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Sconservation of Land Use Resources for Sustainable Development in Nigeria: The Way Forward

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Abstract: Resources are physically part of that segment of the physical environment that has a present or potential use for the survival and physical well-being of man, to be developed through the application of technological knowledge. The availability of human uses of these available resources for sustainable development is the chief criterion of resources and if properly managed can provide a regular production or flow for an indefinitely long period of time. Nigeria is abundantly blessed with various land resources of both renewable and non-renewable. The renewable resources include the forest, relief, water, wildlife and non-renewable resources which, like petroleum, have accumulated overtime and which once used and disposed are therefore unavailable. With the rapid growth of the Nigerian population, the societies have been demanding more and more from the earth's resources and affecting its land surface at ever increasing rate. Unfortunately some renewable resources are being used at rates that exceed the speed at which they can be regenerated. Nowhere is the more apparent than the destruction and deforestation of savannahs and the rainforests. The attention of this study focuses on the various natural wealth on Nigerian land. The quality, quantity and their economic uses of these resources were equally identified. Meanwhile, suggestions were made for optimum utilization of these resources for sustainable development of the country.

Key words: Conservation, land use, resources, sustainable development

INTRODUCTION

Resources are phenomena that are useful to man within a cultural setting. Resources are used to meet the needs of man within certain constraints and the constraints are manifested in terms of the supply of resources available to meet the needs of man. Neither the environment as such nor parts of the environment are resources until they are capable of satisfying mankind's needs. That is, resources are an expression of appraisal and represent an entirely subjective concept. For example, coal was not a resource without people whose wants and capabilities gave utility. That is availability of human use, not mere presence, is the chief criterion of resources. This shows that attributes of natural resources are no more than "neutral stuff" until man is able to perceive their presence, recognize their capacity to satisfy human wants and to devise means to utilize them[1].

Resources can be categorized into three groups:

- Natural resources which include Rocks, Minerals Vegetables, Water and Solar energy.
- Artificial or man made Resources: These are tools, machinery, goods, offices, etc.
- Human Resources: Labour input, human population.

Among the various natural resources to conserve to meet human needs are forest resources, soil resources, river bodies and lakes, man-made resource and mineral resources.

The resources and environment of urban centers all over the world are increasingly being depleted partly due to the pressure from the concentration of people[2] Human population is growing fast especially in Developing Countries. And desires for land increase daily. Forests are being destroyed daily for the purpose of farming, mining and uncontrolled timber exploitation. Wildlife habitats are encroached upon by other land users to the extent that some species have been gradually eliminated. Hence there is need to checkmate these in order to harness the resources for sustainable development.

Objectives of this topic: The objectives of this course of study shall include:

- Identify the specific types, locations, the qualities and quantities of the major land resources.
- Identify the economic uses of these resources.
- Examine the factors against the optimum utilization of the resources
- Suggest way forward for sustainable development.

TYPES AND LOCATIONS OF RESOURCES

Forest resources: Forest resources are within natural resources obtained from the forest ecosystem e.g plants as well as other benefits and services obtained from the forestry which are benefits to man. Forest resources are renewable as long as the use is not outstretched by the rate of regeneration or such as the rate of use does not push the stability of the ecosystem to a point that they cannot recover from the impact of use. In Nigeria for example, two broad belts of plants can be found: the forest and the savanna. The forest contains trees of different types which are of high value to man. e.g Mahogany, Iroko, Abora, Opepe, Masonia, Obeche, Sapele and Tropical cedart. In Savanna, thick back trees like locust bean tree, shea butter trees, oil bean trees and iksoberlina trees are found.

Economic value of forest resources: The economic uses of forest resources include productive, protective and aesthetic.

Productive uses

Timber: The various specie of trees such as Iroko, Mahogany, Obeche can be sawn into planks to produce furniture, carving, particle boards. It is equally as a source of fuel.

Medicine: Roots, barks and leaves of some species are used to cure malaria and other ailments.

Food: Some trees provide edible fruits such as Africa Star apple, nuts and mushrooms.

