

Poverty and Environmental Sustainability: A Case Study of Gwagwalada Area Council, FCT, Abuja

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Abstract: This study assessed the effects of poverty on environmental sustainability in Gwagwalada Area Council, Abuja. The study was anchored on three research questions. The survey research design was adopted for the study. The entire inhabitants of the Area Council made up the population of the study. One hundred and forty-three (143) respondents were randomly selected from five communities within the Area Council to constitute the sample size of the study using the simple random sampling procedure. Instrument for data collection for the study was titled: Poverty and Environmental Sustainability Assessment Scale Questionnaire (PESASQ). It was constructed on a 4-point Likert scale format. The descriptive statistics of frequency count, mean, and simple percentage were used for analyzing data and answering the research questions. The study revealed that deforestation, climate change, and depletion of natural resources are caused by poverty in Gwagwalada Area Council, Abuja. It was recommended that inhabitants of Gwagwalada Area Council should be sensitized both formally and informally on the effects of poverty on environmental sustainability by means of environmental education, and government should be more concerned about sustaining environmental resources, hence, alleviating poverty among citizenry is a sine qua non.

Keywords: Environment, Climate Change, Deforestation Poverty, Sustainability

I. INTRODUCTION

In Nigeria as in most African countries, reducing poverty and meeting the Sustainable Development Goals (SDGs) remain a daunting challenge. While Nigeria is blessed with rich environmental resources, a substantial proportion of the population is at risk from natural and human induced environmental hazards. In spite of its abundant natural and human resources, Nigeria is also known for having a high rate of poverty index (Oduwaye & Lawanson, 2012). In order to address the issues associated with poverty in Nigeria, the federal government subscribed to Sustainable Development Goals (SDGs) which was adopted in September 2015 by the United Nations General Assembly. SDGs is the 2030 Agenda which was built on the principle of "leaving no one behind", and emphasizes a holistic approach to achieving sustainable development for all (Roche, Hans, Agbaegbu, Taylor, Manfred & Oladipo, 2020). The sustainable development goals tagged as "blueprint to achieve a better and more sustainable future for all", are a collection of 17 global goals set by the United Nations which are expected to be achieved in the 15 years period between 2015 and 2030 in every country across the globe (Odogwu, 2018).

Since the adoption of the SDGs in September 2015, and the beginning of their implementation in January 2016, there are several concrete global plans and sector-specific strategies to achieve the set goals. In Nigeria, key policy, institutional and regulatory measures were put in place to create the necessary enabling environment for mainstreaming of the SDGs into national policies and plans as well as programmes along with the necessary coherent coordination. Among these is the SDGs transitioning strategy and action plan (Federal Government of Nigeria, 2017). As SDGs replaced the Millennium Development Goals (2000-2015), successful implementation would result in attainment of citizens' aspirations for prosperity, peace and wellbeing, as well as the preservation of the Earth's biodiversity and equitable distribution of natural resources. Hence, SDGs generally seek to end poverty, fight inequality and injustice, and tackle climate change by 2030 (Odogwu, 2018; Daka, 2020).

Poverty refers to specific forms and levels of deprivation, which impose major limitations on normal human functioning and existence. It is inseparably linked to lack of control over resources including land, skills, knowledge, capital and social connections (United Nations cited in Oduwaye & Lawanson, 2012). Environmental sustainability, on the other hand, is concerned with environmental developments which meet the needs of the present generation without compromising the ability of future generations to meet their own needs (Anup, 2011). This definition is then expanded into four broad aims: (i) a healthy economy should be maintained to promote quality of life while at the same time protecting human health and the environment, (ii) non-renewable resources should be used optimally, (iii) renewable resources should be used sustainably, and (iv) damage to the carrying capacity of the environment and the risk to human health and biodiversity from the effects of economic activity should be minimized (Oduwaye & Lawanson, 2012).

Environmental degradation and poverty, according to Oduwaye and Lawanson (2012), are inextricably intertwined, resulting in a vicious cycle in which poverty causes environmental stress, which in turn perpetuates more poverty. When the physical environment in and around cities deteriorates, those most affected are the urban poor. Poverty puts pressure on people to engage in unsustainable and ecologically damaging practices resulting into: deforestation, climate change and depletion of natural resources. It is essential to investigate the extent to which poverty breeds the above highlighted factors. Against this background, this study investigated the effects of poverty

on environmental sustainability in Gwagwalada Area Council of the FCT, Abuja.

