing activities highly decreasing	8	3	6	2	5	2	10	4	9	6	38	14.3	17	6.4
Food production highly reducing	13	6	5	3	7	5	6	4	6	3	37	13.9	21	7.9
Reducing soil moisture& fertility	10	5	19	7	19	6	11	5	11	5	70	26.3	28	10.5
Reducing level of stream/river dams	9	2	8	4	5	3	8	1	10	5	40	15	15	5.6
Total	56		54		52		49		55		185	69.5	81	30.4

Source: Field survey, 2016

Table1b: Paired Sample Test

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Agreed Frequency	162.2857	5	53.15297	20.08993
	Disagreed Frequency	137.7143	5	53.15297	20.08993

Table1c: Paired samples statistics table 1

	Paired Differences						t	Df	Sig. (2-tailed)	
	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference			Mean	Std. Deviation	Std. Error Mean	
	Lower	Upper	Lower	Upper	Lower	Upper	Lower	Upper		
Pair1 agreed frequency Dis agreed frequency	24.57143	106.30594	40.17987	40.17987	-73.74517	122.88802	.612	6	.563	

The table above indicates that P- value is less than level of significant 0.05, the stated hypothesis is thereby rejected; that is there is significant relationship between climate change and declining land resources associated with decreasing households' means of livelihood in the study area. It is a known fact that the decreasing rate of many rivers gradually restricting the chances of residents from having access to fishing activities at the nearby river for home consumption as well as trading activities and that could be attributed to a delay in onset of rainfall in the study area. This accords with the view of the World Resources Institute (1992) who noted in their reports that climate change which causes inadequate access to water and poor quality water does not only affect women in their responsibility as primary givers and the health of their families; it also impacts agricultural production and the care of livestock as

well as increases the overall amount of labour that is expanded to collect, store, protect and distribute water.

It is evident that inability of the households to have access to early supply of food crops (e.g yam, maize, e.t.c.) as it used to be in the past could be associated with low soil water and a gradual increase in temperature and this necessitated for a decreasing level of economic and sustainability among the residents in the study area. This corroborates the opinion of Abramovitz study (2001), who indicates the facts that natural resource mismanagement contributes to the vulnerability of human systems to disaster, and that enhanced management can provide a tool for vulnerability reduction.

The irregularities in rainfall with decreasing agricultural outputs that would've ensured better transportation of goods and services is directly linked with the un-busied nature of roads many of which have become sleeping ground for domestic animals (e.g goats, sheeps, etc.) leading to an incidence of perpetual low economic development for self- sufficiency among the residents in the study area. This is in accordance with the view of Intergovernmental Panel on Climate Change (2001) who expressed their concern on the fact that in Africa and Latin America many rain fed crops are near their maximum temperature tolerance, so the yields are likely to fall sharply for even small climate changes; falls in agricultural productivity of up to 30% over the 21st century are projected.

The increasing chances of residents removing vegetal cover for their various activities with the perceived reduction in rain-forming process has a direct link with low agricultural production and un-ending low comfort among the households in the study area. This is in line with the view of Al- Amin, A.Q. and W.L. Fiho (2011) who were of the opinion that climate change adds a new complexity to the areas of human mobility and settlement by exacerbating environmental degradation.

The need to ensure sustainability with increasing chances of the households participation in various farming activities in the past accounts for land degradation which is an important ingredient in drought events and the resultant low condition of living among the residents in the study area. This concurs with the view of the Intergovernmental Panel on Climate Change (2007) who observed in their report that climate change can reduce the availability of this local natural resources (e.g local water supplies, agricultural land, etc), limiting the options for rural households that depend on natural resources for consumption or trade.

The conceived declining activities of soil organisms is attributed to the reducing rate of soil moisture and insufficient nature of agricultural production and low sustainable rural development among the dwellers in the study area. This view corroborates the works of Food and Agriculture Organization (1993) which affirmed that in rural area specifically, environmental change has immediate and direct effects on the health and wellbeing of millions of households that depends on natural resources for their base livelihoods.

The reducing rate of soil fertility through soil erosion is associated with excessive cultivation of agricultural land without shifting cultivation and the increasing chances of soil impoverishment which has a long term effect on climate change and poor condition of living among the households in the study area. This supports the opinion of Intergovernmental Panel on Climate Change (2007) who expressed their concerns over the fact that, the interaction between the processes of climate change and environmental degradation has the

potential to undermine development, investments and recent gains in poverty alleviation, food and water security and human health, particularly in the most vulnerable countries.

