Environmental Challenges and Protection Practices among Women of Anaocha Local Government Area of Anambra State, Nigeria

Theresa Chima ISIFE

Institute for Development Studies, University of Nigeria, Enugu Campus

Abstract

This paper dealt with environmental challenges and protection practices among the women of Anaocha Local Government Area of Anambra State, Nigeria, using primary data. The study was carried out in the 10 communities of the LGA. The population for the study comprised 2,604 women who were registered as farmers in each of the communities. Simple random sampling was used to select 180 participants; 18 from each community, using ±7% precision. A questionnaire was used to collect data which was analysed using mean and standard deviation. The acceptance point for the items was from the mean of 2.50. The study found that gully erosion has taken much of the land space meant for economic activities (3.45), people's homes have been sunk by gully erosion (3.12), food production has been reduced by erosion problems (3.20), community's resources have gone into the management of gully erosion (3.50), and that gully erosion reduces the number of economic trees (3.12). However, women have built drainages to check gully erosion (3.45), participated in the planting of trees to check gully erosion (3.12), and built underground tanks to collect rain water from the roofs of houses (3.22). Also, women farmers encouraged mixed cropping (3.40) and the planting of trees (3.60), and participated in filling sand in bags to check new erosion sites (3.43). Recommendations made are that the local

government authorities should stop all human activities that could lead to gully erosion. There should be intervention by the government through scientific and technological means of gully erosion control, since the local practices of the women were not enough in ensuring the protection of the environment. The practices adopted by the women, such as, planting of trees, building drainages, building underground tanks to collect rain waters from the roof of houses should be encouraged. More tree planting activities should be encouraged as well as mixed cropping. Non-governmental organizations should provide assistance for erosion control and management in terms of campaigns and awareness as well as demanding that the state government comes to the aid of the people to control the environmental challenges.

Key words: Environmental challenges, practices, environmental protection, gully erosion, women empowerment and sustainability.

Introduction

Environmental challenges remain one of the global issues today (Igbokwe, 2007). This is because of its importance in the need to protect and conserve the environment, which the people depend on for existence. In Nigeria, the rate of the depletion of natural resources, which is attributed to natural or anthropogenic factors brought about the inward effort to reduce or eradicate such problems (Obi, 2017). This calls for concerted efforts in the protection, conservation, and preservation of the environment for rural, national and global development. This is of great importance to the country's environment and socio-economic status.

Nigeria, like other developing countries, relies on natural resources such as oil and arable land for its development. This suggests a relationship between the country's environment and its economic development such that inappropriate management of the environment could affect its economic development as well as the standard of living of the people. Nigeria is battling with various types of environmental problems. In the north, it is the menace of desertification and deforestation, among other things, while in the south it is flooding and gully erosion, to mention a few.

Erosion is one of the well-known environmental problems. Erosion is the removal of soil particles from the surface of the earth, and the transportation and deposition of the soil particles by wind and water; soil erosion is mainly due to the action of floods or running water (Obi, 2017). Gully erosion in Anambra State, South East Nigeria, has continued to pose a challenge to geoscientists and other environmental scientists. There are 62 critical erosion sites that would cost the Anambra State Government more than ₦17 billion to address, another 550 very active erosion sites and 1000 more erosion sites (Ejikeme, 2017).

There are three kinds of erosion: sheet, rill and gully erosion. Gully erosion is the most prominent in Anambra State. The topography and the soil characteristics enhance the accelerated spread of gullies in this area. The incidence of gully expansion is heightened during the rainy season, with the resultant effect of loss of agricultural land, residential areas and even human lives (Obi, 2017). The causative agents of gully erosion in Anambra State are both geologic and anthropogenic. Natural erosion occurs primarily due to geologic time scale (*Erosion Process*, cited in Obi, 2017). Anthropogenic forces, that is human activities, that could lead to gully erosion include, deforestation, unsustainable farming practices, laterite mining, poorly constructed drainage systems, path and road construction. Soil erodibility depends, to an extent, on the soil texture, soil structure, soil permeability and the amount of organic matter in the soil.

The geologic and anthropogenic factors responsible for erosion are:

Soil type: The soil found in Anaocha LGA of Anambra State is porous; the soil particles are lose and not compacted, making them easily detachable. This type of the soil exposes the soil to erosion in the presence of external forces, such as flooding and human activities.

Topography: The topographic features of the area distinctly influence its erosion potential. The region where the gullies occur has mostly areas with rolling hilly terrain. These areas have long steep slopes that promote runoff which gather momentum to produce a force that speedily detaches and transports soil particles, which results in gullies. The green land thus turns into arid land that is unsuitable for cultivation and other uses, and dangerous for human habitation.