Purpose of the Study

Specifically, the study investigated:

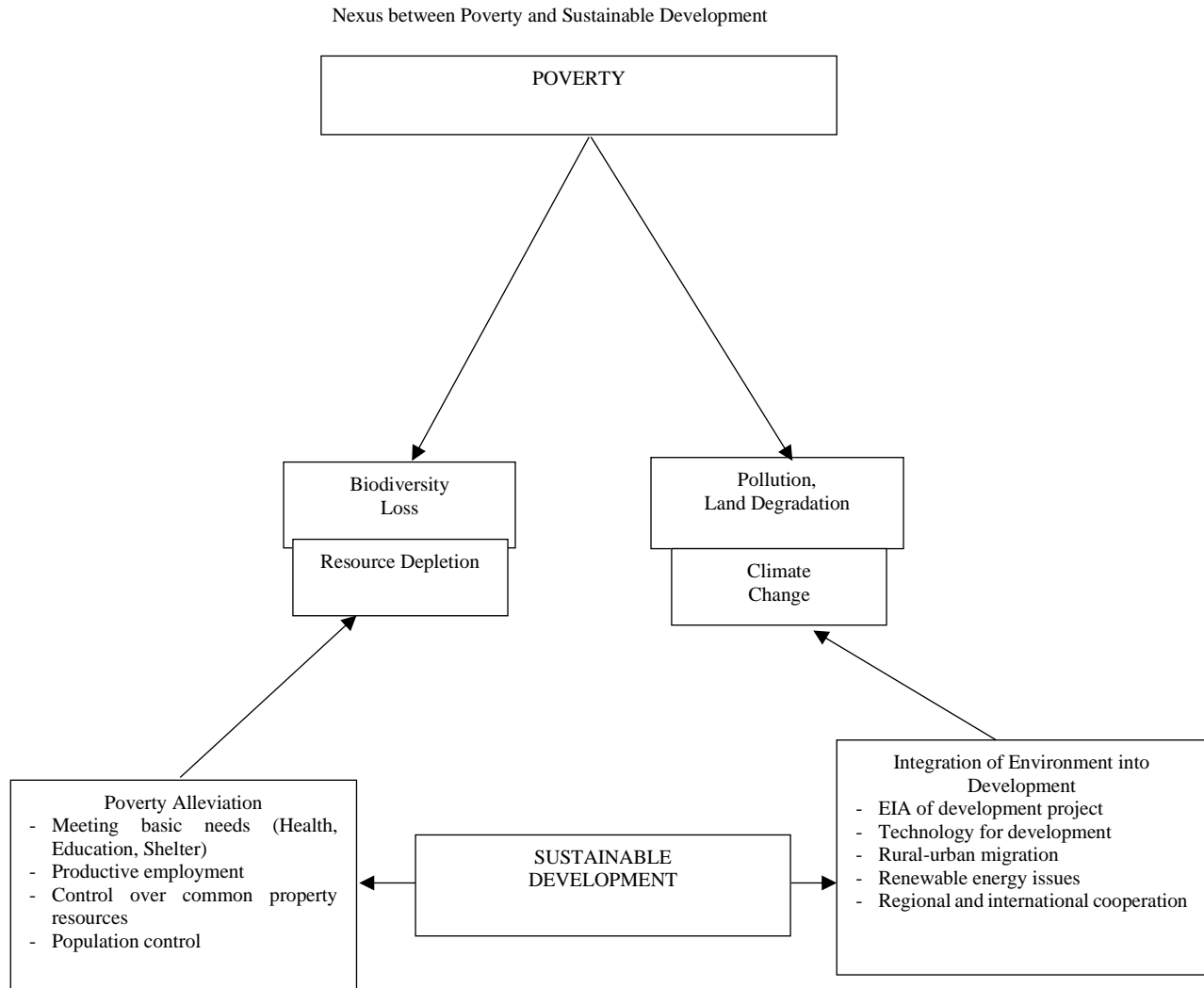
- i. The extent to which poverty causes deforestation in Gwagwalada Area Council, Abuja.
- ii. The extent to which poverty causes climate change in Gwagwalada Area Council, Abuja.
- iii. The extent to which poverty causes depletion of natural resources in Gwagwalada Area Council, Abuja.

