

## INTRODUCTION

### 1.1 Background to the Study

Soil is an important resource covering the land surface. Mining is the process of getting minerals and soil components for various uses. Man depends on soil for agriculture, construction and even as a habitat for various organisms (Mwangi, 2007). People benefit from soil particularly sand and gravel but interfere and disturb the resource through excessive exploitation to fulfill their needs. There is worldwide concern about the environment which prompted the researcher to carry out this study on the environment. It seems there is excessive mining of soil components for construction in both rural and urban development. Gravel is mixed with river sand in filling and compacting foundations, river sand is a component of concrete in making slab while pit sand is required for plastering buildings. River sand is used in most mixtures because it is a strong resource which strengthens even pit sand in plastering and makes durable bricks (Morwaeng, 2013).

Sand is a valuable resource and main input in the construction industry in many parts of the world (Eiskine and Green, 2000, Gob, *et al*, 2005). Mining excavation involves the removal of sand from their natural configuration. Sand mining occurs both on small and large-scale in major parts of Nigeria. It has been observed that with an estimated 16 million housing deficit (Ezekiel 2010; Isah, 2011) and infrastructural development in Nigeria, there will continue to be the great demand for sand and other construction materials (Omolu and Ajakaiye, 1988). Sand mining is a practice that is used to extract sand, mainly through an open pit. Sand is also mined from beaches, inland dunes and dredged from ocean beds and river beds.

Sand is often used in manufacturing as an abrasive, for example, and it is used to make concrete. It is also used in cold regions to put on the roads by municipal trucks to help during heavy rainfall and extreme weather conditions, usually mixed with salt or another mixture to lower the freezing temperature of the road surface (have the precipitations freeze at a lower temperature). Sand dredged from the mouths of rivers can also be used to replace eroded coastline (Kadi, *et al.*, 2012).

The increasing rate of urbanization across the globe has brought with it several challenges ranging from physical, economic, social, to environmental among other issues (Cohen, 2006; Chelala, 2010; Kadi, *et al.*, 2012). To cater for the rapid urbanization, several sites are now being exploited for the excavation of sand. Traditionally, sites for sand mining are rivers and beaches; however, sand is mined from river months, banks and even at inland sand deposits.

Rapid urbanization is a major cause for the demand of sand mainly used for building construction and is responsible for unsustainable extraction of sand from the many illegal inland sand, mining pit, sand mining operators, citizens, and government becomes more confrontational as a result of more sand excavation sites located in urban and rural areas. Conflicts have centered on environmental and social issues such as noise, truck traffic, dust, stream water quality, reclamation, biodegradation, population and visually unpleasant landscapes (Willis and Garrod, 1999), and the citizens concern on the adequacy of regulatory efforts of the government to control these negative effects.

Environmental impacts of mining are well documented in the form of waste management, impacts of biodiversity and habitat, deforestation of land with the consequent elimination of the vegetation, pollution (water, air, land and even noise pollution, etc. (Abdus-Saleque, 2008). In Nigeria and many other tropical areas sand mining is a major cause of deforestation and forest degeneration, generating a large number of

environmental impacts (World Rainforest Movement, 2004). It is noted that large-scale mining activities generally continue to reduce the vegetation of most of the mining communities to levels that are destructive to biological diversity (Akabzaa, 2000). Davis and Tilton (2005) also suggest that local communities tend to bear the negative impacts of mining be it social, economical or environmental. It is therefore important to make effort to stem these problems through informed decision-making. However, making informed decision in many areas including monitoring sand mining activities often involves complicated processes for optimal decision making, information from various sources is required such as spatial information, which is essential to address activities of sand mining and their impacts on the environment (Burrough and McDonnell, 2002).

### **1.2 Statement of the Problem**

Abraka and Eku are both a growing urban centers which have experienced rapid population growth and physical expansion especially since the early 1990s with the establishment of the Delta State University which is situated at Abraka main town. This has resulted to the influx of people from different parts of the state. These in turn have exerted pressure on the needs for housing provision, in addition to construction of roads (Akinbode and Ugbomeh, 2006).

Sand mining is a direct cause of erosion, and also impacts the local wildlife. For example, sea turtles depend on sandy beaches for their nesting, and sand mining has led to the near extinction of gharials (a species of crocodiles) in Nigeria. Disturbance of underwater and coastal sand causes turbidity in the water, which is harmful for such organisms as corals that need sunlight. It also destroys fisheries, causing problems for people who rely on fishing for their livelihoods. Removal of physical coastal barriers such as dunes leads to flooding of beachside communities, and the destruction of picturesque beaches causes tourism to dissipate. Sand mining is regulated by law in many places, but is still often done illegally (Kadi, *et al.*, 2012).

Abraka and Eku are expanding at an alarming rate. Expansion means growth in infrastructure, construction of new roads, commercial malls and residential areas (Wokorach, 2002). There is need for use of various soil components such as pit sand, river sand and gravel from various sites surrounding the city. People seem to be extracting these soil components excessively without considering the impact on the environment. Most likely, there is overexploitation of soil leaving deep pits on bare ground while rivers are widening daily. Soil mining has become a daily sight with tipper trucks carrying pit sand, river sand and gravel from rivers and open fields. It seems there are no strict rules to govern soil extraction. Deep and wide pits are left when pit sand and gravel are collected, riverbeds widen and deepen after removing river sand, affecting aquatic while gravel removal destroy ecosystems, forests and agricultural land (Mbaiwa, 2008). Pit sand organisms is collected from River Ethiope, river sand is from Ovwuvwe river while gravel is extracted from River Ethiope. There seemed to be a problem of environmental alteration, ecosystem and agricultural land destruction as well as riverbed and bank degradation due to excessive removal of pit sand, river sand and gravel which prompted the researcher to investigate the depth of these environmental impacts.