Protective uses

Soil conservation: Forests helped to prevent soil erosion. The soil surfaces covered by branches by trees protect soil from erosion. The roots have a binding effect on soil particles and also help soil aeration and water absorption.

Wildlife conservation: forests are habitats for wild animals. Some of these have been turned into game reserves e.g Borgu, Yankari and Obudu game reserves in Nigeria.

Water conservation: Some roots and trunks of trees reduce the speed of water run-off. Decaying organic materials make the soil porous thus increasing the rate of infiltration of water into the soil.

Forest cover increases fertility of the soil. The decaying forest trees such as leaves, serve as manure to the soil.

Aesthetic uses: Forests are great tourist centres e.g Forest Reserve and Game Reserve. For example Yankari, Obudu in Nigeria. The topography and forest microclimate provide a cool environment for recreation purposes.

Problems associated with forest resources: These are valuable species of trees for economic exploitation but they are scattered in the bush which made them so difficult for easy exploition. Special roads may have to be constructed in order to have access to a particular tree; this of course increases the cost of lumbering. The presence of the roots (buttress) in some forest trees makes felling so difficult. Another problem is the nature of the strands which makes lumbering difficult where the canopies intermingle with each other as usually the case, feeling becomes serious problem.

MINERAL RESOURCES

Mineral Resources are unevenly distributed over the surface of the earth. They occur in abundance, in some parts of the world, such as U.S.A., Canada, Britain, etc. while they are scattered and scarce in other areas of the world. Apart from the unevenly distribution, some are localised-found in relatively restricted areas. The extent to which mineral resources are exploited depends on the economic being and the incentive to mine or quarry them as well as the technical know-how and the ability to extract, process and convert them to useful ends[3].

Many nations of the world arte endowed beyond imagination. For example, Nigeria today boast of Diverse mineral resources which are scattered over space. Table 1-3 show the specific locations of some of these mineral resources.

Some of these minerals are potential money spinners for the Country. For example, Nigeria is a major oil producer and exporter and the country alone accounts for over 70% of African's oil exports[3].

Importance of minerals: Minerals provide direct employment for people engaged in their extraction and processing. They provide the basic raw materials needed in many manufacturing industries like steel, oil refineries, ship buildings, paper industries, etc. Minerals are necessary conditions for successful industrial take off.

Minerals are used in the manufacturing of basic human necessities of life like food, shelter and clothing, hence they make life comfortable for man.

Problems associated with mineral extraction: one of the major problem of mineral extraction is land degradation or dereliction. Wastes released in the mining area are

Table 1: Inventory of minerals in Nigeria

S/N	Minerals	Location states
1	Cassiterite	Kogo, Rishi Hill (Bauchi), Ririwai, Liruei (Kano), Dukse, Wai (Kaduna) Shere Hills (Plateau), Ijero (Ekiti), Isanlu (Kogi)
2.	Lead/zinc	Baban Sanni (Abuja), Ameri, Ameka, Ishiagu, Abakaliki and Enyigba (Ebonyi), Akwana, Arufu (Taraba).
3.	Iron ore	Agbaja (Kogi), Birin Gwari (Kaduna), Itakpe (Kogi), Enugu
4.	Manganese	Kaolin (Kebbi) and Giwa (Katsina)
5.	Gold	Birin Yauri, Laka (Kebbi), Bindin, Maru (Zamfara), Galadima Kogo (Niger), Iperindo, Itagunmodi (Osun), Dagbala/Ososo (Edo)
6.	Tantalite/ columbite	Nasarawa, Kogi, Kwara, (ijero) Ekiti, Oyo State and Abuja

Source; MSMD[4]

