POPULATION PRESSURE AND ENVIRONMENTAL DEGRADATION IN KWANDE LOCAL GOVERNMENT AREA OF BENUE STATE, NIGERIA

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Abstract
There exists a significant relationship between population and the environment as the two affect each other under certain circumstances causing both positive and negative effects. In this case,the study examines the impact of population pressure on environmental degradation in Kwande Local government. Primary data generated through Interview Schedules, Questionnaires, Direct Observations and Focus Group Discussions. Similarly, secondary data wasused to obtain data from journals, library, books, and the internet. These data used in developing literature complement the primary data. The data were analyzed using the Chi-square test, and tables and charts used in presenting results. The Chi-Square result showed a connection between population pressure and environmental degradation in the Local government. Also, community methods of coping with population pressure are influenced by religion and cultural background of communities in the Local government. The findings show the methods used in reducing the impact of population pressure on environmental degradation in Kwande local government area are delay in marriage, family planning, public awareness creation, free medication, and government/community intervention in the Local government. The study recommended among others that the Government should check population pressure through; birth control pills, encourage trees planting by individual household.
Keywords: Pollution, Migration, Mortality, Fertility, Poverty, Population Pressure.

Introduction

World's Population is now estimated to be about 7 billion, after doubling in only 40 years. Mainly, the increase in population happens in less developed regions of the World. While mortality and fertility rates began to decreases in all western areas of the 19th century, however during the 20th century many nations in the developing regions started experiencing significant reduction in their fertility, which gives the population momentum provided by young and youthful age structure, and this shows that Population in many parts of the World especially the Sub-Saharan Africa and Asia countries will continue to grow in many years to come (United Nation Research Institute for Social Development, 2011).

According to South Asian Association for Regional Cooperation (SAARC) (2009), states that the developing world have been experiencing an increase in population growth which leads to worsened environment situation and environmental deterioration in this century. This has contributed to the retardation of social and economic activities of the region.

There is a complicated and changing relationship between population pressure and environmental degradation, which are strictly related to one another. This connection that exists between population pressure and environmental degradation is linked to political, socio-cultural, economic, and developmental changes, which are vital as it can be modified inone way or the other. For the last century, demographers, environmentalists, biologists, and economist have argue on the impact of population pressure on environmental degradation and what can be the urgent solution to have sustainable environment and development (Hummel, 2009).

There is increasing population growth in many countries in Africa and Asia such as Nigeria, China, Pakistan and India which is now worsening and threatening our natural and built environment through the uncontrolled growth of urbanization, intensification of agriculture, and expansion of industrialization, and destruction of natural habitats. Nigeria which referred to as the demographic giant of Africa and fastest-growing Population in (Sub-Sahara Africa) has been growing in such a way that the figure recorded in every census surpasses the figure of the immediate past registration. With a number from 88,992,220 to 140,003,542 in fifteen years from 1991-2006 population and 168,728,600 in 2011 population projection, and also it will double up to a quarter of a billion by sometime in the foreseeable future if a famine, pestilence and war do not decimate us. (Online Nigeria, 2013).

Along the same line, Kwande Local Government Area also follows a similar trend, and for instance, there was an increase in population figures from 195,066 in 1991, 293,020 in 2006 and 347,320 in 2011 projection (National Population Commission, 2011). Which cause environmental degradation in the Area, land deterioration is the most significant environmental problemin Kwande Area. Land degradation is the most severe consequence which can strike as a result of human Population in the Kwande Area, as most of the Population relies on agriculture as means of their livelihood (Kwande Local Government 2011). Population in demographic usage refers to the total number of people resident in a particular area at a specific time. While population growth, on the other hand, refers to addition to or subtraction from the existing population through the interaction of the three elements of population change, namely: birth, death and migration.

Statement of the problem

According to Botkin and Keller (2012), human population today is the main issue responsible for environmental degradation on the surface of the earth. More specifically, the increase in the number of people on the earth is the leading cause of environmental degradation. Because of

this situation, there is a need to control the increase in the population so that it can reach the number the earth can sustain. In Kwande Area of Benue State Northern Nigeria, there has been considerable environmental degradation. It has shown that for the last ten years between 2013 and 2023, there has been a substantial increase in the Population of Kwande Area whereas land and other resources are constant. As a result, there appears to be population pressure, which causes deterioration of physical support such as surface water, erosion, deforestation, and human health. Despite the environment worsening in the Kwande Area, no study has been undertaken to investigate the nexus between population pressure and environmental degradation. Therefore, this study sought to bridge this knowledge gap on the impact of population pressure on ecological degradation in Kwande Local Government Area of Benue State of Northern Nigeria.

Objectives of the study

The general objective of the study is to examine the Impacts of population pressure on the environmental degradation in Kwande Local Government Area.

