

ENVIRONMENTAL ADULT EDUCATION PROGRAMMES FOR MITIGATING EROSION MENACE IN IDEATO NORTH AND SOUTH LOCAL GOVERNMENT AREAS OF IMO STATE

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Abstract

This study examined the environmental adult education programmes for mitigating erosion menace in Ideato North and South Local Government Areas of Imo State. Three research questions guided the study. The descriptive survey research design was adopted for the study with a population of 1800 members of CBOs. The proportionate sampling technique of 10% was used to draw 180 respondents from the total population and this served as the sample size. The instrument used for data collection was a structured questionnaire which yielded a reliability index of 0.88. Data collected were analysed using mean statistics. Findings of the study revealed that reduction in agricultural produce, displacement of people from their ancestral homes among others are the effects of erosion on the environment. It was also revealed that, sustainable farming and conservation education programmes are solutions to erosion menace. The researcher recommended among other things, that the Ministry of Works, Lands and Environment should collaborate with other stakeholders and institutions in providing the said environmental adult education programmes.

Keywords: Environmental Adult Education, programmes, Erosion Menace.

Introduction

Globally, man's numerous activities in his struggle for survival has brought tremendous negative impacts on the environment. These negative impacts on the environment can as well be seen as environmental problems. Mbalisi (2014) sees environmental problems as changes in the environment which affect the health and productivity of the environment and which in turn affect human wellbeing; which includes among others pollution, deforestation, climate change, drought, desertification, flooding, erosion and so on.

In Nigeria, erosion is one of the most critical environmental problems affecting some states like Edo, Anambra, Imo and Enugu. Ideato North and South are two Local Government Areas out of twenty-seven in Imo State. The primary occupations of the inhabitants are farming and trading. Among the twenty-seven Local Government Areas in Imo State, Ideato North and South is most vulnerable to erosion (as seen in plate I). Erosion has caused lots of challenges to the inhabitants and its environ. It has affected the people's source of livelihood and in turn reduced their standard of living. In addition, most of the erosion sites in this LGAs are not only life threatening and fearful but also leave a very sad commentary about the level of devastation done to the environment. Farmlands and business establishments are being destroyed as well as community people are being displaced of their living homes. According to Nkwopara (2012), "several families have been forced to flee from their ancestral homes and into safety, sometimes several kilometres away from their ancestral homes".

Although erosion has its natural causes, man-made causes arise as a result of human activities on the physical environment. Most especially, agricultural activities such as logging or timbering either for commercial or private purpose; poor land management by farmers; cutting down trees for fire fuels and overgrazing of underlay by cattle. Improper disposal of waste such as throwing solid waste into available drains, littering of waste especially in the market square mostly by traders, excavation of sand (laterite) from unsuitable site by some construction companies, abandoning or incomplete road construction projects (as seen in plate II) and so on are equally seen as man-made causes of erosion. Ume, Enwereuzor, Egbe, Ike and Umo (2014) observed that population pressure and changes in land use and development project such as infrastructure development, urbanization and industrialization are major causes of erosion in Imo State.

Similarly, most traders in the study area litter their waste in the market square carelessly which is being carried by wind and rain into the available drains. When it rains, water overflows the drains and finds its way on the soil surface paving way for splash erosion (first stage of erosion). Farmers on the other hand engage in slash and-and-burn and clean clearing of vegetation; bush burning and fire wood extraction which promotes erosion menace. A study carried out in Ideato North LGA by Amangbara and Omumchere (2016) posits that anthropogenic activity such as farming is a major contributor to the formation of gully erosion in the study area. Most roads under construction in the area of study are being abandoned due to one reason or the other. The above mentioned activities help to promote erosion in these LGAs under study. The community dwellers lack necessary knowledge of the adverse effects of their practices on the environment. The focus of this study was to examine through an empirical process how environmental adult education programmes could be used in assisting community dwellers to mitigate the effects of erosion in their environment.