Research Questions

In line with the purpose of the study, the following research questions were raised to the guide the study:

- i. To what extent does poverty cause deforestation in Gwagwalada Area Council, Abuja?
- ii. To what extent does poverty cause climate change in Gwagwalada Area Council, Abuja?
- iii. To what extent does poverty cause depletion of natural resources in Gwagwalada Area Council, Abuja?

Conceptual Framework



Source: Adapted from Touray (2014)

The conceptual framework of this study is presented thus:

According to this framework, sustainable development remains a dream unless problems of poverty is resolved. Poverty alleviation and integration of environment in development are major tools for realization of the goal and objectives of

sustainable development. Through these, problems associated with poverty such as biodiversity loss, resource depletion, pollution, land degradation are climate change can be efficaciously resolved.

In Gwagwalada Area Council, Abuja, poverty is detriment to environmental sustainability as it is a major cause of deforestation, climate change, and depletion of natural resources. When these three factors are constantly occurring, the environment cannot be sustained for the present and future generations, hence, achievement of the objectives of environmental sustainability is unpredictable.

II. EMPIRICAL REVIEW

This section is concerned with review of empirical studies that are related to the present study. The studies reviewed are chronologically presented as follows.

Edusah (2011) examined how the livelihoods of forest fringe communities have been affected by the constitution of four forest reserves in Brong-Ahafo and Ashanti Regions of Ghana. The study found that farming was the main occupation of the people with cocoa and oil palm being the major cash crops grown in the area. Food crops grown include plantain, maize, cocoyam, cassava and rice. The major tenancy arrangements include family lands, outright purchase and sharecropping. Environmental problems in the area are decline in soil fertility, soil erosion, deforestation, bush fires and depletion of game and wildlife. Incomes were found to be low resulting in high poverty levels. The study shows that the communities have little role to play in the management of forest reserves.

Lawanson (2011) examined the nexus between urban poverty and environmental conditions in the Lagos Metropolis. The study showed that negative aspects of the built environment tend to interact with and magnify health disparities, compounding already distressing conditions of poverty and want. It was also discovered that lack of sanitation and access to potable water were most critical as prevalent diseases; typhoid fever and diarrhea; were as a result of these inadequacies. The study was concluded by recommending measures for creating a healthy Lagos Megacity. These include the integration of urban planning and public health and the inculcation of sustainable practices in urban design.

Nzeh (2012) evaluated the effects of socioeconomic factors affecting deforestation in Enugu State. The survey research design was adopted for the study. The major finding of the study shows that bush fire was the highest cause of deforestation in Enugu State. From the study, 69% of the respondents stated that they had no knowledge of any forest extension services. Furthermore, the total economic value (TEV) loss of forests in the last three years were increased. Multivariable linear results of farmland clearance of forest for cropping activities show that only size of land, land tenure system and types of cropping were significant at 5% in explaining the observed variabilities in the dependent variable. The study further found out that deforestation experience, household size, total landholdings, educational attainment and gender of respondents were significant at 10% in explaining the observed variabilities for socioeconomic characteristics influencing the decision to clear forest for agricultural activities using farmers level logit regression results. Based on the findings, the study recommended that forest extension services

to the rural households that engage in forestry activities should be strengthened through frequent training.

Uneke and Ibeh (2012) examined the impacts of deforestation on malaria in south-eastern Nigeria. The survey research design was employed for the study. Findings of the study indicate that the income status of individuals residing in the areas of active deforestation was lower than those of areas of non-active deforestation. Higher yearly episodes of malaria and the tendency to spend less amount of money for malaria treatment characterized the areas of active deforestation and the inhabitants had higher preference for use of woodfuel and use of forest medicinal herbs for malaria treatment. In the areas of active deforestation, the mosquito night biting/landing rates were considerably higher than those of areas of non-active deforestation. Conservation policies aimed at slowing deforestation will impact malaria and would reduce the increasing incidence of deforestation-dependent malaria epidemics.

Abuchow (2015) examined the effects of poverty on environmental sustainability of the Kassena-Nankana west district, upper East Region of Ghana. Results from the study indicated that a total of 95.4% of respondents are either extremely poor or poor. Moreover, results indicated that the very poor, that is those who earn less than GHC100 a month and those without formal education depend on the environment as a source of livelihood. Their activities included the production of charcoal and fuel wood from the forest reserve in the district. These activities have direct impact on the environment causing deforestation, forest degradation and fragmentation. The study recommended that the government and NGOs should design and implement projects and programmes geared towards the reduction of poverty and should also build the capacities of heads of households to engage in alternative livelihood activities to supplement household's income from farming.