The following are the specific objectives:

i. To assess the impacts of population pressure on environmental degradation in Kwande Local Government Area.
ii. To investigate the method of coping with population pressure on environmentaldegradation in Kwande Local Government Area.
iii. To find out measures which could be employed in reducing population pressure on environmental degradation in Kwande Local Government Area.

Research questions

This research endeavored to answer the following questions:

i. What are the Impacts of population pressure on environmental degradation in Kwande Local Government Area?
ii. What are the methods employed by communities to cope with population pressure on environmental degradation in Kwande Local Government Area?
iii. What are the ways of reducing population pressure on environmental degradation in Kwande Local Government Area?

Literature review and conceptual framework

The Population is the sum of many individuals living in each geographical area. The relationship that exists between Population and environment has a long history. According to Malthus, the growing population causes pressure on the environment, primarily agricultural land, poor land quality, and making agrarian production more miserable. Some studies suggest that growing Population increases the demand for natural resources, which in the long run, become depleted; hence, cannot sustain human life in less developed regions. Furthermore, Cropper and Griffiths (2010) also argue that overpopulation results in demand for agricultural land, as it encourages the conversion of forests to agricultural land through deforestation, which

eventually leads to desertification, soil erosion and poor soil fertility resulting to the shortage of food thus, food insecurity- a threat to humanity.

People living in rural areas depend almost entirely on agriculture as a primary means of livelihood. Cleaver and Schreiber (2009) observe that there is a fall in the number of food products; natural resources. According to them, population increase leads to poor soil quality that cannot sustain Population owing to poor farm produce. Similarly, Meadow et al., (1994) conclude that with the continued growth in global Population today, pollution, decrease in natural resources, industrialization, and food production will continue, and then the outcome would be an uncontrolled decrease in industrial capacity and Population.

Population-environment nexus

According to (Khan et al., 2011), the "population-environment connection" has become a global concern in today's research on sustainable development and growth. Many research has been carried out on the impact of population on environment at a particular point in time. Studies show that rapid growing population does not only increase pressure causing soil erosion, overgrazing, flooding, increasing the use of fertilizers, pesticides butalso causes water and air pollution.

According to Malthus, 1798; Allen and Barness, 1995; Repetto and Holmes, 1983; Rudel, 1989; and Ehlich and Holdren, 1971, increase in population growth is a major problem affecting human as it causes environmental harms while Boserup (1965) expresses how increased innovation boost advanced agriculture which in turn leads to increased food production eventually resulting in population increase. Trainer (1999) argues that developing nations suffer as a result of rapid population increase, leading to a decline in forests, natural resources, water and air pollution, damage to the coastal ecosystem. That is to say, population pressure becomes a severe issue to the environment and its resources to produce food, which, in the end, affect the environment.

According to Cropper and Griffiths et al. (2010), population growth, by increasing thedemand for food, arable land, encourages the change of forests to agriculture land andresidents for settlement expansion. Meadow et al. (1994) conclude that what is currently happening in the world population growth, increase in food production, resources depletion, industrialization, and pollutions will continue and, the major result will be a serious decline inboth environment and Population.

Factors contributing to population growth.

Factors leading to population growth as examined by Chavis (2010) include low mortality rate, lack of family planning, religious beliefs, poverty, illiteracy, engaging many women and financial incentives. According to some researchers, increasing Population is determined by the changes of three main demographic processes: fertility rate, mortality rate and migration rate. This study also agrees with Tasin (2010), who say that Nigeria has the highest population

growth rate with an average of 2.54% population compared to other countries of the World. The other factors may include early marriage, religious influence especially in the northern part of Nigeria which are dominantly Muslims, culture of the said community, number of immigrants that migrate from neighboring countries into Nigeria such as Chad, Niger and Cameroun, and low death rate as there is improvement unsanitary conditions, and medical facilities and low natural calamities in the form of earthquake, flooding, and other man-made calamities in the country.

Environmental deterioration

Curbing environmental deterioration is an essential goal of any development policy as it helps to improve the quality of human life, which is always marked up with the quality of the environment. Since the United Nation Conference on Environment and Development at Rio de Janeiro in June 1992, it has become clear that problems of the environment cannot be fully addressed without first considering population-development linkages. The population dimension of these concerns stressed in the final document of the United Nations International Conference on Population and Development (ICPD) held in Cairo in September 1994. Environmental degradation today is a global issue.

In many developing countries, high population growth is a great problem for the environment and development. Many researchers claim that population growth is a significant cause of environmental degradation, but people's perception of environmental degradation and their choice of family size are simultaneously essential to analyze, in this considering the concepts as interrelated since people's perception of environmental degradation may influence practices on use of contraception, abortion, and family size in determining the declining and increasing of Population. The unequal distribution of resources and limited opportunities cause push and pull factor for people living below the poverty line that in turn overburden theenvironment as it gets manipulated by manifolds.

