An Assessment of the Socio Economic Impacts of Soil Erosion in South-Eastern Nigeria

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Key Words: Soil Erosion, Disaster, Development, Environment, Gully.

SUMMARY

Soil erosion in the South-eastern part of Nigeria has been identified as the most threatened environmental hazards in the country. Secondary data on the study traced its origin to some 30 years ago when development began to creep into the region, following Nigeria's oil boom of the 1970s. Dugout pits, created from soil excavation activities, for foundation filling and sand for brick making and plastering of buildings produced deep craters and gullies due to perennial erosion from torrential tropical rains. This was further worsened by poor geologic set up of soil found in the area. This, happening over years, and not well managed had resulted to gullies, found in more than 1000 sites with over 700 of them located in Anambra State alone. Its effects spread over five states namely Anambra, Abia, Imo, Enugu and Ebonyi States. This initiated the zoning of the study area into five.
Thirty settlements where gullies were mostly pronounced as revealed in previous literature on the study (Ofomata, 1984; Newswatch Communications Limited,1987; FAO Corporative Document Repository , http://www.fao.org/documents/show_cdr.asp?url_file=//docrep/005/t3660e/T3660E06.htm .) were selected for questionnaire administration. A total of 270 compound heads were selected randomly and interviewed in 30 clustered settlemnets where erosion effects were more pronounced in the study area.

Study revealed that most (89.25%) of the compound heads in the area were males; practicing farming(34.30%), trading(27.77%) and civil service (20.0%); with over 70% of them above 45 years of age. About 66% of them indicated to have settled in the study area more than 20 years before this study. In addition, more than half of the compound heads possessed less than secondary school certificates(55.95%) while 53.22% of them earned below 60,000 Naira per head annually, (an equivalent of 461 Dollars). The study area looses an estimated amount of 9 million Naira (an equivalent of 70,000 Dollars) yearly to soil erosion. Over 70% of the household heads responded to have lost one or more of their fixed assets to this environmental disaster, only 27% of them indicated that they had been relieved of their losses by the government in times past. Respondents' properties that were negatively affected by soil erosion in the study area include houses (7.04%), land (10.37%), farmlands and crops (30.37%), mixed properties (22.96%). The low income and poor education status of the people posed greater threat to solving erosion problem in the study area.

While there is need to control the degree of environmental abuse by house builders and construction firms in the area, the study concluded that local and national governments, as well as international bodies concerned on environmental issues should work together to save South-eastern Nigeria from impending environmental doom.

INTRODUCTION

Soil erosion remains the world's biggest environmental problem, threatening sustainability of both plant and animal in the world. Over 65 percent of the soil on earth is said to have displayed degradation phenomena as a result of soil erosion, salinity and desertification (Okin,2002).. In a way, soil is the most vital of earth's natural resources. It hosts both animate and inanimate beings. Over three quarters of the world's man-made developments are on it. And its existence is the basis for the performance of most disciplines of the world. Most earth's natural resources are directly linked to or found in the soil. Threat to soil is therefore threat to life.

From time immemorial, soil erosion has being a naturally occurring process (OMAFRA Staff, 2003). At present, it is the single most important environmental degradation problem in the developing world (Ananda and Herath, 2003), especially the tropics (Hanyona, 2001). United Nations (UN) Convention to Combat Land Degradation (CCD) opines that soil erosion automatically results in reduction or loss of the biological and economic productivity and complexity of terrestrial ecosystems, including soil nutrients, vegetation, other biota, and the ecological processes that operate therein (Claassen, 2004).

In another dimension, Scherr and Yadav argue that by the year 2020, soil erosion may pose a serious threat to food production and rural (as well urban) livelihoods particularly in poor and densely populated areas of the developing world. They further advocate for policies that would encourage soil retention strategies, land improving investments and better land management if developing countries are to sustainability meet the food needs of their populations, preserve non renewable natural resources and hand over their soils to future generations. Significant in this is that when soil gives away its fertility, human beings loose their fundamental living source they rely on. This is why soil erosion has been identified as the direct cause of environmental deterioration and poverty in many parts of the world (Beijing Time, May 28, 2002).

As urban planners who oversee distribution of land among competing uses to attain maximum practicable degree of economy and convenience, the concern is to be interested in ensuring sustainability of life through effective management and utilisation of land and its scarce resources for sustainable development. It is on this premise that this paper attempted to assess the socio-economic impact of soil erosion in a developing nation like Nigeria. The objectives of the study were to examine the causes and effects of soil erosion in relation to the socio-economic behaviours of the people in South-eastern part of Nigeria.