Agricultural Practices: The farming methods practiced in the area are, most of the time, unsustainable. Bush burning during farming exposes the fragile topsoil to erosion. The removal of the groundcover increases the susceptibility of the soil to erosion. Disturbed land may have an erosion rate 1,000 times greater than normal land (*Erosion Process*, cited in Obi, 2017).

Urbanization and Infrastructural Development: The area is densely populated, with a lot of developmental activities; this is a critical factor in erosion potential that could increase the sites of gully erosions. Population density is an expression of the number of persons per square kilometre of land. The population density of the area is about 798 persons/km^2 (NPC, 2007). This is high for Anambra State which has the highest population density in the whole of sub-Saharan Africa (Igbokwe, 2007). Hence, the erosion problem would most certainly put pressure on the human development potential of the state, affecting factors such as water supply, housing, education, waste management, and so on.

Soil excavation: A lot of laterite mining takes place in the state due to the level of infrastructural development that requires the use of laterite. The issue of concern here is that the excavations are carried out indiscriminately and without any regard for environmental consequences. The government of the day does not seem to be doing much to check the ugly trend, hence giving the culprits the opportunity to make money at the expense of the environment.

According to Igwe and Fukuoka (2010), the environmental and socio-economic effects of erosion in Nigeria are huge and not hidden from international organizations such as the United Nations. Although gully erosion is a threat in South Eastern Nigeria, it is localised in some communities of the states, such as Agulu, Nnanka, Ekwulobia,and Oko, to mention a few. Okezie (2010) opined that the social and economic impacts of gully erosion in Anambra State include the loss of ancestral homes, school buildings, church buildings, sources of water supply to communities as well as farm lands, crops, economic trees and spaces for businesses.

Gully erosion is a serious environmental and socio-economic problem in Anambra State. Studies show that poor agricultural practices increase the rate of soil erosion (Nenibarini, 2011; Jamilah and Imran, 2012). Gully erosion renders a lot of arable land inadequate for farming, reduces agricultural productivity, leads to the migration and internal displacement

of families, and has other social consequences (Emeka, 2010; Eneh and Agbazue, 2011). Poorer families, in particular women-headed households, are more adversely affected by the erosion (Jamilah and Imran, 2012). In the event of heavy rainfall, eroded land could damage property and pose risks to human safety, especially for the women whose livelihood depends on the environment. Poverty has a correlation with the environment. Poverty makes the women fell trees, which hold the soil particles together and check erosion to some extent, in the quest for firewood for cooking and for sale, in order to get income for their households.

Women are more involved in farm activities than men, though mostly they do not own the land and farms outrightly. Many of the men, who have access to technological inputs, finances and fertilizers for planting crops, leave the farm for the cities to search for white collar jobs. Consequently, the women are the ones who spend most of their time working on the farms to feed the household (Emeka, 2010). Shouldering this responsibility makes them learn more about the soil and plants. Women therefore could give greater priority to the protection of farmlands, since most of them depend on the products from their farms for their livelihood.

The Nigerian Meteorological Agency (NIMET) warned in 2011 that Nigerians should be prepared for environmental disasters that year, especially as the rainy season approached. The same warning went out in 2015 and up to 2017 (Nigerian Meteorological Agency/NIMET, 2017). These warnings were meant to help prepare the people against environmental disasters, but most of the time, people were taken unawares and the disaster affected lives and property. There were forecasts of heavy rainfall, strong winds, and floods (*Daily Trust*, 2011). In the year 2012 as well as in 2017, many states of the country were ravaged by floods, causing serious damage to the environment, including farmlands and ecosystems. According to the report of the United Nations Commission on Sustainable Development, land degradation remains the greatest problem in less developed countries, of which Nigeria is one (Sachs, 2015). It was also stated that over 90 per cent of the total land area of Nigeria is under severe sheet, rill and gully erosion with the severest, gully erosion, up to 80% of Nigeria's total land area (Emeka, 2010). Sheet erosion leads to impoverishment of the soil as nutrients are washed away, loss of livelihood as farmlands become wasteland and increase in rural-urban migration, pollution and urban poverty.

The theory of ecofeminism says that women are closer to nature than men. This closeness makes women more nurturing and caring towards their environment. Some think this could be attributed to their biological make up, while others credit cultural and historical factors (Mwangi, Meinzein and Sun, 2011). An ecofeminist believes in a direct connection between the oppression of nature and the subordination of women. Ecofeminists agree that the domination of women and the domination of nature are fundamentally connected and that environmental efforts are therefore integral to overcoming the oppression of women.