Population pressure and environmental degradation

Globally, the increase in Population is an important source of development; however, population pressure is a major source of environmental degradation when it outweighs the carrying capacity of the support systems. The relationship between the increase in Population and what can sustain it can stabilize, howsoever, innovation is not likely to yield some desired results. According to Botkin et al. (2012), human Population is the underlying issueof concern of the environment because most current environmental damages result from overpopulation; ultimately researchers cannot expect to solve the problems of environmental degradation without first limiting the number of people on Earth, to the level the Earth can sustain.

Population impacts on the environment primarily by natural resources and production of waste and are associated with environmental stresses like loss of biodiversity, air and water pollution and increased pressure on arable land. Human population issues are significant when it comes

to our way of life and our future on this planet. Botkin expresses some factors of population pressure, which could lead to environmental degradation and based on the objective one of the study.

Poverty

The relationship that exists between poverty and environment is a complicated phenomenon. Differences among individuals may increase unsustainability among the poor, as they rely on natural resources more than the rich, and this affects the natural resources rapidly. Therefore, the degraded environment can accelerate the process of impoverishment, again because the poor depend directly on natural assets.

Lack of opportunities

Absence of good jobs in the villages and ecological stresses are the leading factors of ever-increasing movement of people to towns and cities. While large cities emerge, urban slumsare expanding, and population pressure exists in the environment. Therefore, such rapid and unplanned expansion of cities because of population pressure has resulted in the degradation of urban environment. It has widened the gap between demand and supply of infrastructural services, such as good health, housing, transport, energy, communication, education, water supply, sewerage and recreational amenities, thus, depleting the environmental resource in the cities. These causes deterioration of air and water quality, the proliferation of slums, generation of wastes and undesirable land-use changes, all of which contribute to urban poverty.

Religious influence

Islamic religion in Nigeria influence people to have large families with the encouragement of the polygamous family system as tech by faith. The Christian religion, in turn, prohibits the most are anti-abortion and most effective forms of contraception.

Lack of education

Lack of education, especially women, to be educated as related to population education and sex education, and this would lower the birth rates and create a sustainable environment.

Direct impact on agricultural development

Population pressure on the environment arises from farming activities which contribute to deforestation, soil erosion, drought, land salination and loss of nutrients. The spread of green revolution has accompanied by overexploitation of water and land resources, and the use of pesticides and fertilizer has increased many yields. Shifting cultivation has also been a significant cause of land degradation and environmental imbalance. Absorbing from extensive use of chemicals such as pesticides and fertilizers are a vital source of contamination of water bodies and polluting the environment. Intensive agriculture and irrigation contribute to land degradation, particularly salination, alkalization, and waterlogging to the land. Therefore, environmental degradation is a result of the dynamic changes of socioeconomic, institutional

and technological activities (Egbai, Oba, Ambe, Abang, & Ocheche, 2021).

Climate change

Nigeria population resulting into fast increasing energy use and plays an essential role in global warming. Global warming has significant physical, socioeconomic, and environmental problems, which can either be positive or negative. The estimation of these impacts is complicated and marked with uncertainties. Climate change would make an impact on forestry, agriculture and natural ecosystems like fisheries and wetlands. Also, climate change is because of the global Population that would be more vulnerable to health problems, causing disruptions in settlement patterns and large-scale migration. All these would have significant socioeconomic consequences (Compendium of environment statistics, 2000).

Copying with population pressure on environmental degradation

Thefollowing are methods of coping with population pressure on environmental degradation are:

i. The most effective way to deal with population growth in Arunachal Pradesh is to delay the age of the first childbearing. Women should be encouraged to educate; this will make the delay to occur naturally.
ii. Family planning is another effective means of regulating birth. An awareness campaign should intensify in the State (Family Care International 1994; Population Report 2002). National policy on Population can also be reviewed to assign a particular number of children to a couple and not just to a woman.
iii. Improving the economic status of women will lead to improving financial standing, which could allow them to have fewer children as they are engaged in some socioeconomic activities (WHO, 1998).
iv. Other methods to cope with population growth on environmental degradation, it is suggested that an alternative source of energy should be developed to reduce the risk posed by the use of hydrocarbon as fuel.
v. Environmental education should be encouraged from primary school up to tertiary institution curriculum. These can achieve through media publication and other means of creating awareness. Therefore, people need to think about how to use resources of the environment without causing damage to the environment.
vi. Finally, the Government needs to invest more in Population and the environmental system as the current level of investment is low.