The high rate of food crops importation due to the increasing chances of food crops being affected by destructive insects could be attributed to adverse effects of drought events that have a long term impact on climatic variation and poor sustainable rural development. This buttresses the efforts of World Resources Institute (1992) who observed that environmental degradation, along with emerging agronomic constraints is slowing the growth in World food output.

Hypothesis two

There is no significant relationship between climate change and low economic activities associated with decreasing condition of living among the residents in the study area.

Table 2a

Variable	Ward										Total			
	I		III		IV		VI		X		Yes Fre q	%	No Fre q	%
	Ye s Fre q	No Fre q	Ye s Fre q	No Fre q	Ye s Fre q	No Fre q	Ye s Fre q	No Fre q	Ye s Fre q	No Fre q				
Income highly reducing	9	3	11	5	12	7	15	9	13	11	60	22.6	35	13.2
Economic growth highly slowing down	10	9	5	4	10	3	5	3	3	3	33	12.4	22	8.3
High rate of unemployment	5	1	6	6	5	3	4	5	8	6	28	10.5	21	7.9
Low condition of living	14	5	9	8	6	6	4	4	7	4	40	15	27	10.2
Total	56		54		52		49		55		161	69.5	81	39.5

Source: Field survey, 2016

Table 2b: Paired Samples Test 2

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Agreed Frequency	192.4286	5	25.08557	9.48145
	Disagreed Frequency	107.5714	5	25.08557	9.48145

Table 2c: Paired Samples Statistics Table 2

		Paired Differences					t	df	Sig. (2-tailed)	
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference		Mean	Std. Deviation	Std. Error Mean	
		Lower	Upper	Lower	Upper	Lower	Upper	Lower	Upper	
Pair 1	Agreed Frequency Disagreed Frequency	84.85714	50.17114	18.96291	38.45658	131.25770	4.475	6	.004	

The above table shows that there is significant relationship between the increasing rate at which the climatic variations threatened the resources on land and low economic situation of the study area. Therefore, the hypothesis is rejected. The decreasing economic activities is concerning about the recent low agricultural outputs due to climatic variation that has a link with the discouraged youth many of whom their works is majorly farming and have become motorcycle (Okada) riders for self- sufficient in the study area. This notion is in consonance with the idea of IFAD, (2009) who observed that climate change would affect particularly the economics of the rural areas where people are more dependent on livestock, fisheries and agricultural related activities.

The low output of many agricultural products due to a gradual increase in soil temperature with excessive packages of little available rural food crops and that are being transported to the neighbouring towns or cities has a direct link to the declining economic situation and low cultural activities among the rural settlers in the study area. This view is consistent with the idea of IFAD, (2010) who affirms in a study observed that, the global scientists clearly stated that global temperature already increased from 1.0⁰c to 1.5⁰c within the last 30-50years and it is under prediction that the global average temperature may be raised up to 4.0⁰c by this century.

In trying to survive, the climatic variations induced by various activities (such as cutting of trees, spraying of weeds with chemicals, etc.) which involved by the residents through increasing demand for forest resources accounts for the low growth of economy and the little cultural diversification among the inhabitants of the study area. This is in line with the view of Thornton and Herero (2008) who clearly stated that climate change poses limitations to adequate housing, spurring the loss of livelihoods as a result of permanent displacement.

Hypothesis three

There is no significant relationship between climate change and low socio-economic development among the residents in the study area.

Table 3a

Variable	Ward										Total			
	I		III		IV		VI		X		Yes Freq	%	No Freq	%
	Yes Freq	No Freq	Yes Freq	No Freq	Yes Freq	No Freq	Yes Freq	No Freq	Yes Freq	No Freq				
Reducing child educ. development	4	2	10	7	8	4	6	2	4	2	32	12	17	6.4
Reducing level of housing development	8	4	7	5	6	2	7	2	8	6	36	13.5	19	7.1
Reducing social activities	5	3	6	3	9	4	5	3	9	2	34	12.8	15	5.6
Gradual loss of socio cultural activities	11	8	6	2	8	4	7	3	5	4	37	13.9	21	7.9
Increasing out migration	9	2	5	3	4	3	8	6	8	7	34	12.8	21	7.9
Total	56		54		52		49		55		173	65	93	35