THE CONCEPT OF EROSION

Erosion, as it affects man and its environment, is natural and as old as the earth itself (OMAFRA Staff, 2003). It is seen as the gradual washing away of soil through the agents of denudation which include, wind, water and man (Abegunde,el al 2003). These denudating agents loose, wear away, dislodge, transport and deposit wear off soil particles and nutrients in another location.

The classification of soil erosion therefore could be based in its causative factors mentioned above. Hence, we have wind, water and anthropogenic (man-made) erosions. The process of soil erosion could be slow and continues unnoticed, or it may occur at an alarming rate causing serious loss of top soil. Relevant to this work as it affects the study area is soil erosion by water. Under soil erosion by water, its classification depends on its level and degree of formation. This is because a combination of agents may work together to form one type of erosion or the other. This classification includes sheet, rill, channel and gully erosion.

Sheet erosion begins with slow and progressive removal of a thin but fairly uniform layer of topsoil from an area by flood or run-off. Rill erosion occurs when run-off water laden with soil particles and debris erodes an area of land surface more than others (OMAFRA Staff, 2003). Repeated rill erosion along a run-off path that creates a vertical bank not deeper than three metres produces channel erosion. Gully erosion occurs when deep and large channel assuming great depths are created by run-off water (Abegunde, et al 2003). This type of soil erosion is most common in Southern-eastern Nigeria. The rate and magnitude of soil erosion by water is controlled by the following factors as illustrated by OMAFRA Staff (2003).

These are:-

-Rainfall Intensity and Runoff

Both rainfall and runoff factors must be considered in assessing a water erosion problem. The impact of raindrops on the soil surface can break down soil aggregates and disperse the aggregate material. Lighter aggregate materials such as very fine sand, silt, clay and organic matter can be easily removed by the raindrop splash and runoff water; greater raindrop energy or runoff amounts might be required to move the larger sand and gravel particles.

Soil movement by rainfall (raindrop splash) is usually greatest and most noticeable during short-duration, high-intensity thunderstorms. Although the erosion caused by long-lasting and less-intense storms is not as spectacular or noticeable as that produced during thunderstorms, the amount of soil loss can be significant, especially when compounded over time. Runoff can occur whenever there is excess water on a slope that cannot be absorbed into the soil or trapped on the surface. The amount of runoff can be increased if infiltration is reduced due to soil compaction, crusting or freezing. Runoff from the agricultural land may be greatest during spring months when the soils are usually saturated, snow is melting and vegetative cover is minimal. In South-eastern Nigeria, there exists two seasons. The rainy season in the area is always accompanied with torrential downpour, followed by run offs. This occurs

within April and November of every year. The dry season takes place within December and March, with little or no rainfall.

-Soil Erodibility

Soil erodibility is an estimate of the ability of soils to resist erosion, based on the physical characteristics of each soil. Generally, soils with faster infiltration rates, higher levels of organic matter and improved soil structure have a greater resistance to erosion. Sand, sandy loam and loam-textured soils tend to be less erodible than silt, very fine sand, and certain clay textured soils. Soil in the study area is made of fine red sand. This makes it more vulnerable to erosion during run offs (Olori, 2006).

Tillage and cropping practices, which lower soil organic matter levels, cause poor soil structure, and result of compacted contribute to increases in soil erodibility. Decreased infiltration and increased runoff can be a result of compacted subsurface soil layers. A decrease in infiltration can also be caused by a formation of a soil crust, which tends to "seal" the surface. On some sites, a soil crust might decrease the amount of soil loss from sheet or rain splash erosion, however, a corresponding increase in the amount of runoff water can contribute to greater rill erosion problems.

Past erosion has an effect on a soil's erodibility for a number of reasons. Many exposed subsurface soils on eroded sites tend to be more erodible than the original soils were, because of their poorer structure and lower organic matter. The lower nutrient levels often associated with subsoils contribute to lower crop yields and generally poorer crop cover, which in turn provides less crop protection for the soil.