Sand and gravel were continuously excavated along the beaches and valley of river Ethiope from Urhuoka to Ajalomi even up to the axis of the boundary between Abraka and Eku of the River Ethiope. Dredging equipments are seen mounted along the course of the river that excavated the sand into piles along the River Bank. Daily tonnes of sand are carried into the town with trucks loaded. Contractors who cannot afford dredging machine uses locally made canoes and shovels to scoop large amount of sand along the beds and banks of the River. The impact of this excavation apart from acting as a source of income to the residents,

are usually very negative.

The major problems associated with sand excavation and mining activities in Abraka-Eku region along River Ethiope include wrong channelization of the river channel, destruction of the riparian vegetation, degradation of the natural environment, impact on biodiversity, pollution of water, deforestation, erosion along the valley side slopes and disturbance of underground water and coastal sand causing turbidity in the water, which is harmful to organisms. Sand excavation causes degradation and severe effects on fish, causing problems for people who rely on fishing for their livelihoods. Sand excavation causes removal of physical coastal barriers such as dunes thereby leading to flooding of beachside, buildings, and disrupts tourism activities in the beaches. It is against this background that this study is conducted to investigate these problems and find possible ways to address the problems.

### **1.3 Aim and Objectives of the Study**

The aim of this study is to assess the effects of sand excavation on the environment of Abraka-Eku along River Ethiope. In order to achieve the above stated aim, the following specific objectives were considered;

To identify the various sand mining/excavation sites along River Ethiope in Abraka and Eku.

To investigate the effects of sand excavation on coastal areas where excavation is done in Abraka-Eku region along the River Ethiope.

To proffer solutions to the sustainability of the environment where sand excavation is going on in the area studied.

### **1.4 Research Hypotheses**

The following hypotheses guided the study;

Sand excavation has no significant impact on the environment of Abraka-Eku along River Ethiope.

Sand excavation has no significant impact on the coastal areas of the River Ethiope where excavation is done.

### **1.5 STUDY AREA**

The study area (Abraka and Eku) is located in Ethiope East Local Government Area of Delta and in the Niger Delta Region of Nigeria.

#### **1.5.1 Location and Size**

River Ethiope which cuts across the two study areas (Abraka and Eku) took its source from Umuaja in Ukwuani L.G.A Delta State. River Ethiope is located in the South-South geo-political zone of Southern Nigeria. Abraka is located geographically at latitudes  $05^{\circ} 45' 1''$  to  $05^{\circ} 50' 1''$  North of the equator and longitudes  $06^{\circ} 00' 1''$  to  $06^{\circ} 15' 1''$  East of the Greenwich Meridian. Abraka is situated at the Eastern Bank of River Ethiope in Ethiope East Local Government Area of Delta State in the Niger Delta region of Southern Nigeria. It is bounded to the North by Orhionwon Local Government Area of Edo State, and to the East and in the South and West by Ukwuani Local Government Area and the Ughelli North Local Government Area respectively. Abraka has a total area of landmass of 168,43square kilometer.

Eku is located geographically at latitudes  $05^{\circ} 45' 1''$  to  $05^{\circ} 05' 1''$  North of the equator and longitudes  $06^{\circ} 06' 1''$  to  $06^{\circ} 16' 1''$  East of the Greenwich Meridian. Eku is bounded in the North by River Ethiope, in west by Okpara-waterside, in the east by Abraka and in the South by Samagidi (both in Ethiope East L.G.A of Delta State). Eku has a total landmass of  $65,8\text{km}^2$ . The entire Ethiope East region falls under Agbon and Abraka clan which is part of the Urhoboland.

## **ASSESSMENT OF THE EFFECTS OF SAND EXCAVATION ON THE ENVIRONMENT OF ABRAKA-EKU ALONG ETHIOPE RIVER**

**The complete project material is available and ready for download. All what you need to do is to order for the complete material. The price for the material is NGN 3,000.00.**

**Make payment via bank transfer to Bank: Guaranteed Trust Bank, Account name: Emi-Aware technology, Account Number: 0424875728**

**Bank: Zenith Bank, Account name: Emi-Aware technology, Account Number: 1222004869**

**or visit the website and pay online. For more info: Visit <https://researchcub.info/payment-instruct.html>**

**After payment send your depositor's name, amount paid, project topic, email address or your phone number (in which instructions will sent to you to download the material) to +234 70 6329 8784 via text message/ whatsapp or Email address: [info@allprojectmaterials.com](mailto:info@allprojectmaterials.com).**

**Once payment is confirmed, the material will be sent to you immediately.**

**It takes 5min to 30min to confirm and send the material to you.**

**For more project topics and materials visit: <https://researchcub.info/> or For enquiries: [info@allprojectmaterials.com](mailto:info@allprojectmaterials.com) or call/whatsapp: +234 70 6329 8784**

**Regards!!!**