Etongo, Djenontin and Kanninen (2016) examined the relationship between poverty and environmental degradation in Southern Burkina Faso. Results of the study indicate that deforestation is highest for non-poor farmers, and non-poor and fairly-poor farmers have higher rates of overgrazing. In addition, the entire non-poor group, mainly recent migrants to the area, occupy borrowed lands with tenure perceived as insecure, considered by farmers to be a disincentive for assisted natural regeneration of vegetation. Thus, non-poor and fairly-poor farmers participate most in activities locally identified as environmentally degrading, and the former contribute more than the latter. On the other hand, adoption of land management practices considered to improve the land is relatively low amongst the poorest farmers.

Ullah, Malik and Khan (2017) examined the relationship of rural poverty and deforestation in Malakand division of Khyber Pakhtunkhwa province, Pakistan. The result verified the existence of poverty and environmental degradation in the form of deforestation. The study indicated a key role of poverty in deforestation and vice versa. It was also discovered that rural

community have low income level and depends mostly on forest resources for their basic needs and livelihood purposes. Furthermore, the study disclosed the severity of environmental degradation in the form of deforestation in the study area and most of the people were found to be unaware of the knowledge and importance of environmental conservation. It was recommended that efforts should be geared towards sustainable of the natural resources through poverty eradication programme.

III. METHODOLOGY

The descriptive survey research design was employed in this study. Descriptive survey design involves collection of quantifiable data from a valid sample of a population for purposes of analyzing the data and used information therein as the opinions of the general population (Abuchow, 2015). According to Ullah, Malik and Khan (2017), descriptive survey design does not give room for controlling any group in the population, as well as manipulating phenomenon under investigation. Due to the above facts about the design which conform to the nature of the present study, it was adopted.

The population of the study consisted of the entire residents in Gwagwalada Area Council, FCT, Abuja. To have a manageable sample size, one hundred and forty-three (143) residents were randomly selected as respondents to the study. The instrument of the study was titled “Poverty and Environmental Sustainability Assessment Scale (PESAS). It was designed by the researcher. The instrument was constructed in a 4-point modified Likert scale format, and has two sections – A and B. Section A is concerned with respondents’ bio-data; while Section B is concerned with the questionnaire items. Options to each item on the instrument include “Very High Extent” (VHE), “High Extent” (HE), “Low Extent” (LE), and “Very Low Extent” (VLE) with rating means of 4, 3, 2, and 1 respectively.

The researcher visited each of the sampled communities, and approached the respondents with detailed purpose of the instrument as well as roles expected of them towards realization of the objectives of the study. Those who consented to participate were given copies of the instrument, and were allowed to go through and respond accordingly. Data collected were analysed using the descriptive statistics including frequency counts, simple percentage, and mean. Outcomes from the analysis were used in answering the research questions raised for the study. Hence, mean scores ≥ 2.50 were considered as “Agreed” responses while mean scores < 2.50 were considered as “Disagreed” responses

IV. PRESENTATION AND ANALYSIS OF DATA

Demographic Data

Table 1: Gender of the Respondents

Gender	Frequency	Percentage
Male	78	54.55
Female	65	45.45
Total	143	100

Source: Field Survey, 2022

Table 1 captured bio-data of the respondents. The respondents comprised of seventy-eight (78) males and sixty-five (65) females. Differences in percentage of males and females respondents could be associated with the nature of the Area Council as men are more present in the public domain than the women.

Table 2: Age of the Respondents

Age	Frequency	Percentage
20 – 35	46	32.17
36 – 50	53	37.06
Above 50	44	30.77
Total	143	100

Source: Field Survey, 2022

Age bracket of the respondents were presented on table 2 which showed that forty-six (46) of the respondents were between the ages of 20 – 35 years; fifty-three (53) were between the ages of 36 – 50 years; while forty-four (44) were above 50 years. This implies the respondents were mature enough to provide reliable information on the subject of the study.

Table 3: Academic Qualification of the Respondents

Academic Qualification	Frequency	Percentage
SSCE	11	7.69
NCE/ND	42	29.37
HND/First Degree	64	44.76
Postgraduate	26	18.18
Total	143	100

Source: Field Survey, 2022

Academic qualifications of the respondents were presented on table 3. Only eleven (11) respondents were SSCE holders, forty-two (42) were either NCE or ND holders, sixty-four (64) were university first degree or equivalent certificate holders, while only twenty-six (26) respondents had additional certificates to their university first degree certificates. Hence, in term of intellectual ability, the respondents were knowledgeable enough to provide needed information for the study.