Anaocha Local Government of Anambra State experiences environmental challenges, especially in the area of gully erosion which covers an area of about 100km^2. According to Egboka and Okpoko (cited in Jamilah and Imran, 2012), gully erosion started around 1850 and is expanding at the rate of 20-50m per year. The development of gullies has led to the destruction of the environment, driven many people away from their homes and led to the loss of farmlands, human lives and property, especially buildings which are endangered as they collapse into gullies (Esa, 2010; Obi, 2017). This menace of gully erosion in Agulu-Nanka area of Anambra State has led to the declaration of that area as an ecological disaster zone by the Federal Government of Nigeria (Ajaero and Mozie, 2010).

Women, by their role in the management of natural resources, including soil, water, forests and energy, are important in environmental sustainability. The level of environmental challenges faced by women is not documented, neither is the way they go about protecting the environment. Therefore, this study aims to finding out the environmental challenges and protection practices among women in Anaocha Local Government of Anambra State of Nigeria.

Cultural or Radical Feminism Theory

Culture or radical feminism by Plumwood, cited in Cornwell (2009) is one of the issues in feminism. Radical feminism rejected the male ideology and the masculine domineering culture. The aim was to give women freedom, not by equal participation in such a culture, but by resistance and replacement. Hence, elevating the feminine characteristics, they must be recognised. Men are seen as superior, rational, active and intellectual, while women were negatively defined as being emotional, passive and intuitive. This study is hinged on this theory because women are not actually heard but only seen

in the communities despite their taking part in the protection of the environment.

Objectives of the Study

The major objective of the study is to determine environmental challenges and protection practices among the women of Anaocha Local Government Area of Anambra State.

The specific objectives are:

1. To identify the perceived effects of environmental challenges on the economic empowerment of women in Anaocha LGA.
2. To determine the environmental protection practices employed/deployed by the women in managing the challenges.

Research questions

1. What are the effects of environmental challenges on the economic empowerment of women in Anaocha LGA?
2. What are the practices implored by the women in Anaocha LGA on environmental protection?

Methodology

A descriptive survey research design was employed for this study. The design was used since it provided the researcher the opportunity to sample the opinions of a large representative sample of women in Anaocha LGA. According to Eboh (2009), this survey approach enables researchers to study large and small populations by selecting the study samples from the population in order to find out the relative incidence, distribution, interrelation of sociological and psychological variables.

This study was carried out in the 10 communities of the LGA. The population for the study comprised 2,604 women who were registered as farmers in the communities. Simple random sampling was used to select the needed number of participants. To select the participants, all possible samples were listed on paper slips, put in a bag, mixed thoroughly and then drawn (without looking) to select the required number of slips for the sample from each population without replacement. In doing this, it was

ensured that in successive drawings, each of the remaining elements of the population would have the same chance of being selected (Kothari and Garg, 2014). This procedure also resulted in the same probability for each possible sample.

To select the number of samples from the sample frame of the population, using sample size determination, according to Eboh (2009), 180 samples were selected from the 10 communities using ±7% precision; meaning that 18 registered women were randomly selected from each community.

The instrument for data collection was a 20-item questionnaire made up of two sections (A and B). Part A sought information on demographic data, while Part B sought information on the perceived effects of the environmental challenges on, and the practices employed by the women; placed on a 4-point Likert scale. The weightings were Strongly Agreed (SA) = 4; Agreed (A) =3; Disagreed = 2 ; and Strongly Disagreed (SD) = 1.

The instrument was validated by three development studies experts from the University of Nigeria, Enugu Campus. It was trial-tested on 20 rural women in Aguata LGA. This was not part of the study. Cronbach's alpha analysis was used to ascertain the internal consistency of the items (Cronbach, 1951). A reliability coefficient of 0.87 was recorded. Data from the questionnaire was analysed using mean and standard deviation (SD). The acceptance point for the items was a mean of 2.50.

Results

The results are shown in the tables in line with the research questions.

Table 1: Perceived effects of environmental challenges on the economic empowerment of women in Anaocha LGA

S/N	Environmental challenges on economic empowerment	Mean ($\dot{X}$)	SD	Remark
1	Gully erosion has taken a lot of the land space for economic activities	3.45	0.61	Agree
2	People's homes have been sunk by gully erosion	3.12	0.33	Agree
3	Food production has been reduced by erosion problems	3.20	0.46	Agree

S/N	Environmental challenges on economic empowerment	Mean (X̀)	SD	Remark
4	Reduced farmland due to erosion	3.50	0.74	Agree
5	Community's resources have gone into management of gully erosion	3.10	0.82	Agree
6	People are moving away from farming due to lack of land	2.92	0.68	Agree
7	Gully erosion reduces animals	1.00	1.11	Disagree
8	Gully erosion reduces the number of economic trees	3.12	0.43	Agree

Table 1 shows that the respondents rated items 1- 6 and item 8 high, that is above 2.5, while item 7 was rated low, below 2.5. This shows that the respondents acknowledge that environmental challenges affect the economic empowerment of women in Anaocha LGA.