-Slope Gradient and Length

Naturally, the steeper the slope of a field, the greater the amount of soil loss from erosion by water. Soil erosion by water also increases as the slope length increases due to the greater accumulation of runoff. Consolidation of small fields into larger ones often results in longer slope lengths with increased erosion potential, due to increased velocity of water which permits a greater degree of scouring (carrying capacity for sediment). The study area is dissected with many rivers and streams due to the undulating nature of the land. There are hills, plateaux, pene-planes and valleys, which give way to these rivers and streams that flow down the slopes in the study area. Some of these served as tributaries and distributaries to river Niger that passes the area before emptied into the Atlantic Ocean (FAO Corporate Document Repository-http://www.fao.org/documents/show_cdr.asp?url_file=//docrep/005/t3660e/T3660E06.htm).

. Specifically, Nigeria has two major rivers, the Niger, after which the country is named, and the Benue. They meet at the Lokoja confluence and entre the Gulf of Guinea through a network of creeks and distributaries, which form the Niger Delta. Figure I shows the hydrological map of Nigeria. Areas marked 5 and 7 refer to the study area in this study.

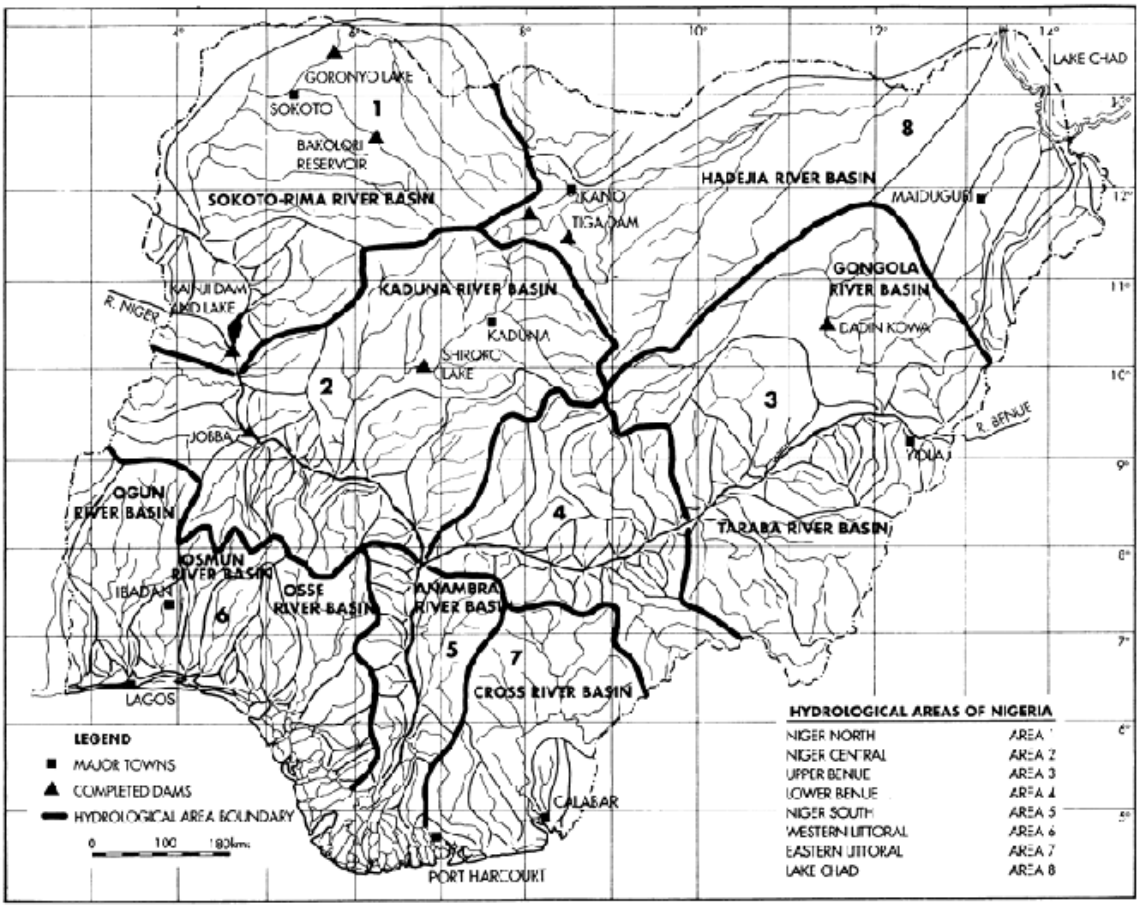

Figure I: Hydrological Map of Nigeria.