Research Questions

Research question one: To what extent does poverty cause deforestation in Gwagwalada Area Council, Abuja?

Table 4: Analysis of Research Question One

S/N	Item	VHE	HE	LE	VLE	\bar{x}	Decision
1	Poverty is one of the factors responsible for indiscriminate cutting down of trees for firewood	54	68	11	10	3.16	Agreed

2	Poverty leads to loss of mineral nutrients and soil microorganisms due to indiscriminate bush burning	55	54	22	12	3.06	Agreed
3	Poverty leads to cutting down of trees which exposes land to both water and wind erosion	52	64	16	11	3.10	Agreed
4	Poverty leads humans to destroy animals habitats due to deforestation	53	61	17	12	3.08	Agreed
5	Poverty causes humans to cut down trees for production of charcoal which in turn pollutes the atmosphere during process of its production	51	59	12	21	2.98	Agreed
Grand Mean (gx)						3.08	Agreed

Source: Field Survey, 2022

Table 4 depicted respondents' opinions to research question one; all the items on the table were agreed upon. The least and highest means to the items were 2.98 and 3.16 respectively, with a grand mean of 3.08. Hence, research question one affirms that poverty is the leading cause of deforestation. This implies that poverty plays significant role in the incidence of deforestation in Gwagwalada Area Council, Abuja.

Research question two: To what extent does poverty cause climate change in Gwagwalada Area Council, Abuja?

Table 5: Analysis of Research Question Two

S/N	Item	VHE	HE	LE	VLE	\bar{x}	Decision
1	Poverty induces increase in greenhouse gases that cause global warming as a result of deforestation and bush burning	45	58	21	19	2.90	Agreed
2	Poverty-stricken humans embark on activities that degrade and pollute the biosphere because of	39	63	18	23	2.83	Agreed

	their low level of environmental education						
3	Poverty induced cutting down of trees for various purposes by humans prevents trees from discharging the roles of perpetuating the water cycle	41	52	23	27	2.75	Agreed
4	Destruction of forests due to poverty causes modification of climate of an area mostly leading to desertification and aridity	53	48	20	22	2.92	Agreed
5	Poverty causes human to log ancient forest thereby exposing the waters they were shading in streams, springs, and fountains causing them to dry up	51	53	23	16	2.97	Agreed
Grand Mean (gx)						2.87	Agreed

Source: Field Survey, 2022

Table 5 depicted respondents' opinions to research question two; all the items on the table were agreed upon. The least and highest means to the items were 2.75 and 2.97 respectively, with a grand mean of 2.87. Hence, research question two affirms that poverty is responsible for climate change. This implies that poverty causes climate change in Gwagwalada Area Council, Abuja to a great extent.

Research question three: To what extent does poverty cause depletion of natural resources in Gwagwalada Area Council, Abuja?

Table 6: Analysis of Research Question Three

S/N	Item	VHE	HE	LE	VLE	\bar{x}	Decision
1	Poverty causes infertility in agricultural due to continuous farming by human in a particular piece of land year-in-year-out	50	53	21	19	2.94	Agreed

2	Poverty causes loss in forest capital, potential future revenues and future employment because of incessant exploitation of its resources	49	59	17	18	2.97	Agreed
3	Poverty causes humans to over-exploit water resources	51	52	18	22	2.92	Agreed
4	Poverty causes human to destroy traditional life styles, customs and religious beliefs that are used for protecting the bio-physical environment	53	60	16	14	3.06	Agreed
5	Poverty leads human to destroy medicinal plants that could be used as treatment for various ailments plaguing mankind today	45	54	23	21	2.86	Agreed
Grand Mean (gx)		2.95				Agreed	

Source: Field Survey, 2022

Table 6 depicted respondents' opinions to research question three; all the items on the table were agreed upon. The least and highest means to the items were 2.86 and 3.06 respectively, with a grand mean of 2.95. Hence, responses to research question three showed that poverty causes depletion of natural resources. In other words, it implies that poverty influences depletion of both fauna and flora resources in Gwagwalada Area Council, Abuja.

