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COMBATING EROSION IN IMO STATE USING COMMUNITY PARTICIPATION APPROACH

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ABSTRACT
Erosion is a critical global problem. It is one of the devastating forms of environmental degradation that has bedevilled many communities in Owerri, Imo State Nigeria. Imo State experiences sheet, rill and gully types of erosion with gully erosion being the most devastating in the area because of its destructive nature. Gully erosion has been an inherent problem in Owerri for more than a decade now. Previous governments have made efforts in the past towards combating erosion but the problem persists. Data for this study were collected by oral interview, field observations as well as through the distribution of pre-tested questionnaire in the affected communities. Findings from this study showed that community involvement in soil erosion control projects will go a long way toward addressing the problem in the study area. The ineffectiveness of government driven projects was as a result of non-involvement of the community members in the erosion control projects. Whatever measures taken by the government was usually met with minimal success as the people concerned were not carried along in the exercise. This study therefore recommends effective community participation with strong government partnership in order to achieve absolute success both in the planning and execution of erosion control measures to stop further degradation.

KEYWORDS: Soil, Erosion, Environmental Degradation, Community Participation, Combating.

INTRODUCTION
The role of soil for the survival of man cannot be overemphasized. Almost all of the agricultural activities in the developing countries are dependent on land resources. This is why Cunningham et al (2003)described the soil as one of the most important components of the physical environment. Soil erosion is one of the ways the quality of soil can be degraded. Studies conducted in Nigeria implicated man as having directly or indirectly altered or disturbed the natural ecosystem, thus reducing the environmental quality and contributing to the deteriorating food security situation in Nigeria.(Ofomata,1981a; Olayide et al,1980;Famoriyo,1979;Kwarteng et al 1994; Agboola,1979 and Kuponiyi,2001).

Soil erosion simply put is the gradual wearing, washing away and carrying of the soil by agents of denudation like running water, wind and glacier (Ijeoma 1988).It includes the mounding and wearing of the earth surface Ofomata (1965). A definition by Igbozurike says it is the removal of soil in an area either by water or wind. He equally observed that in the areas of heavy rainfall in Nigeria, erosion by rainfall and its runoff is very common while in areas that have little rainfall, wind erosion is very common. This problem of erosion is a very serious threat to different parts of Imo state and climate change has amplified this challenge. The seriousness of this problem has prompted the Nigerian government to seek urgent support from the world Bank to tackle the challenge in seven states and Imo State is one of states selected. The different types of soil erosion which are sheet erosion, rill erosion and gully are all noticeable in the study area. Sheet erosion is the list noticed but over a considerable period of time you observe that the soil has been completely washed off by falling rain and runoff. Sheet erosion can be very extensive and harmful to the environment because it leads to declining soil fertility and consequently poor harvest as it washes off the topsoil that has soil nutrient

Rill erosion on the other hand is the detachment and transport of soil by concentrated flow of water by carving small gutters or rills. It equally leads to land degradation and impoverishment of soil. Rill erosion accelerates and precedes gully erosion development which is the worst type of soil erosion.

Gully erosion is the severest case of soil erosion because of the impact on the environment. There are evidences of gully erosion in the 12 local government areas of Imo state including *Isu, Ideato South, Ideato North, Nkwerre, Nwangele, Oguta, Oru West Oru East, Orlu, Orsu, Ohaji/Egbema and Njaba.* Erosion

by the action of water has produced some of the most spectacular landscapes we know. Natural erosion occurs primarily on a geologic time scale, but when man's activities alter the landscape, the erosion process can be greatly accelerated. The type of erosion that instils fear in the lives of people in the south-eastern part of Nigeria is gully erosion. This problem has been so publicised on the radio, television and the print media etc but no concrete solution has emerged. Land is a fixed asset. For the developing countries whose economy is largely dependent on land recourses, any activity that impacts negatively on this God given resource will definitely give rise to a chain reaction. This is because the physical environment operates as a system where a change in one part ultimately affects the others. Soil erosion therefore is a very serious instrument/factor of land degradation in the study area. The three types of erosion mentioned cause crops to grow poorly and leads to poor harvests. They equally lead to loss of property, siltation of water bodies, loss of valuable plants and animals etc which has financial implications. Because of the effects of erosion on man and the environment, soil erosion is therefore everybody's business according to Igbozurike (1993).(see plate 1)