Reducing population pressure on environmental degradation

According to (Pankaj 2017) states, some measures to be taken in reducing population pressure on environmental degradation are:

i. Mortality rate must be reduced because of the increase in early death, makes people born more child.
ii. People should be encouraged to use a condom, and this will reduce unwanted pregnancy

in society.

iii. Women empowerment should be encouraged because many parents in India desperately want a child, and this brings about gender equality.
iv. Awareness campaign to the people about the consequences of high population growth on environmental degradation.
v. In another view by (positive news 2017) make some possible solution to population pressure:
vi. Women empowerment: Women should have access to reproductive health services, and also find it easier to break out of poverty, while those who work in Governmentor engaging some socioeconomic activities are more likely to use birth control.
vii. Promote family planning: Educating men and women about the use of contraception can have a substantial impact. Rwanda saw a threefold increase in contraception usage in just five years. A similar effort in Iran when it introduced family planning programmed in 1989, its fertility rate decline from 5.6 births per women to 2.6 in a decade.
viii. Make education entertaining: In Ethiopia, 63 per cent of women find reproductive health services reported tuning in. The US-base population media center gets creative to reach women, which features culturally specific stories about reproductive issues.

Methodology

The study is based in Kwande Local Government Area of Benue State, Nigeria. It is headquartered in the town of Adikpo. It has an area of 2,891 square kilometers (km^2). It is located between latitude 8^0 42^1 North and Longitude 9^0 18^1 East of the equator. And the population of 248,697 at the 2006 census is bound by several other local government areas. On the north Kwande Local Government share boundaries with Ushongo Local Government Area, on the West it bounded by Vandekya Local Government and Katsina Ala on the Northwest. On the South, it is bounded by Cross River State and in the East by the Republic of Cameroon. Kwande local areas share a common border with Takum Local Government Area of Taraba State. It has fifteen council wards.

As a result of its mountainous nature and proximity to the Cameroon it usually has cold weather which makes it very conducive to traders and investors. The local government also has very big rivers which could adequately take care of agricultural and industrial needs. Food and cash crops grown in Kwande include yam, potatoes, cassava, groundnuts, banbaral nut, oranges, mango, rice, beans, millet and palm trees, garden eggs, ginger are produced in large quantity which attract traders from far places to buy in large quantities to other towns and cities of the federation. Rice and groundnut are also produced in commercial quantity, and these provide opportunities for investment in the rice milling and groundnut processing small scale industries.

The major socio-economic activities that is predominant in the area is agriculture, apart from agriculture other activities include trading, hunting, gathering extensive poultry system and

animals' husbandry, basket making, waving, brooms etc. these activities involve a large group of the population, while some are involved in civil service job and other forms of white collar jobs. However, given the local economic mainstay in agriculture, a lot of problems includes soil erosion, land tenure fragmentation loss of soil fertility, pressure on land resources etc.

The study was carried out using descriptive research design. Yin, (2003), argues that research design gives more accurate research results by enabling the researcher to gather data from a large population of the study area. This design enabled the researcher to have an in-depth data collection since it allows respondents to express their views, opinions, and attitudes towards the problem at hand.

The target population comprised the whole population of 293,020, and the respondents were selected randomly from both male and females aged 18 years and above as they were believed to know about the study topic.

This study employed stratified random sampling methods, sample of some areas made for pretesting which used for actual research such as Turan with twenty respondents interviewed, and twelve respondents for focus group discussion (FGD), Nanev with twenty respondents obtained interview and twelve for focus group discussion (FGD) held, and Ikurav with twenty respondents have been interview, and twelve for focus group discussion (FGD). The purposive sampling method was used in selecting ten academic staff foradministering the questionnaire, ten environmental and health workers for questionnaire administration. Also, ten national population commission staff checked items in the survey. The researchers used 10% of the population in the study area, that is 100 respondents were selected randomly for the questionnaire from each household that participated in the research in Kwande Area at 95% confidence level. The sample size was distributed proportionally to the selected district, as shown in the table below, and 60 respondents interviewed and also 36 randomly selected for focus group discussion.

Table 1: Summary of Sample Size

Sn	Districts	Questionnaire	Interview Schedule	FGD Guide
1	Turan	50	20	12
2	Nanev	25	20	12
3	Ikurav	25	20	12
4	**Total**	**100**	**60**	**36**

Source: Field work 2023

The research instruments used in the study were questionnaires, and interview schedules which were administered to the respondents, as outlined in table1. Questionnaires and interviews used for collecting data from academicians, national commission staff, environmentalists, and health

workers. Similarly, FGDs and interview schedules are used for collecting data from ordinary citizens. Information from the libraries was used to validate the data from the study. Direct observation was used to identify the environmental degradation that exists as a result of population pressure in Kwande Local Government Area.

Results and discussion

The data generated from Kwande Local Government Area was presented according to the following objectivesof the study: to assess the impact of population pressure on environmental degradation, to investigate methods of copying with population pressure on environmental degradation andto find out measures to be employed in reducing population pressure on environmental degradation in Kwande Local Government Area.

Research question 1: Impacts of population pressure on environmentaldegradation in kwande local government area.