V. DISCUSSION OF FINDINGS

The study disclosed that poverty is a major factor responsible for indiscriminate cutting down of trees for firewood, it leads to loss of mineral nutrients and soil microorganisms due to indiscriminate bush burning; and cutting down of trees which exposes land to both water and wind erosion cannot be disassociated from poverty. Similarly, poverty leads humans to destroy animals' habitats due to deforestation, and poverty causes humans to cut down trees for production of charcoal which in turn pollutes the atmosphere during process of production. Therefore, poverty is associated with deforestation in Gwagwalada Area Council, Abuja.

This finding agrees with Uneke and Ibeh (2012) which disclosed correlation between poverty level of the people and deforestation; and that income status of individuals residing in

the areas of active deforestation was lower than those of areas of non-active deforestation in south-eastern Nigeria. Similarly, Nzeh (2012) disclosed the effects of socioeconomic factors on deforestation in Enugu State, and that bush fire due to poverty was the highest cause of deforestation in the State. Lawanson (2011) also emphasized nexus between urban poverty and environmental conditions in Lagos Metropolis. In addition, Edusah (2011) revealed that high level of poverty causes environmental problems such soil infertility, soil erosion, deforestation, bush fires and depletion of game and wildlife in Brong-Ahafo and Ashanti Regions of Ghana. Etongo, Djenontin and Kanninen (2016) also revealed relationship between poverty and environmental degradation in Southern Burkina Faso, and that deforestation is more pronounced in areas where poor farmers inhabited. Hence, as corroborated above, there is actually a high level of correlation between poverty and deforestation in Gwagwalada Area Council, Abuja.

Furthermore, this study revealed that poverty induces increase in greenhouse gases that cause global warming as a result of deforestation and bush burning, and that poverty-stricken human embark on activities that degrade and pollute the biosphere. Also, poverty induced cutting down of trees for various purposes by humans prevents trees from discharging the roles of perpetuating the water cycle by returning water vapour to the atmosphere and causing precipitation and rain; destruction of forests due to poverty causes modification of climate of an area mostly leading to desertification and aridity; and poverty causes humans to log ancient forest thereby exposing the waters they were shading in streams, springs, and fountains causing them to dry up and sometimes resulting in long period of drought in a given region

This finding is consistent with Uneke and Ibeh (2012), Nzeh (2012), Lawanson (2011), Edusah (2011) and, Etongo, Djenontin and Kanninen (2016) who respectively revealed significant relationship between poverty level and deforestation that invariably induces climate change. Similarly, Jalal (1993) linked poverty to environmental degradation. Touray (2014) equally stressed that poverty and environmental degradation are inter-linked to an extent that they reinforce each other. Environmental degradation is mainly caused by too much pressure extended on our immediate environment for our daily livelihood.

Also, this study discovered that poverty causes infertility in agricultural land due to continuous farming by human in a particular piece of land year-in-year-out without any period of fallowing; it causes loss in forest capital, potential future revenues and future employment because of incessant exploitation of its fauna and flora resources by humans, and it is poverty that causes humans to over-exploit water resources. In addition, poverty causes human to destroy traditional life styles, customs and religious beliefs that are used for protecting the bio-physical environment; and poverty leads humans to destroy medicinal plants that could be used as treatment for various ailments plaguing mankind.

The finding is in line with findings of Uneke and Ibeh (2012), Nzeh (2012), Lawanson (2011), Edusah (2011) and, Etongo, Djenontin and Kanninen (2016) which disclosed respectively that poverty has a high tendency of depletion of natural resources in the environment. Consequent upon the above findings and submissions, it is a truism that the objectives of environmental sustainability cannot be attained sooner until the destructive force known as “poverty” is eradicated among the inhabitants of Gwagwalada Area Council, Abuja.

VI. CONCLUSION AND RECOMMENDATIONS

From the findings of the study, poverty is the major factor responsible for indiscriminate cutting down of trees which leads to loss of productivity of the land, and the magnitude of poverty in Gwagwalada Area Council, Abuja has links with increase in temperature and climate change which are so pronounced in the Area Council. Based on the findings of the study, the following recommendations are proffered:

- i. Inhabitants of Gwagwalada Area Council should be sensitized both formally and informally on the effects of poverty on environmental sustainability by means of environmental education.
- ii. Government should be more concerned about sustaining environmental resources, hence, alleviating poverty among citizenry is a sine qua non.

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