Table 2: Industrial minerals in Nigeria

S/N	Minerals	Location
1	Kaolin	Abeokuta (Ogun), Agbaja (Kogi), Awomama (Imo), Buan (River), Darazo (Bauchi), Giru (Kebbi), Omialafara, Omifon, Igbotako, (Ondo), Isan, Ijero (Ekiti), Ikot Ewere (Akwa Ibom), Kankara (Katsina), Major Porter, Nahuta, Plateau.
2.	Barite	Asara (Nasarawa)
3.	Gypsum	Fika (Yobe), Guyuk (Adamawa), Nafada Baruwo (Gombe), Wurno (Sokoto)
4.	Limestone	Mfamosing (Cross River), Shagamu, Ewekoro, Ilaro (Ogun), Yandev (Benue), Okeluse (Ondo)
5.	Marble	Burun (Abuja), Jakura, Osara, Ubo (KOgi), Muro Hills (Nasarawa), Ukpilla, Igarra, Ikpeshi, Egbigele, Igwe, Ososo (Edo), Moriki (Zamfara).
6.	Phosphate	Dange, Karsawa (Sokoto), Ifo, Ososun (Ogun)
7.	Silica Sand	Iwup/Okim (A' Ibom), Igbokoda (Ondo), Epe (Lagos).
8.	Talc	Auchi, Kankara (Niger), Ijero (Ekiti), Ilesha (Osun).
9.	Diatomic	Abakire, Bularaba (Yobe)

Source: MSMD[4]

Table 3: Other Notable minerals in Niigeria

S/N	Minerals	Location
1	Lignite	Ihioura (Imo), Ogwashi, Asaba (Delta), Oba/Nnewi (Anambra), Ute (Ondo), Uzzeba (Edo)
2.	Sub-bituminous coal	Ogugu/Agwu, Amasindo, Inyi, Ezimo, Okpara/Onyenma (Enugu), Ogboyoga, Okaba (Kogi), Lafia/Obi (PLateau), Doho, Kurumu, Pindisa, Garin Maigunga (Bauchi), Janata Kogi (Kwara), Afuze (Edo), Owukpa (Benue)
3.	Bitumen	Owan (Edo), Okitipupa, Irele, Agbabu (Ondo), Ijebu (Ogun), Epe (Lagos), Abia and Ebonyi

Source: MSMD[4]

deposited elsewhere. This deprives man the development. Apart from this, they cause pollution to the environment.

RIVERS AND LAKES RESOURCES

Rivers and lakes play a prominent role in the life of people. The importance of rivers and lakes include:

Means of transportation: Large rivers and inland waterways such as the great Lakes of North America serves as waterways. Nigeria is drained by two main Rivers-River Niger and Benue. River Niger which is the largest and largest in Nigeria has its source from Guinea Highlands. A continuous river of 4,200 kilometers long, passes through Mali, Niger Republic to Nigeria. About 1300 kilometers flow through Nigeria.

Irrigation: Large and long inland waterways are use fore irrigation purposes. Examples are Mississippi River in U.S.A. and Nile River in Africa. In Nigeria, large rivers in the Northern part such as rivers Kaduna, Yobe, Hadejia, Rima flowing in areas of low rainfall are used to aid crop cultivation.

Fishing: Fishing is done in both inland waterways, Lagoon and deep sea. The Nigeria Rivers Ogun Osun Niger, Benue, Cross, Lake Chad and Kainji are inland waterways for fishing.

Hydroelectric power: Electric powers are generated through the major Rivers throughout the world. Kainji dam and Shiroro dam are built on Rivers Nigeria and Kaduna, respectively to generate hydroelectric power in Nigeria.

Domestic and industrial uses: Home uses for drinking and washing and industrial uses for textile, breweries and chemical factories are good examples.

Recreation and tourism: Some Rivers and falls are centres of Tourist attractions. Example are Erim Ijesa waterfalls in Osun State of Nigeria, Ikogosi Warm Spring in Ekiti State (Nigeria).

Problems associated with rivers and lakes: The volume of the rivers changes with seasons. Increase in the rainy season and decreases in dry season. The rapids and cataracts along the river course impede inland waterways. Many of these rivers are shallow and salinity of some of these rivers are inimical to acquit culture.