Source: Field survey, 2016

Table 3b: Paired samples 3

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Agreed Frequency	179.5714	6	33.04470	12.48972
	Disagreed Frequency	120.0000	6	33.26660	12.57359

Table 3c: Paired samples statistics table

	Paired Differences						t	df	Sig. (2-tailed)		
	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference		Mean				Std. Deviation	Std. Error Mean
				Lower	Upper						
Pair 1	Agreed Frequency	59.57143	66.30198	25.05979	-1.747673	120.89053	2.377	6	.055		

The stated hypothesis is rejected due to the less value of P- value than 0.05 level of significant. This shows that there is significant relationship between climate change and low socio-economic development among the residents in the study area. The reducing rate of soil

water supply for sufficient agricultural production represents high rate of hunger facilitated by low supply of foods and reducing rate of inter-personal contact among the residents in the study area. This is associated with the view of FAO (1993) who noted in their reports that environmental degradation affects poor men, women, and children most since it threatens their food supply, incomes and health and since they have the fewest resources to cope with these stresses.

The gradual process of soil productivity loss and the removal of vegetal cover which have long term effects on climate change are directly linked with the low level of housing development due to low condition of living among the residents in the study area. This agreed with the study of Anderson (1994) who observed that in the last two decades farmers have lost nearly 500 billion tons of top soil to erosion when they were called to feed 1.6 billion additional people.

The increasing rate of deforestation with the perceived high emission of carbon into the atmosphere accounts for a reduction in water holding capacity of the top soil and the resultant climatic variations as well as low agricultural output and decreasing households' cultural activities (e.g Funeral ceremony, Worshipping the Queen of river, etal) in the study area. This is in consonance with the study of Brown (1994) who observed that global warming is one of the leading causes and greatest contributors to world hunger, malnutrition, exposure to disease and declining access to water.

The decreasing soil moisture with low agricultural output is directly linked with the reducing size and commodities of the available markets which consequently affects some cultural activities (such as Snake worshipping, Oro festival etc.) among the residents in the study area. This is consistent with the view of World Bank (1996) who listed some of the factors that put rural environment at risk to include lack of capital, poverty and population growth.

Conclusion

The study shows that the high rate of climatic variations have strongly impacted the living condition of people in the existing towns and villages of developing countries. It was also emphasized that the rate at which the households interact with their immediate surrounding is on the rise especially during the course of trying to sustain themselves. This among other things has led to the deterioration and degradation of agricultural cropland. It was also an established fact that the increasing land degradation has drastically reduced agricultural output and equally increasing vulnerability of the area to climate change. It was noted that the socio economic characteristics of the residents were highly affected showing that the rural areas are consistently being affected by climatic variations. In this regard, rural economy is decreasing due to low agricultural output as many of the households have been forced out of the farm and this have negative effects on the living conditions of people in the study area.

Recommendations

With regards to the findings of this study, the following recommendations are hereby put forward as to reduce the impact of climate change on the lives of the residents:

- There should be Improvement in resources management by the government, including an active civil society and open, transparent, and accountable policy and

decision-making processes, which can have a critical bearing on the way in which policies and institutions respond to the impact of climatic factors on the poor.

- Government should always ensure that all the ministries saddled with the responsibility of monitoring the environment are well financed by providing the required facilities for proper monitoring such that the planning or finance, to be fully involved in mainstreaming adaptation, especially in a country of this nature where climate impacts are expected.
- Empowerment of the communities by the government is highly necessary so that they can participate in assessments and feed in their knowledge to provide useful climate-poverty information. They will also need full access to climate relevant information systems. This is key for effective poverty reduction strategies.
- The indigenous residents need to be prepared ahead by the government through various activities to prevent or reduce impacts of a catastrophic event prior to its occurrence, such as land use planning, retrofitting, building codes and public education. There should be adequate access to good quality information about the impacts of climate change. Early warning systems and information distribution systems help to anticipate and prevent disasters.
- Afforestation on erodible or other environmentally sensitive agricultural land can enhance ecosystem services and co-benefits, such as enhanced wildlife habitat, in addition to contributing to climate change mitigation. Therefore the residents can be trained through government personnels for effective afforestation and improvement in the living standard.
- Irrigation farming should be improved upon among the households such that the existing river dams (such as Olorunda river dam, Modeke river dam, Owode river dam, etc) for effective reduction of the impacts of climate change in the study area.

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