Source: FAO Corporate Document Repository. In

http://www.fao.org/documents/show_cdr.asp?url_file=//docrep/005/t3660e/T3660E06.htm

-Vegetation

Soil erosion potential is increased if the soil has no or very little vegetative cover of plants and/or crop residues. Plant and residue cover protect the soil from raindrop impact and splash, tends to slow down the movement of surface runoff and allows excess surface water to infiltrate.

The erosion-reducing effectiveness of plant and/or residue covers depends on the type, extent and quantity of cover. Vegetation and residue combinations that completely cover the soil, and which intercept all falling raindrops at and close to the surface and the most efficient in controlling soil (e.g. forests, permanent grasses). Partially incorporated residues and residual roots are also important as these provide channels that allow surface water to move into the soil.

The effectiveness of any crop, management system or protective cover also depends on how much protection is available at various periods during the year, relative to the amount of erosive rainfall that falls during these periods. In this respect, crops which provide a food, protective cover for a major portion of the year (for example, alfalfa or winter cover crops) can reduce erosion much more than can crops which leave the soil bare for a longer period of time (e.g. row crops) and particularly during periods of high erosive rainfall (spring and summer). However, most of the erosion on annual row crop land can be reduced by leaving a residue cover greater than 30% after harvest and over the winter months, or by inter-seeding a forage crop (e.g. red clover).

Soil erosion potential is affected by tillage operations, depending on the depth, direction and timing of plowing, the type of tillage equipment and the number of passes. Generally, the less the disturbance of vegetation or residue cover at or near the surface, the more effective the tillage practice in reducing erosion.

SOCIO –ECONOMIC EFFECTS OF SOIL EROSION: A GLOBAL PERSPECTIVE.

Soil erosion (by water) has been observed to degrade the global land resource base. Its impacts are felt on soil quality, agricultural productivity, movement o pollutants, ecological diversity in streams and wetlands, river channel change, infrastructure and building uses, and effects of flooding (Dlamini,-http://www.sntc.org.sz/eearticles/soileleg. Html). History revealed that the rise and fall in civilization is linked to the quality and management of soil and land (Burkes 1979).

As quantities of soil particles are carried away on daily basis unnoticeably, soil quality depreciates significantly. The soil that erosion carries off now totals 22 billion tons a year worldwide (Hanyona, 2001). In Europe, 12% of soil is threatened by water erosion alone. Similarly, 95 million and 500 million of land are badly affected by soil erosion in North America and Africa respectively (Beijing Time, 2002). Economic losses from soil erosion in South Asia is said to have currently accumulated to 6.9 billion dollars (Beijing Time, 2002)

China faces one of the most serious soil erosion problems in the world. The latest remote – sensing survey of the area shows that the country has some 3.56 million square kilometres of soil erosion areas. This accounts for about 38% of China total territory (Beijing Time, 2002).

If only the economic cost of soil erosion in different part of the globe were easily calculable, planners and politicians would think twice before allowing activities and projects that damage the land. This is because, soil making processes are notoriously slow, requiring from 200 to 1000 years to form 2.5 centimetres of topsoil under normal agricultural condition.

In South-Asia, 140 million hectares, or 43% of the region's total agricultural land, suffered from one form of degradation or more; soil erosion, impacting many areas than other form of degradation (Owens, 2000). In South Africa, annual soil loss is estimated at 300-400 million tones (Food and Agriculture Organisation, - http://www.batany.uwc.ac.za). Study revealed that not less than 43% of the country's population were confined to 13% of the land, this has resulted into pressure on and over-utilization of the land, exposing it to soil erosion and

causing poverty to the people. It requires R1000 million each year to replace soil nutrients carried out to the sea by run-offs annually in the area.
Erosion also affects crop productivity. Dlamini (http//www.sntc.org.sz/eeartides/soiloleg.html) and Siherr and Yadav (2000) opine that there has been a 17% cumulative productivity loss over 45 years (1945-1990) as a result of soil degradation. In addition, they observed that yield reduction due to past erosion could have been as high as 40%, with a mean of 6.2% for sub-Saharan Africa (Siherr and Yadav, 2000). Construction of roads and building also impact soil erosion in human society. This is clearly seen in South-eastern Nigeria and Wisconsin, United States of America among others (Ofomata,1984; Owens,2000).