Table 2: Assessment of the Impacts of population pressure on environmentaldegradation

Impact	**%**
Deforestation	80
Soil Erosion	85
High Mortality and Morbidity	75
Poverty and Hunger	75
Diseases	80
Desertification	85
High Conflicts Rate	70
Environmental Pollution	86
Migration	85

Source: Field data, 2023

Table 3: Peoples opinion based on interview conducted on assess the Impact population pressure on environmental degradation**.**

Item	**Response**	**Percentage (%)**
Relationship between population pressure and environmental degradation in Kwande LGA	Agree	83.3
	Disagree	13.3
	Undecided	3.3
Total		**100**
How the increase in population pressure affect the community	Through poor standard of living	16.7
	Lands dispute	33.3
	Spread of diseases	25

	Migration	25
Total		**100**
What are the major population pressure and environmental challenges faced by the people in Kwande LGA	High birth rate	50
	Unemployment And migration	25
	Soil erosion	8.3
	Spread of diseases	16.7
Total		**100**
What are the environmental impact of selling out agricultural lands in your community?	Shortage of food	50
	Climate change	25
	Deforestation	25
Total		**100**
What are the Environmental Consequences associated to population pressure in your community	Poor agricultural output and lands dispute	33.3
	Soil Erosion Deforestation	25
	Drought and Desertification	25
	Existence of different Diseases	16.7
Total		**100**

Source: field data, 2023

In this research study, one of the objectives was to assess the impacts of population pressure on environmental degradation in Kwande Local Government Area. The results presented in Table 3 above shows that the respondents in National population commission, academic staffs from relevantarea and environmental and health workers in Kwande Local Government Area agreed that, deforestation which occur as a result of human activities to the environment for his own personal gain or interest which about 80% of the respondents agreed that as, the population increase in area the demand for food, shelter, will also going to increase, therefore, people cut or burn down the trees for either to sell, use the land to build house or for agriculture and this has effect on the population and the environment.

As found in another study by Cropper and Griffiths et al. (2010), population growth increases the demand for arable land, encourages the conversion of forests to agriculture through deforestation, which at the end lead to desertification, soil erosion, shortage of food and hunger

at the end. Since the people living in rural areas who are dependent on agriculture as a livelihood, one would expect deforestation to increase with rapid population density as well as rising demand for wood used for both timber and fuelwood.

From the study, soil erosion got 85% responses in agreement that, population pressure on the environment that causes the erosion as shown in plate 4.4 and desertification had 80% of respondents agreeing that the increase in population growth deteriorates the environment, and also poverty and hunger have 75% agreeing that increase in population has an impact on poverty as the demand for employment is always increasing and the job available is limited, and hunger will increase in both rural and urban settlement as many lands which before were used for agriculture are now left for industrialization and some are now for residential or settlement expansion. With this, the high conflict rate will increase as 70% of respondents agreedthat population pressure might lead to conflict in our society as most people are moving from the rural area to urban are jobless.

The respondents also agreed that the level of environmental pollution is as high as 86%, and that this has led to the spread of diseases in the region as, 85% agreed that the impact of population pressure on environmental degradation causes diseases such as malaria fever, water-borne diseases, cancer and skin diseases as a result of ultra-violet rays coming direct from the sun as human activities toward the environment are unlimited such as deforestation, air pollution and climate change. From the findings, 75% of the respondents cited that environmental degradation leads to high mortality and morbidity in the area. They further asserted that poverty limited people from accessing quality medical care. 68% of the respondents agreed that migration of people from rural to rural, rural to urban, urban to urban and international migration is partly caused by population pressure on the environment as people are forced to migrate from one place to another for a better living.

During the interview session with some members of the community in Kwande Local Government Area, the respondents had similar responses to those of the respondents who filled in the questionnaire of Table 4.4 above, the researcher interviewed about the relationship between population pressure and environmental degradation in the study area and 83.3% respondents agreed that there is a connection between population pressure and environmental degradation due to over-crowding in the area, expansion of settlement as agricultural lands are turning to residential areas while, 13.3% disagreed that the relationship between population pressure and environmental degradation does not exist as they believe that population growth and environmental degradation is a natural phenomenon whereas 3.3% neither support nor reject. Table 4 above illustrates the above discussion.

Furthermore, the respondent's response on whether increase in population affect their community and 16.7% agreed that it affects them since people experience poor standard of living such as poor sanitation and hygiene, reduced agricultural output that is caused by soil

infertility, lack of fertilizer or manure, which leads to eventual food insecurity. This is shown in Table 4.5 above. Also, 33.3% of the respondents agreed that population pressure affects the community through a land dispute between one community and another, between the eliteand the poor. This land dispute becomes a severe problem to the extent that some peoplewere killed, houses torched. 25% of the respondents said that an increase in population pressure affects the community through the spread of diseases such as cholera, typhoid fever, malaria fever, yellow fever, hepatitis B etc. People mostly cause these diseases as the population of an area is increasing, and the carrying capacity cannot sustain it, then deterioration of an environment occurs.