Erosion and its Effects on the Environment and Livelihood of the people of Ideato North and South Local Government Areas

Erosion as seen in Encyclopaedia (2017) is the process by which soil and rock is removed from one area of the Earth through wind and water and transported to elsewhere. Soil erosion generally passes through three stages before it gets to a full blown-up gully erosion (most severe among them all). They includes: splash (as seen in plate II), sheet and rill erosion. Gully erosion threatens the lives of the inhabitants in Ideato North and South LGAs (as seen in plate I). Erosion whether caused by human activities or natural has its implications on the environment such as dis-equilibration of the forest ecosystem; reduction in agricultural produce; desertification; reduced

economic growth and expansion and breach the gap in communication between communities. Currently, communities in Ideato North and South have been cut off from the rest of the state following gully erosion sites that cut the Orlu-Mgbe-Urualla, Akokwa-Osina federal high way into two (Nkwopara, 2012). Ideato North and South Local Government Areas are located on the northern axis of Imo with Anambra States. It occupies an area of about 90km² and 88km² respectively with a projected population of 183,260 and 184,300 at the 2011 census. The land part of the area has tropical rain forest. The main occupations of the people is farming and trading.

PLATE I



A gully erosion site in Ezeamazu, Ideato North L.G.A

PLATE II



Splash Erosion (First Stage of erosion) along Ideato North and South Express way

Statement of the Problem

However, community dwellers needs appropriate environmental adult education programmes which will enable them to acquire knowledge geared toward mitigating the effects of erosion in their environment. Given the above scenarios, the need has risen to determine environmental adult education programmes needed by community dwellers to effectively mitigate the effects of erosion in their environment. To satisfy this need is the problem of this study.

Objectives of the Study

The objectives of this study are to:

- i. find out the effects of erosion in Ideato North and South L.G.A.
- ii. determine how sustainable farming programme can be used to mitigate the effects of erosion in the study area.
- iii. examine how conservation education programme can be used to tackle the effects of erosion in Ideato North and South L.G.A.

Research Questions

The following research questions guided the study.

- i. What are the effects of erosion in Ideato North and South L.G.A?
- ii. How can sustainable farming programme be used to mitigate the effects of erosion in the study area?
- iii. How can conservation education programme be used to tackle the effects of erosion in Ideato North and South L.G.As?

Methodology

Descriptive survey design was adopted for the study. Population of the study comprised 1,800 members of Community-Based Organizations in Ideato North and South L.G.As of Imo State. Sample size was 180 members of Community-Based Organizations (CBOs) selected from the total population through proportionate sampling technique. This formed 10% of the total population. The instrument for data collection in this study was a structured questionnaire developed by the researcher. The questionnaire was titled: "Environmental Adult Education Programmes for Mitigating Erosion Menace" (EAEPMEM). The questionnaire was structured on a modified four point Likert ratio scale as follows: SA - Strongly Agree (4 points), A - Agree (3 points), D - Disagree (2 points), SD - Strongly Disagree (1 point). The instrument was exposed to validation and reliability test. A reliability index of 0.88 was obtained before the instrument was administered to the 180 respondents. Data was collected through the use of questionnaire administered to the respondents with the help of two research assistants locally recruited and trained to explain in local dialects (where necessary) some items of the questionnaire to the subjects. With the help of the research assistants, 180 copies of the questionnaire were administered to the respondents. Data collected were analysed using the Mean Statistics. Since the items were rated on a four point scale (modified Likert-type), the criterion mean of 2.5 was used in taking decisions. Thus item responses that received a mean equal to or greater than 2.5 were considered to be positive, while items that scored below 2.5 were considered negative.

Data Analysis

Research Question One: What are the effects of erosion in Ideato North and South LGAs of Imo State?

Table 1: Mean Responses by Community-Based Organizations on the Effects of Erosion on the Environment.