SOIL EROSION IN SOUTH-EASTERN NIGERIA: A REVIEW

More than 1,000 erosion sites exist in Southeastern Nigeria with Anambra State being the worst hit as a result of the topography and the nature of soil in the area. There are more than 700 erosion sites in Anambra state alone (Ofomata,1984). The worst hit sites are found in Agulu, Nanka, Alor, Nnewi, Ideani Oraukwu, Oko Nkpor, Ekwulobia/ Oko, Alo, Uke, Ojokoto/Oba and parts of Udi, Enugu and Ukehe in Anambra State. Other catastrophic gullies occur at Amucha, Isuikwuato, Ohafia, Abriba and Arochukwu in Imo State, Umuchiani in Ikwulobia in Anambra State,and few settlements in Uyo and Calabar in Cross River State.
All the gullies are man-made. During the Oil Boom era in Nigeria in the early 70s, people excavated soil for constructions and with time, the sites became channels for run-off rainwaters that produced deep and wide cayons. In other words, some of the gullies have existed for more than 50 years and new ones are springing up daily. Similar cases have been recorded in other parts of the world, although some had been brought under control (Owens et al, 2000). The then development activity had since constituted a major ecological problem in parts of Southeastern Nigeria. Dugout pits, created from soil excavation activities, have produced deep craters and gullies due to perennial erosion from torrential tropical rains.

If future losses to soil erosion are well considered, development that produces short term satisfaction would either be disallowed or subjected to severe public opposition (Okin, 2002; Li and Deng, 2004; Classeen, 2004). For instance, in December 2005, the inhabitants of Umuchiani, one of the villages that make up Ikwulobia community in Anambra state, were woken up at night by a noise, only to find some houses at the edge of the village giving way to landslide. They deserted their homes, taking refuge in nearby forest and villages. By the time they returned to their village the following morning, several houses, a church and some roads were washed away. Their farmlands, palm and cashew trees were not spared either. Though nobody died in the incident, more than 250 families (made up of more than 1,500 persons) were displaced. Today, Umuchiani is almost a deserted village as most of the residents have taken up residence in new settlements away from their ancestral homes and shrines (Olori,2006).

To sensitise residents, annual workshops have been held on the need to protect environment, construct embankments around some communities and fill pits with sands. But these measures have not had the desired impact because while government is tackling major

gullies, other smaller ones emerge. Excavation continues in new sites daily. Anambra State Government alone has been able to check some of these gully sites. The government has spent about seven million dollars to control erosions on a number of roads before construction could take place. The government however confessed that any erosion site that is above 100 million Naira (equivalent of 700,000 Dollars) is beyond its power financially. At present, Anambra State Government alone among other five States, needs more than 400 million dollars to control erosion (Olori,2006).

An example of erosion spot left to the Federal Government is the Umuche site in the south of Anambra state. In December 'Aguata-Orumba Union', a non-governmental organisation based in the United States, visited erosion sites in the study area. Their aim was to air their observation to let the world know the problems the people of the region are going through under the negative impact of gully erosion, so that world attention could be paid to the region as much as it is being paid to other ecological disaster zones of the world (Olori,2006).

METHOD OF STUDY

Both primary and secondary sources of data were employed in this study. Existing literature on the topic globally and in relation to the study area were sought for in libraries, relevant websites and government offices.

Primary data for the study was by questionnaire administration. Existing literature revealed that 5 States in the South-eastern Nigeria were affected by soil erosion with over 1000 gully sites. These states include Anambra, Abia, Imo, Enugu and Ebonyi states. The study area was zoned into these five groups according to the number of the affected States.

Specific areas affected by this erosion were grouped into clusters; in all, thirty one clusters where gully erosion in South-east Nigeria was more pronounced were realized. This was tailored according to past literature as reveled in Ofomata, (1984) and Newswatch Communications Limited, (1987). A total of two hundred and seventy (270) questionnaires were randomly administered to compound heads in the 30 clusters. In other words 9 questionnaires were administered in each settlement cluster. The nine respondents interviewed in each settlement cluster were chosen through the aid of the village or town's heads. Each community head provided 9 prominent Compound family groups in their localities. Each Compound family then produced either a chief or clan head in the community for questionnaire administration. The chiefs or clans head selected automatically become respondents for this study. Where chiefs or clan heads were not available, first born (sons) of prominient chiefs/clan heads who had married were selected for the interview. The questionnaire probed into the socio-economic characteristics of the compound heads. In addition, it also investigated their length of stay, type of common disaster(s) experienced, degree of soil erosion, major property affected and compensation enjoyed among others

FINDINGS

Socio-economic Characteristics of Compound Heads in South-eastern Nigeria.