On the same note, 25% of the respondents show that there is unemployment in the region as the population growth is high and job opportunities are scarce. Hence, many people migrate from rural areas to Jato-Aka and Adikpo town with hope to get jobs, but in the end, they become unemployed and pressure on the resources in the city. Table 4 also shows that the significant population pressure and environmental degradation faced by the people in Kwande Local Government Area during the interview. 25% responded that the high birth rate and migration contribute to population pressure as rural-urban migration is high as well as urban-urban migration.

Furthermore, 50% of the respondents show that unemployment and conflicts are also major pressures faced by the people in Kwande Local Government Area, as the population is increasing and the carrying capacity cannot sustain the population, since many will be left out without paid job, and this causes conflict and high crime rate in the study area. Therefore, 25% of the respondents were of the view that soil erosion is a major environmental challenge faced bythe people in Kwande Local Government Area because of population pressure as it is shown in plate 4.1,4.2, 4.3 and 4.4 below. Meanwhile, 8.3% show that the spread of different types of diseases such as malaria fever, cholera, typhoid fever and many more in the study area are as a resultof population pressure on the environment.

In view of the above discussion, the responses from the respondents have shown that the objectives of this research study have been achieved as shown in data presented in Table 4.4 and 4.5 using the SPSS software and the Chi-Square test result in Table 4.6 below.

Table 5: Association between population pressure and environmental degradation inKwande Local Government Area

Chi-Square Tests			
	Value	Df	Asymp. Sig. (2-sided)
Pearson Chi-Square	14.141[a]	8	.078
Likelihood Ratio	14.310	8	.074
N of Valid Cases	225		

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 5.44.

Because of the above Table 4.6, the association between population pressure and environmental degradation in Kwande Local Government Area as shown in the Pearson Chi-Square test result shows that the null hypothesis is rejected, which states that there is no significant relationship between population pressures on environmental degradation in Kwande Area. Therefore, an alternative hypothesis is accepted which says that there is significant relationship between population pressure on environmental degradation in Kwande Local Government Area, as the expected countis less than 5 while, the minimum expected count is 5.44 which is indicated by relevant research done by (Carla et al. 2001) in Ethiopia on the impact of population growth on environmental degradation , and the findings show that there is a relationship betweenpopulation pressure and environmental degradation as The first and most active component describing the relationship between population and environment constitutes two contrasting environmental-demographic variable groups. As it regards the environmental variables, twoof them which are highly linked to the climate (the maximum and minimum temperature) seem to be exclusive, dominant and, at some extent, antagonistic to any possible interrelationship with the stable human settlement.

Table 6: Community methods of copying with population pressure on environmental degradation in Kwande Local Government Area

Item	**Response**	**Percentage (%)**
Religion Influence on population	Yes	92
	No	8
Total		**100**
Specifications of religion influence	Traditional and Christianity	60
	Cultural Influence	15
	Polygamy	15
	None	10
Total		**100**
Community Population Increase	Yes	90
	No	10
Total		**100**

Rating of Population increase	High	80
	Moderate	15
	Low	5
Total		**100**
Peoples' reaction onhow to cope with population pressure on environmentaldegradation	Planting of trees	30
	Practicing irrigationfarming	30
	Engaging inbusiness	20
	Land degradation	20
Total		**100**

Source: Field Work, 2023

Table 7: Focus Group Discussion on Community methods used to cope withpopulation pressure on Environmental degradation in Kwande LGA.

Item	**Response**	**Percentage (%)**
Is population increasein your area	Yes	83.3
	No	16.7
Total		**100**
Do you think that decrease in agricultural output is as a result of increasein population in the area	Yes	83.3
	No	16.7
Total		**100**
In what ways do youacquire agricultural Lands	Inheritance	33.3
	Buying	50
	Hiring	16.7
Total		**100**
How does land acquisition affect your agricultural productivity andfamily size	Lack of farm maintenance	58.3
	Very small scale	8.3
	Family consumption	16.7
	Source of income	16.7
Total		**100**

Source: Field, 2023

Table 8: Interviewed schedule on Community methods used to cope with populationpressure on Environmental degradation in Kwande LGA.

Item	Response	Percentage (%)
What role do culture play in influencing birth control in Kwande LGA?	Discourage use of family planning	16.7
	Encourage to have more children	33.3
	Use of traditional method of spacing	25
	Undecided	25
Total		**100**
What are the contributions made by the community in copying with population pressure in Kwande LGA?	Engaging the woman in schooland business	50
	Encourage sex education toward family planning	33.3
	Community awareness campaign	16.7
Total		**100**

Source: Field work, 2023

Research Question 2: community methods used to cope with population pressureon environmental degradation in kwande LGA.