PLATE 1: Works layout road threatened by gully (source: authors field work 2016) Gully Erosion Development Process

Statement of the Problem

Soil erosion seems to be an inherent issue in many communities in Imo state for over a decade. Various forms of soil erosion have been identified in the state but the problems caused by gully erosion on both natural and man-made features are glaring. Paths, roads, houses, agricultural and other land uses have been damaged and swallowed up by erosion (see plate 2) and infrastructures damaged thereby making transportation and communication almost impossible (NEWMAP 2015).There are serious cases of gully erosion going on in Okigwe road area, Ikenegbu farm lands, Amakohia layout, Nekede and works layout. Plate 2 & 3 shows severe gully erosion in Nekede where roads are being almost cut off and farmland destroyed by gully erosion. This is currently the situation of this road that leads to the famous federal polytechnic Nekede. According to the Nation newspaper of August 28 2015 captioned ''The rage of erosion in Imo'' Okodili likened it to a horror movie in slow motion which he said..... right before their eyes, roads and farmlands are being washed away. Some communities are being cut off and houses are being buried in red earth. A major road that leads to two federal institutions, federal university of technology Owerri and federal polytechnic Nekede is in a very terrible state. The writer described the road as a disaster waiting to happen. To get to school, Staff and students engage the services of motorists at exorbitant fares. These motorists popularly known as (okada) meander through the badly damaged paths created by the erosion to get their passengers to their destinations.

PLATE 2: Gully along Nekede Road **(**source: Nairaland forum, 2016**)**

PLATE 3: Gully Erosion Site at Nekede (Authors fieldwork, 2016)

The problem associated with menace from soil erosion seems to have persisted despite the efforts of the government through arms like ministry of

Environment and other related bodies. The communities and their inhabitants are directly affected by this problem. Majority of the people in this neighbourhood are engaged in agriculture (especially farming) or agric-related activities hence there is a need to examine the effectiveness of community participation in combating the problem of erosion in the study area. Government collaborating with the communities may yield better results than the sole government efforts of several years past.

Aim and Objectives

The aim of this study is to examine the effectiveness of community participation approach in combating soil erosion. Specifically, the study attempted to:

i) Assess the severity of soil erosion in the study area,
ii) Identify the efforts of the Government towards combating soil erosion,
iii) Determine the level of community participation in soil erosion control, and
iv) Identify the benefits of community participation on the effectiveness of soil erosion control projects in the study area.

Area of Study

Owerri area comprises of the present Owerri North and West Local Government Areas as well as Owerri Municipal Council Area. It is located between $0^0 58^1$E - 1^0 4^1E latitude and longitude $5^0 23^1$N - 5^0 31^1N. It is bounded by Mbaitoli on the North, Ohaji-Egbema on the West, Mbaise on the East and Ngor Okpala on the South.(See Fig 1). The study area has an estimated population of about 750,000 as of 2006 and is approximately 100 square kilometres (40 sq miles) in area.