Table one summarises the social economic behaviour of the compound heads drawn from the study. The table shows that most (89.25%) of the total respondents were male while the rest 10.75% were female. This suggests that most of the compound heads in the study area were male. The table also reveals that nearly all of these compound heads were adults. This is because only 0.30% of them were below the age limit of 25 yrs. About 6% fell within the age group of 26-35years. The rest 93.40% of the compound heads were above 35years of age.

It is evident in tableI that more than half (53.22%) of the compound heads indicated to be earning below 5000.00 Naira (38.5 dollars) per month. Only 4.08% of them earned above 45,000 Naira (345 dollars) per month as at the time of this study. This implies that most of the compound heads in the erosion-affected areas in South-eastern Nigeria were low-income earners as at the time of this study. Considering the education status of the respondents, research revealed that 11.85% of the compound heads had been to tertiary institutions. The rest 55.95% were either illiterates or did not have more than primary school leaving certificate. The import if this is that more than half of the compound heads in the study area were educationally backward.

Findings revealed that most (65.59%) of the compound heads have lived in their communities for more than 20years to the time of this study. Only 10.37% had their length of stay in the study area within a space of a decade. This shows that most (65.95%) of the compound heads in the study area had settled for long time in their homelands as at the time of the study. Table 1 further reveals that the occupational status of respondents for the study. The table shows that 34.30% and 27.77% of them were farmers and traders respectively. Reconnaissance survey revealed that most of these farmers practised subsistence farming while the traders were into petty trading. This is evident in the fact that more than half (53.22%) of the respondents earned below 38.5 dollars per month. Table I also reveals that 05.83% and 20.0% of the compound heads were unemployed and civil servants respectively.

Table I: Socio-economic Characteristics of Compound Heads in South-eastern Nigeria

Variable	Frequency	%
Sex		
Male	241	89.25
Female	029	10.75
Total	270	100.00
Age Distribution (Age group)		
Below 25 years	01	0.30
26-35 years	17	6.30
36-45 years	60	22.20
46-55 years	97	36.20
Above 55 years	95	35.20
Total	270	100.00

Income Distribution (Average in Dollars)

(Income group in Naira)		
Below #5000 ($38.5)	141	53.22
#5000-#15000 ($76.9)	15	05.60
#16000-#25000 ($157.7)	20	07.50
#26000-#35000 ($234.6)	39	14.45
#36000-#45000 ($311.6)	22	08.15
Above #45000 ($345.0)	11	04.08
Total	270	100.00

Status of Education

No formal Education	35	13.00
Informal Training	13	04.80
Primary School	103	38.15
Secondary School	87	32.20
Tertiary Institution	32	11.85
Total	270	100.00

Occupation

Farming	93	34.30
Trading	75	27.77
Civil Service	53	20.00
Unemployed	16	05.83
No Response	33	12.10
Total	270	100.00

Length of Stay at Homeland (yrs)

Below 6 years	01	03.70
6-10 years	18	33.00
11-15 years	33	12.22
16-20 years	40	14.82
Above 20 years	178	65.59
Total	270	100.00

Source: Authors' Field Survey Data, 2002.

Effects of Soil Erosion on the Socio-economic Lifestyle of the People in South-eastern Nigeria.

Table two reveals that flooding is the most common (25.74%) disaster experienced in the study area. This is followed closely by gully erosion and landslide, which are 23.18% each respectively. Sheet/Rill erosion had a percentage of 10.90%. The rest 16.99% did not respond to the question on the type of natural disaster experienced in the study area. The import of this is that flooding; gully erosion and landslide were the prominent natural disasters that negatively affected people, property and the environment in the area.

Study also showed that most properties affected by soil erosion in the study area include houses (17.04%), land (10.37%), farm-land/crops (30.37%). Compound heads that had more

than one of their properties affected at a time had a percentage of 22.96%. The rest 29.22% did not indicate to have lost any property to soil erosion as at the time of this study. Significant in this is that most (70.78%) of the compound heads had lost their properties to soil erosion. Findings on the estimated monetary value of the properties lost to soil erosion in the past 10 years revealed that 15.4 Million Naria (0.116 million Dollars) had been lost on housing, while 10.2 million naria (0.078 million Dollars) was estimated to have been lost to soil erosion on land. About 32.8 million Naria (0.252 million Dollars) and 25.87 million Naira (0.20 million Dollars) were estimated to have been lost on farmland and mixed property in the study area. This shows that a total of 84.07 million Naira (0.646 million Dollars equivalent) had been lost to soil erosion in the study area within the past one decade as at the time of study.