S/N	ITEMS	CBOs (N=180)				TOTAL	MEAN (\bar{X}_i)	DECISIO N
		SA= 4	A=3	D= 2	SD= 1			
1.	There is reduction in agricultural products as a result of erosion.	80 (320)	77 (231)	14 (28)	9 (9)	180 (588)	3.27	Strongly Agree
2.	Erosion has caused displacement of people of your community from their ancestral homes.	85 (340)	54 (162)	23 (46)	18 (18)	180 (566)	3.14	Strongly Agree
3.	As a result of erosion, farmlands and business establishments are being destroyed.	94 (376)	77 (231)	9 (18)	0 (0)	180 (625)	3.47	Strongly Agree
Pooled/Aggregate Mean (XI)							3.29	

Table 1 above indicates that mean scores for items 1-3, depicting various areas and effects of erosion were respectively greater than the criterion mean of 2.50. The pooled/aggregate mean XI (3.29) shows overall strongly agree on the effects of erosion such as reduction in agricultural products (item 1), displacement of the peoples' ancestral homes (item 2) and destruction of farmlands and business establishments (item 3).

Research Question Two: How can sustainable farming programme be used to mitigate the effects of erosion in the study area?

Table 2: Mean Responses by Community-Based Organizations on Sustainable Farming programme for Mitigating Erosion Menace in their Environment.

S/N	ITEMS	CBOs RESPONSES (N=180)				TOTAL	MEA \bar{N} (\bar{X}_i)	DECISION
		SA=4	A=3	D=2	SD=1			
1.	Providing sustainable farming programme will help you acquire knowledge of the methods of farming that do not have negative effects on soil.	94 (376)	72 (216)	9 (9)	5 (5)	180 (615)	3.41	Strongly Agree
2.	Providing sustainable farming education programme will help in the knowledge of economic seeds, trees and plants which has to be planted on erosion prone areas.	125 (500)	50 (150)	0 (0)	5 (5)	180 (655)	3.64	Strongly Agree
3.	Providing sustainable farming education programme will help you to acquire knowledge of farm technology or tools that do not have an overlay negative effects on the soil.	108 (432)	63 (189)	9 (18)	0 (0)	180 (639)	3.55	Strongly Agree
Pooled/Aggregate Mean (XI)							(3.53)	

Table 2 above shows that, all the mean scores (including the pooled/aggregate mean) are not only greater than the criterion mean of 2.50, but also show strong agreement with the items 1-3. The respondents strongly agreed that providing sustainable farming programme will help to acquire knowledge of the methods of farming that do not have negative effects on soil; help in the knowledge of economic seeds, trees and plants to be planted on erosion prone areas; help to acquire knowledge of farm technology or tools that do not have an over lay effect on the soil with mean responses of 3.41, 3.64 and 3.55 respectively.

Research Question Three: How can conservation education programme be used to mitigate the effects of erosion in Ideato North and South L.G.As?

Table 3: Mean Responses by Community-Based Organizations on Conservation Education Programme for Mitigating the Effects of Erosion on their Environment.

S/N	ITEMS	CBOs (N=180)				TOTAL	MEAN (\bar{X}_i)	DECISION
		SA=	A=3	D=2	SD=			
		4			1			
1.	If community people have knowledge of how to preserve their resources, they will not engage in excessive sand excavation (especially, in an unsuitable sites).	113 (452)	58 (174)	9 (18)	0 (0)	180 (653)	3.63	Strongly Agree
2.	If community people have knowledge of how to preserve their resources, they will see the need to harvest rain in water tanks.	71 (284)	81 (243)	23 (46)	5 (5)	180 (578)	3.21	Strongly Agree
3.	If community people have knowledge of how to preserve their resources, they will see the need to make use of alternative resources.	139 (556)	32 (96)	9 (18)	0 (0)	180 (670)	3.72	Strongly Agree
Pooled/Aggregate Mean (XI)							(3.52)	

Data in table 3 above reveals that with mean scores of 3.63, 3.21 and 3.72 respectively, most of the respondents strongly agreed that if community people have the knowledge of conservation education, they will not engage in excessive sand excavation, they will equally see the need to harvest rain water in tanks and the need for alternative resources. With an aggregate mean of 3.52, therefore, the answer to research question three is that conservation education programme is seen as a solution to erosion in these LGAs of Imo State.