Owerri falls within the South Eastern part of the Niger Delta, Nigeria. The Niger Delta Basin of Nigeria is situated on the continental margin of the Gulf of Guinea in equatorial West Africa between latitude 4°00 to 7° 00'N and longitude 5°00'E to 8° 00'E covering an area of about 108,900 km2. The Niger Delta is a pro-grading depositional complex within the Cenozoic Formation of Southern Nigeria. It extends from the Calabar Flank and the Abakaliki Trough in Eastern Nigeria to the Benin Flank in the West and it opens to the Atlantic Ocean in the South (Ofoegbu, 1998). The rainy season begins in March and lasts until October with annual rainfall varying from 1,500mm to 2,200mm (60 to 80 inches). An average temperature used to be 27 °C but is now 29°C due to climate change. This creates an annual relative humidity of 75 percent with humidity reaching 90 percent in the rainy season. The dry season experiences two months of Harmattan from mid December to mid February. The hottest months are between March and April. (Imo State fact, 2010).

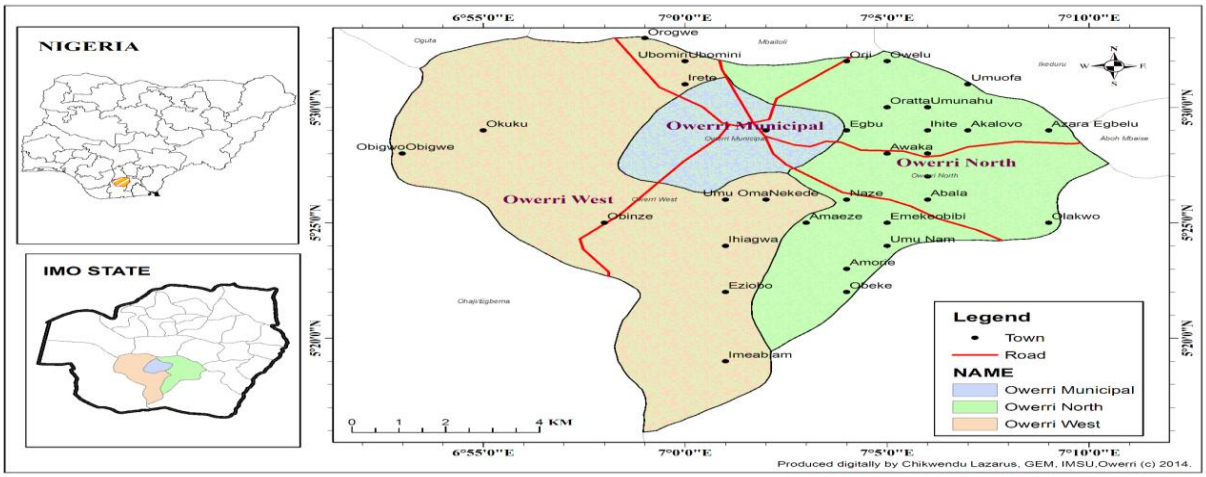

Fig.1 Nigeria And Imo State Showing Owerri
Source: GIS Unit, Dept Of Geog and Environmental Mgt IMSU, 2016

METHODOLOGY

Data for this study was mainly primary data which were obtained through field measurements, observations, oral interview and questionnaire administration in the affected communities. Information was also got from the relevant secondary sources. The population of the study area includes the inhabitants of the some of the affected areas in Owerri which include Amakohia, Ikenegbu, Nekede and Works Layout. This involved about 140,000 people who live in this selected areas. The sample size is 140 .A total of 140 copies of questionnaire were administered using simple random sampling technique at 35 copies for each area. Only 138 copies were retrieved.

Mean ratings was used to analyse the data. The means were calculated by assigning normal values to response categories. Any item that received a mean of 2.50 and above is regarded as agreed while any item that received a mean of less than 2.50 is regarded as disagreed.

Strongly Agreed - (SA) = 4
Agreed - (A) = 3
Disagreed - (D) = 2
Strongly Disagreed - (SD) = 1
The mean is $\frac{4+3+2+1}{4} = \frac{10}{4} = 2.50$

FINDINGS

Analysis of data collected indicated that the cluster items in the severity of soil erosion in the study area had their means ranging from 3.70 -3.92 and a cluster mean of 3.80. The implication is that the level of soil erosion is very severe in the study area. This was confirmed in the field during field work. It was also observed in the field that the only road leading to Ndegwu (an agrarian community) has been totally destroyed. With climate change and increase in the intensity of rainfall gully erosion is fast expanding in these areas.