Another objective of this study was to investigate how community method of copying with population pressure on environmental degradation in Kwande Local Government Area, as the result presented under discussion in Table 4.7 above; 92% of the respondents agreed that religion play a significant role in influencing people in birth control as 15% agreed that polygamy which dominant in the community was influenced by their religion as 60% agreed on the Bible as a specification of religion influence. In terms of whether the communities agree that there is an increase in population in the study area, the findings show that 80% of the respondents agreed that yes there is an increase in population in Kwande area as the figure shows in 1991 as 195,066, 2006 as 293,020 and the projection of 2011 is 347,320.

Similarly, the study established that population growth in Kwande has grown since 80% of respondents agreed there is rapid population growth, and 15% agreed that there is moderate increase in population growth and 5% respondents' view on studded population growth. Furthermore, the people`s reaction to how to cope with population pressure on environmental degradation is 30% planting of trees for the environment to become green and control the degradation, 30% encourage practising irrigation farming, 20% of respondents stated that engaging in business will cope with population pressure on environmental degradation in Kwande Area, and another 20% of respondents indicate that migration of people should be checkmate. Therefore, null hypothesis 2 has been rejected, which state that there is no significant relationship between methods of coping with population pressure on environmental

degradation in Kwande Local Government Area as findings from respondents show that different copying methods are used by the respondents in controlling population pressure.

Results and discussion of data on focus group discussion

Based on the data generated and presented under review in focus group discussion is similar to the response generated from questionnaire respondent in Table 4.8 above. Therefore, 83.3% of respondents agree that there is an increase in population in Kwande Area as a result of expansion and growth of settlement in the region, early marriages, high birth rate, migration of people from rural to urban and, some migrate because of crises in their area such as Fulani/Herders, religious conflicts, tribal and even boundary conflicts while, 16.7% said No, contending that there is not.

The study shows that 83.3% respondents agree with Yes that there is a decrease in agricultural output as a result of the impact of population pressure onthe environment in the region while 16.7% disagree that no there is not. The response from the respondents on how and ways they acquire agricultural lands shows that 50% buyproperty, 33.3% inherit the land while, 16.7% lease land. That means most of the farmland in the region has been sold out, especially to the elite who acquire most of the areas that are not cultivated. Similarly, 58.3% of the respondent's assert that land acquisition affects their agricultural productivity and family size through lack of farm maintenance, 16.7% through family consumptions and another 16.7% agreed that as their source of income while, 8.3% have small scale of land and this affects their agricultural productivity and family size aswhat they cultivate cannot sustain them and hunger and starvation become order of the day.

Results and discussion of data on interviews conducted in the field.

From the interview conducted in the area, data was generated based on objective two of the study which is to investigate how the community method of copying with population pressure in Kwande Area. Table 4.9 shows that 16.7% of the respondents discourage the use of family planning so as the population of their community would increase while, 33.3% encourage them to have more children as each community wanted to have more population than the other so that more output would be yielded in the farm, for security, and pride. Also, 25% of the responses claim that that they used the traditional method in child spacing, and 25% have not decided on any way of coping with population pressure in Kwande Area.

Similarly, 50% of the respondents agreed that in order to cope with the population pressure in Kwande Area women should be engaged in doing business that is buying and selling of goods by so doing this they would not be idle and more should be enroll in school this would limit or delay their time to get married in a society. And 33.3% responded that sex education should be taught in schools from primary up to tertiary institutions as this would help the community in Kwande Area to cope with population pressure. Finally, 16.7% agreed thatto cope with population pressure in Kwande Area community awareness campaign should be conducted in

the region, and this would help reduce pressure on the environment and sustainable development.

Table 9: Questionnaire responses on the Measures of reducing population pressure on environmental degradation in Kwande L.G.A.

Item	**Response**	**Percentage (%)**
People's use of population pressure reducing methods	Yes	60
	No	40
Total		**100**
Specifications of people's ways of reducing population pressure	Delay marriage	30
	Family planning	30
	Traditional method	10
	Public enlightenment	20
	None	10
Total		**100**
Government support in controlling population	Yes	65
	No	35
Total		**100**
Specification of government supportin reducing population pressure on environmental degradation	No government support	30
	Free medication	20
	No funds to establish business and agriculture activities for people	25
	None	25
Total		**100**
Government/Community organization awareness campaign conduct	Yes	65
	No	35
Total		**100**

Specification of government/community organizationawareness campaign conduct	Public enlightenment on the Impact of population pressureon environmental degradation	55
	Enlightenment on child Spacing	35
	None	10
Total		**100**

Table 4.10: Focus Group Discussion on Community measures of reducing populationpressure on Environmental degradation in Kwande Area

Item	Response	Percentage %
Does the community adopt any measure in controlling and reducing population pressure in order to have sustainable development	Family planning	50
	Public enlightens	25
	Educating thewomen	25
Total		**100**