Discussion of Findings

The analysis of data on research question one which sought to find out the effects of erosion in Ideato North and South Local Government Areas reveals a positive response from respondents. With an aggregate mean of 3.29, the responses revealed that there is reduction of agricultural or farm produce as a result of erosion. Erosion has caused displacement of people from their ancestral homes. This findings is in line with The final report from Nigeria Erosion and Watershed Management Plan (NEWMAP, 2016) which states that, the rill erosion created as a result of the continued scouring action of the unprotected soil, increased and propagated rapidly into a gully that has washed away residential buildings and cut-off roads leading to farmlands and neighbouring communities. Findings also revealed that farmlands and business establishments are being destroyed with a corresponding decrease in agricultural or farm produce as a result of erosion. This result is in line with the study carried out by Ofomata (2015) that, no matter the type of soil erosion in any given location, the consequences is general decrease in soil fertility (as a result of the action of sheet and/or wind erosion). The latter consequence has wider implications which include displacement of population following loss of residential houses and farm crops. Furthermore,

topsoil is removed first by erosion action, the nutrient rich layer clears away reducing plant growth in the process.

Findings on research question two which sought to ascertain sustainable farming programme as solution to erosion on the environment, data in table 4 showed a grand mean of 3.53 which indicates that the respondents considered helpful for them to mitigate the effects of erosion on the environment. The findings showed that providing sustainable farming programme will help community dwellers to acquire knowledge of the methods of farming that do not have negative effects on soil. This programme will equally provide community dwellers with the knowledge of economic seeds, trees and plant which has to be planted on erosion prone areas. Furthermore, sustainable farming programme will assist people to acquire knowledge of farm technology or tools that do not have an over lay negative effect on soil. This finding is in line with Okorie (2016) who noted that, sustainable education programmes are designed to educate rural farmers on how to grow food efficiently, economically and in a sustainable manner. This implies using methods and technology that do not have an overlay negative effect on soil. Examples of soil management technique as stated in the works of Obafemi (2004) includes contour planting, terracing, planting of perennial species, reduced tillage system among others.

Finally, findings of the study in research question three considered conservation education programme as a solution to erosion in Ideato North and South LGAs. To begin with, the pooled mean in table 5 (3.52) showed overall strong agreement with the suggested three importance of conservation education programme for mitigation of the effects of erosion on the environment. Conservation education programme will assist community dwellers in the following ways:

- i) Reduced excessive sand excavation, especially in unsuitable sites.
- ii) Harvesting of rain water in water tanks.
- iii) Making use of alternative resources.

Findings above is in line with Kaushik and Kuashik (2003) that tree planting such as veteva plant, bamboo, harvesting of rainwater in a sloppy and erosion prone areas helps to control and prevent erosion. In addition, findings under research question two and three are being supported by the works of Obi and Okekeogbu (2017) that, environmental education through public enlightenment programmes such as sustainable farming and conservation education is capable of assisting community dwellers to mitigate the effects of erosion in Ideato North and South LGAs of Imo State.

Conclusion/Recommendations

Based on the findings, the study concludes that erosion causes displacement of people from their ancestral homes, destroy farmlands and business establishments with a correspondence decrease in agricultural or farm produce. However, environmental adult education programmes such as sustainable farming and conservation education assist in mitigating its effects on the environment.

The study therefore recommended that:

1. Government agencies and organizations in charge of waste management and disposal should make adequate provision of waste-bins in the market places for proper disposal of solid waste by the traders and ensure timely evacuation of same.
2. Imo State Ministry of Agriculture should assist the people of these LGAs with plants such as veteva plant, bamboo and so on that will help to control existing gully erosion and prevent further gully erosion propagation.

3. Government both at the Local, State and Federal level should establish an office or department at the local government level which will be in charge of environmental adult education programmes, and professionals in the field of environmental adult education should be employed as well as carryout sensitization and awareness programmes on the danger of erosion to the environment of Ideato North and South LGAs of Imo State.
4. Imo State Ministry of Works, Lands and Environment should endeavour to assess the suitability of the areas and the particular spot where construction companies plan to excavate laterite for road construction work. The ministry should also issue permits that authorize construction companies prior to the excavation of laterite and also maintain constant surveillance for illegal (unauthorized) excavation and arrest as well as prosecute defaulters.
5. The communities should also maintain surveillance over their environment for early detection and prevention of illegal excavation of laterite by construction companies or anyone else.

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