On the efforts of the governments towards combating soil erosion in the area, the items had means ranging from 2.16 to 3.63 with a cluster mean of 2.89.This is also greater than 2.50.This equally shows that the government has made efforts towards combating erosion in the area.

On the level of community participation in soil erosion control projects in the area, the items had mean ranging from 3.31 to 3.81 with a cluster mean of 3.56. The implication is that the government has sidelined the community members in erosion control projects. This indicates that the level of community participation is very low. Because the communities were not carried along in the projects, they did not own these projects and as a result the projects were not sustained. The planning of such control measures were done in the offices and therefore poorly implemented. Findings also showed that the huge sums of money set aside for these projects may not have been spent on the projects.

On the benefits of community participation on erosion control projects, the respondents observed that lack of continuity on the part of government is a huge problem. They noted that succeeding governments do not continue the projects of previous governments as a result, the projects were not sustained and they did not last. They noted that only the Projects done in collaboration with the communities last with the following reasons.

1.That the communities are well structured (with the traditional rulers, village heads, age grades, town unions etc) to enforce and implement development projects.

2.That the communities have carried out projects in the past that are sustainable like schools, civic centre, markets, roads, bridges, drains, bore holes etc and these project are still working even after several decades.

3.That even when there had been changes in governments, the communities own these projects, they finish them and continue to maintain them.

With this track records and observations in the field, community driven erosion control projects will be more successful than government sole erosion projects which have yielded little or no results for several years.

SUMMARY

Imo state suffer from the havocs of gully erosion. The causes of gully erosion in Imo state include both natural and anthropogenic sources and that climate change has amplified it. It is evident that soil erosion particularly gully soil erosion is expanding in the study area. Findings from this work revealed that the problem of erosion has been and is still of great concern to the communities and the government. Houses, roads, land and other properties are being destroyed. It is equally evident that the level of community participation in tackling the problem of erosion control is very low in the study area. Government has not effectively carried the communities along in combating soil erosion problem in the study area. The control areas are worst hit because of complete negligence on the erosion activities in the area.

CONCLUSION

Sheet, rill and gully erosion are being experienced in many communities in Imo State and efforts have been made in the past to check or combat them. Such efforts include construction of concrete drains, sand bagging, hillside drains, tree planting, catch-pit etc. These have not stopped the erosion from encroaching into other areas. Some have become so wide that roads are being cut off, farmlands are lost and houses being threatened. In some cases concrete structures have been damaged by widening of the gully.

This calls for a reassessment of the methods used in addressing this problem that has defiled almost all government efforts. The world bank through Nigeria Erosion and watershed Management Project (NEWMAP) has come in to rescue the situation. This laudable venture should not be thwarted by any group of persons or even government representatives. Involving the host communities both in the planning and implementation of these erosion control projects will definitely lead to achieving maximum results.

RECOMMENDATIONS

This work therefore, strongly recommend active community participation in erosion control measures in all the affected communities with strong partnership with the government both in the planning and execution of these measures to stop further degradation. This is because the local people are more concerned than anybody in their problem and

should form part of any soil erosion control / conservation programmes in their various localities.

The communities should be encouraged to take remedial actions to stabilize the existing gullies and prevent further expansion.

There should be continuity in government driven projects to achieve sustainability of already existing projects.

Proper land use management should be stressed in the area, this can be achieved using the organised rural structure that is already in place.

Bad agricultural practices should be discouraged. This can be achieved using agricultural extension officers that attend to the rural farmers.

All politically motivated bottlenecks in accessing ecological funds should be removed so that there will not be delays in addressing the problems as they arise instead of waiting several years before funds are released.

If these are done, there is no doubt that erosion will be checked and already affected areas will be remedied

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