Findings further revealed that nearly half (47.0%) of the compound heads indicated not to have benefited any relief from the Government or non-governmental bodies on their losses to soil erosion. Only 27.03% of them acknowledged to have been relieved in the past. The rest 25.93% of the compound heads did not respond to question on benefit as relief to those whose properties were affected by soil erosion in the study area.

Study showed that none of the compound heads had had any successful battle against soil erosion in the study area. The low level of income (53.22% of the respondents earning below 38.5 Dollars per Month) and poor education status (55.95% possessing less than Secondary School Certificate) of the people assert this. Secondary source of data revealed that the government of the area was not willing to commit more than 700,000 Dollars to erosion problem in any area of the Southeastern States (Olori, 2006).

Table II: Socio-economic Effects of Soil Erosion on the People of South-eastern Nigeria

Variable	Frequency	%
Prominent Natural Disasters		
Flooding	120	25.74
Gully Erosion	108	23.18
Landslide	108	23.18
Sheet / Rill Erosion	51	10.90
No Response	79	17.00
Total	*466	100.00
Victims relieved by the Government		
Yes	73	27.03
No	127	47
No Response	70	25.93
Total	270	100.00

Major Property Affected by Soil Erosion			Estimated value in million Naira and Dollar	
Property	Frequency	%	#	$
Housing	19	07.04	15.2	0.116
Land	28	10.37	10.20	0.078
Farming / Cropping	82	30.37	32.80	0.252
Mixed Property	62	22.96	25.87	0.20
No Response	79	29.22		
Total	270	100	87.07	0.646

Source: Authors' field Survey Data, 2002

CONCLUSION AND RECOMMENDATIONS

Soil erosion in the South-eastern part of Nigeria has been identified as the most threatened environmental hazards in the country. Secondary data on the study traced its origin to some 30 years ago when development began to creep into the region, following Nigeria's oil boom of the 1970s. Dugout pits, created from soil excavation activities, for foundation filling and sand for brick making and plastering of buildings produced deep craters and gullies due to perennial erosion from torrential tropical rains. This was further worsened by poor geologic set up of soil found in the area. This, happening over years, and not well managed had resulted to gullies, found in more than 1000 sites with over 700 of them located in Anambra State alone. Its effects spread over five states namely Anambra, Abia, Imo, Enugu and Ebonyi States. This initiated the zoning of the study area into five zones.
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Study revealed that most (89.25%) of the compound heads in the area were males; practicing farming(34.30%), trading(27.77%) or civil service (20.0%); with over 70% of them above 45 years of age. About 66% of them indicated to have settled in the study area more than 20 years before this study. In addition, more than half of the compound heads possessed less than secondary school certificates(55.95%) while 53.22% of them earned below 60,000 Naira per head annually, (an equivalent of 461 Dollars). The study area looses an estimated amount of 9 million Naira (an equivalent of 70,000 Dollars) yearly to soil erosion. Over 70% of the household heads responded to have lost one or more of their fixed assets to this environmental disaster, only 27% of them indicated that they had been relieved of their losses by the government in times past. Respondents' properties that were negatively affected by soil erosion in the study area include houses (7.04%), land (10.37%), farmland and crops (30.37%), mixed properties (22.96%). The low income and poor education status of the people posed greater threat to solving erosion problem in the study area.

There is need to control the degree of environmental abuse by house builders and construction firms in the area. This can be monotored by town planning and environmental

agencies in the area. There is the need to enforce the preparation of environmental impact assessment report, which must duly comply with international standard on any proposed project in the study area. Public must be educated on the environmental danger of not controlling illegal development and the future loss in interim development that has grave consequences. While the Government of the study area is not willing to spend more than 700,000 dollars to control erosion in a specific settlement, the region too is loosing an equivalent of the same 700,000 dollars to soil erosion within the space of a decade. Neglect of devastated areas could result in a future greater loss.In conclusion, the local and national governments, as well as international bodies concerned on environmental issues should work together to save South-eastern Nigeria from impending environmental doom.

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