SOIL RESOURCES

Soil as a resource can be grouped into 4 categories:

Sandy soil: They are fine sandy loam, relatively easy for cultivation of crops e.g The Northern Nigeria Zone of sand soil produces cotton in Nigeria.

Laterite soil: These soils are prominent in the Guinea Savanna Zone. They are deeply corroded, redish in colour, generally sticky and impervious to water. They are of little use for agriculture but good for road paving and building construction.

Forest soil: The forest soils are good for growing of Cocoa, Palm produce and rubber.

Alluvial soil: These are formed by river deposits and therefore are found on the flooded plains and coasted areas. They are good for crop cultivation such as rice and other cereals.

Problems of soils: Two major problems are associated with soils mostly in Nigeria. They are soil erosion and desert encroachment. Soil erosion causes the removal of top fertile soils meant for crop cultivation. Desert encroachment is common in the Northern part of Nigeria which is very close to the Sahara Desert.

MAN MADE RESOURCES

Most of the economic trees grown by man are of great importance for sustainability. Examples are palms, cocoa, rubber, kola, coffee and cashew. Kola is grown for internal exchange as only small quantity is being export. Kola is used in the dyeing industries. Coconut palm is grown, harvested, dried as copra for exports for the manufacture of foods. The oil from cashew trees is a good source of phenol which is used in making plastic and insecticides. Cocoa and rubber trees are economic trees in which the products are use in manufacturing industries.

MISUSE OF RESOURCES

Man in his quest for money and other material wealth has changed the surface of the earth. Removal of sand for construction and digging quarry sites for precious stones have rendered many land areas unproductive. Examples in Nigeria are coal site at Enugu, Tin site at Jos, limestone site at Ewekoro etc. The soils have been impoverished through incessant removal of the vegetation cover, poor conservation of farmland and the depletion of the nutrient through erosion.

The natural resources of the water bodies have also been greatly affected. The inland waterways are usually polluted with chemicals and causing a lot of havoc to fishing.

Oil spillage from oil producing areas have resulted to pollution of underground water, fishing and farming activities.

Deforestation through clearing of bushes for urban expansion, overgrazing by the normadics, felling of trees for lumbering have reduced forest to bare lands leading to soil erosion and leaching. Exploitation of timber causes depletion of natural forest. Deforestation has led to ozone depletion and global warning.

Deforestation and bush burning have led to the extinction of the various wide life in the forest.

THE WAY FORWARD

In order to use the resources available to transform the lives of people, the following steps may be considered:

- The forest land which are gradually turning to Savanna due to uncontrolled felling of trees bush burning, hunting and overgrazing must be controlled. Afforestation must be encouraged, that is, forest land must be preserved for economic sustainability. Planting of economic trees such as cocoa, palm trees, cashew, forest and wildlife conservation must be encouraged because they have strong economic basis in the survival of mankind.
- The inland waters are good transport routes for haulage of good and people. The problem of shallowness of the water ways due to the accumulation of silts and debris can be overcome by dredging and proper maintenance of coastal lands and river banks.
- The mountains, hills, undulating plains waterfalls and springs can be developed for recreation and tourism purposes.
- The problem of erosion could be abated by planting trees to serve as wind brakes. Flood could be controlled through channelization and other environmental regeneration schemes. Other methods include afforestation, controlled grazing, contour ploughing, cover cropping, hill terracing and enlightment programmes on soil conservation measures.

CONCLUSION

It has been observed that Nigeria is a nation blessed with enviable abundant resources. These resources are components of the physical environment that are of use to man. As a result of the presence of both renewable and non-renewable resources, their present and future should

be a matter of concern to policy analysts and decision makers. Also, the identification and monitoring of the existing resources; the allocation and regulation of these resources to meet the societal or national objectives for sustainable development are to be the concern of resource managers.

Meanwhile, the specific types of the resources, the location, the quality and quantity of the available resources and their major uses have been highlighted. Also, in order to use the resources available to transform the lives of the societies, some suggestions have been fully analysed. Hence, the efficient harnessing of all resources available will help to checkmate the misuse of the resources and boost the economy of the nation.

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