Source: Field work, 2023

Table 4.11: Interviewed schedule on Community measures of reducing populationpressure on Environmental degradation in Kwande Local Government Area

Item	Response	Percentage(%)
Is there any contribution made by the government agencies in reducing population pressure and controlling environmental Degradation	Public enlightenmentcampaign	25
	Family planning drugs	33.3
	No any contribution	16.7
	Site for dumping refuse	25
Total		**100**
Identify ways used by the community in reducing population pressure on environmentaldegradation	Through free education for women and employment forwomen	25
	Encourage agricultural activities and trees planting	25
	Engaging men in industrialand business	25
	Use of birth control drugs	16.7
	Undecided	8.3
Total		**100**

Source: Field work, 2023.

Research question 3: measures employed in reducing population pressure on environmental degradation in kwande area

In this study, the researcher analyses methods employed in reducing population pressure on environmental degradation in Kwande Area based on the responses from the respondents in Kwande Area. Table 4.10 presented above shows 60% agreed that “Yes” there are ways in reducing population pressure on the environment while, 40% said No that, people should continue giving birth for as long as they can. Furthermore, 30% of the responses show that

family planning is a way of reducing or controlling population growth and reducing pressure on the environment, 30% also shows that delay in marriage can reduce population pressure as women can delay their age of getting married through engaging in trading, school, and office work.

Similarly, 10% agreed on traditional method in reducing population, 20% also agreed on public enlightenment and 10% disagree with any reducing method to control population increase, 65% of the respondents response Yes that, the government support the community in Kwande Area in reducing population while, 35% said No any support comes from the government as 30% also shows that No specification of government support given to the study area in controlling population pressure, 20% indicates that free medication is given to the community in the region in other to reduce population pressure on the environment, 20% agreed that no funds support business and agriculture activities in the region, so also 20% disagree with any support from the government .

Therefore, 35% also show that there is enlightenment on child spacing in the region. 65% of the respondents response that yes, there is government and community organization awareness campaign conducted in Kwande Area while, 35% response that no awareness campaign conducted in the study area and as a results of lack of awareness people give birth to many children as much as they can and at the end there is high population growth and which leads to pressure on the environment as the carrying capacity cannot sustain the population and death rate have increased in the region as the environment become deteriorating for the people. In this research study, the discussion above on the data presentedshows that many methods are used in reducing population pressure on environmental degradation in Kwande Local Government Area.

Furthermore, in Table 9 above another similar response from the respondents in Focus group discussion with the questionnaire response in Table 5.2 above shows that 50% agreed family planning is a measure in controlling and reducing population pressure on the environment as many developed world use this method in controlling and reducing their population. Then 25% responded that the use of public awareness is an important means of communication to the people as community will be taught about how and if they have a high population in their environment what would then happen to them and how they can control it,this is what will happen to the people and the environment and another 25% shows that government legislatures should provide a law and policy which will help in controlling and reducing population pressure and environmental degradation in order to have sustainable development.

From Table 10 above on the interview conducted in Kwande Area on community methodof reducing population pressure, it shows that 25% responded that, public enlightenment campaign is provided by the government in the region as a means of put into practice and

continuous use will reduce population pressure in the region, while 33.3% also responded that dumping site for refuse are available in the region as this will reduce the rate of water and air pollution and also spreading of diseases such as malaria, cholera, typhoid fever etc. About 16.7% of the respondents show that there are no any contributions made by the government to reduce population pressure on the environment in the region as the majority of the people handle most of their problems by themselves such as providing dumpsite for refuse, family planning, reducing rate of disease etc. While 25% of the respondents show that they are neither in support of the respondents that said public enlighten campaign and refuse dump sites are available in the region nor, on the respondents that said nocontribution is made by the government in Kwande Local Government Area. This clearly shows that from the respondents' views, the government gives less attention to the impact of population pressure in the region, and this contributes to the increase in population growth in Kwande people.

Correspondingly, some respondent also identified ways employed by the community in controlling and reducing population pressure and environmental degradation in Kwande Area region such as through free medication as 25%, and 25% encourage agricultural activities and trees planting and the use of birth control drugs have 16.7% as ways employed by the community in controlling and reducing population pressure and environmental degradation in Kwande Area. While 8.3% neither agree nor disagree that community use any measures in reducing and controlling population pressure and environmental degradation in the region.

Conclusions and recommendations

It is concluded that population pressures impact on the environment of Kwande and that the methods of coping and methods of controlling or reducing the effects of population pressure on environmental degradation can be actualized if put into practice by the community and government in the region. The study recommended the government should assess, address, and check the level of population pressure, through; birth control pills, encourage trees planting by individual household and give some incentives to people that participate with this desertification would be reduced, soil erosion can be control.

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