Table 2: Practices employed by the women in Anaocha LGA on environmental protection

S/N	Environmental protection practices	Mean (X̀)	SD	Remark
9	Community women have built drainage to check gully erosion	3.45	0.40	Agree
10	Women participate in planting of trees to check gully erosion	3.12	0.43	Agree
11	Building of underground tanks to collect rain water from the roof of houses is encouraged by women	3.22	0.55	Agree
12	Women farmers encourage mixed cropping	3.40	0.46	Agree
13	Women farmers encourage crop rotation	3.60	0.64	Agree
14	Planting of trees is encouraged by women	2.90	0.99	Agree
15	Women discourage felling of trees	2.82	1.08	Agree
16	Channelling rain water to dug pits by roadsides is encouraged by women	1.22	0.83	Disagree
17	Women encourage digging of wells to collect rain water in their compounds	3.00	0.71	Agree
18	Women participate in filling bags with sand to check new erosion sites	3.43	0.34	Agree
19	Bush burning for farming activities is encouraged by women	1.10	0.75	Disagree

S/N	Environmental protection practices	Mean ($\bar{X}$)	SD	Remark
20	Non-governmental organizations' activities in erosion control and management	2.01	0.56	Disagree

Source: (Author's field work, 2015).

Table 2 shows that the respondents rated items 9 - 15, and 17 - 18 high (above 2.5), while items 16,19 and 20 were rated low, that is below 2.5. This shows that the respondents use some practices for environmental protection in Anaocha LGA.

Discussion of the Findings

Results from Table 1 reveal that there are environmental challenges that affect economic activities in the area studied. Gully erosion has taken a lot of the land space meant for economic activities; people's homes have been sunk by gully erosion, there is less land for agricultural activities, community's resources have gone into the management of the gully erosion, and there are less farmers in the area because of the lack of land. These hinder economic development in the area. Anaocha LGA, which consists of agrarian communities, has suffered so much loss of farmland. This has probably made some farmers go into petty trading in order to survive. In addition, this has also probably resulted in food insecurityas the people do not have other sources of income. Due to these challenges caused by gully erosion in the environment, sustainable development will be very difficult to achieve in the area. The present generation is struggling to make do with what is left by the gully erosion; what then will be the situation for the future generation?

From table 2 the respondents indicated that the women engage in certain practices in order to protect the environment. They encourage the digging of drainage to collect runoff water during the rainy season, the planting of trees, mixed cropping, and filling bags with sand to check new erosion sites, while discouraging the felling of trees. These practices are to ensure that the environment is protected. All these go to show that the women are actively involved in environmental protection. These findings are in line with the study of Nenibarini (2011) which revealed that women are the main actors in environmental protection, through environmental sanitation. This reveals that the women are trying to protect the environment through these means which they practice, but the issue

remains that gully erosion is increasingly taking away land meant for agriculture and other economic activities in the area. This is corroborated in the study by Ajaero and Mozie (2012). The vital questions are: "What is the way out of this situation?"; "Is it the geology and the nature of the soil underlying the areas, rather than the level of human activities that are the major reasons for the eroding effects seen in the area?"

Conclusion

This study found that gully erosion has taken much of the land space meant for agriculture and economic activities. People's homes have been sunk by gully erosion; food production has been reduced by erosion problems; community resources have gone into the management of gully erosion, and gully erosion reduces the number of economic trees. However, women have built drainage to check gully erosion, participated in the planting of trees to check gully erosion, and built underground tanks to collect rain water from the roofs of houses. In addition, they have encouraged mixed cropping, the planting of trees and participated in filling bags with sand to check new erosion sites. The practices adopted by the women are encouraging, but they appear not to be sufficient to control or stop the gully erosion in the area. Hence, gully erosion protection is important to promote sustainable development, knowing that environmental challenges affect the economic activities of the people.

Recommendations

Local government authorities must be more strict in stopping all human activities that could lead to gully erosion. The federal government should institute scientific and technological interventions to control gully erosion since the local practices of the women are not enough to protect the environment. The practices adopted by the women, such as the planting of trees, building drainage, building underground tanks to collect rain water from the roofs of houses to reduce the runoff water, should be encouraged. More tree planting should be encouraged as well as mixed cropping. Non-governmental organizations should provide assistance for erosion control and management, via campaigns and awareness programmes and demand that state governments come to the aid of the people to control the environmental challenges.

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