MODULE 2

UNIT 1 CONSERVATION

CONTENTS

1.0 INTRODUCTION

The idea behind conservation is peculiar to the founding of the earth itself, while the application of the principle in its present parlance is relatively new. In the previous years, conservation required many connotations, to some it simply means, the protection of wildlife; to others it means the sustained production of useful materials from the resources of the earth. Full details of these definitions shall be considered as we progress in this unit.

2.0 OBJECTIVES

At the end of this unit, you should be able to:

- explain the general concept of conservation;
- define the term and trace the history of the concept;
- state its importance to the environment and the populace;
- outline the laws and policies guiding conservation; and

- discuss extensively conservation as it relates to the environment.

2.1 HOW TO STUDY THIS UNIT

1. You are expected to read carefully through this unit twice before attempting to answer the activity questions. Do not look at the solution or guides provided at the end of the unit until you are satisfied that you have done your best to get all the answers.
2. Share your difficulties in understanding the unit with your mates, facilitators and by consulting other relevant materials or internet.
3. Ensure that you only check correct answers to the activities as a way of confirming what you have done.
4. Note that if you follow these instructions strictly, you will feel fulfilled at the end that you have achieved your aim and could stimulate you to do more.

3.0 MAIN CONTENT

3.1 Definition of Conservation

The word conservation means different things to different people; the word conservation is an ethic of resource use, allocation, and protection. Its primary focus is on maintaining the health of the natural world: its, fisheries, habitats, and biological diversity. Secondary focus is on materials conservation and energy conservation, which are seen as important to protect the natural world. While conservation biology is the scientific study of the nature and status of Earth's biodiversity with the aim of protecting species, their habitats, and ecosystems from excessive rates of extinction. It is an interdisciplinary subject drawing on sciences, economics, and the practice of natural resource management.

Hornby (1984 p.309) defined the concept as the protection of Natural environment and the official protection of buildings that have historical or aesthetic importance and the act of preventing something from being lost, wasted, damaged or destroyed.

Conservation involves practices that perpetuate the resources of the Earth on which human beings depend and which seeks to maintain the diversity of living organisms that share the planet. These activities include the protection and restoration of endangered species, the careful use or rejecting of scarce mineral resources, the national use of energy resources, and the sustainable use of soils and living resources. (Fubara, 1998 p.21).

The most generally acceptable definition presented in 1980 in world conservation strategy by the International Union for Conservation of Nature and Natural Resources, is that of "the management of human use of the biosphere so that it may yield the greatest sustainable benefit while maintaining its potential to meet the needs and aspirations of future generations."

It is important to note that naturally, the idea behind conservation is to conserve habitat in terrestrial eco-regions and stop deforestation , to protect sea life from extinction due to overfishing is another commonly stated goal of conservation ensuring that "some will be available for our children" to continue a way of life.

We will reiterate that this idea brought up the establishment of most non-governmental organisation in the direction of conservation of our environment and to leave legacies to generation yet unborn. The most important of the issues include the depletion of atmospheric ozone by the action of chlorofluorocarbon (CFC), the green house effect and the destruction of the tropical rainforests.

3.2 History of Conservation

It is important to note the history of conservation dates back to the earlier times with the preservation of medicines it is crystal clear, that, in the pre-historical era, it was on record that people did modify their natural environment. Early hunting and gathering cultures contributed to extinction of some animals species, although this seems to have been more of an exception than a general practice. For the most part, early man lived in an equitable balance with the natural environment, for no other reason than its necessity. If they have done much damage, people could not have survived.

In addition, in the past 10,000 years, agriculture has been practiced and urban civilisation has been in existence since 6,000 years.

However, in the Middle Age, some animal species were protected or conserved by religious taboos; fear of religion sanctions prevented the extinction of forest grooves and sacred mountains. The method of applying organic fertiliser to maintain soil fertility is found among many primitive people and has had a long history in Western agriculture.

This age equally show evidence of the creation of game reserves and parks to protect wild life and natural resources alike. In addition, they were hunting specifically in reserves for the use of royalty; this in turn served a conservation function.

It is worth mentioning, the agricultural landscapes of Western Europe, China and Japan which was a reflection of a great skill in the pre-industrial era in the conservation of soil resources. One cannot forget easily the irrigated Nile Valley and Volcanic soils in the tropical South East Asian which has kept functioning and productive over a thousand years.

However, in the 19th and 20th century the civilisation brought by the European colonizers led to soil erosion and destruction of natural vegetation and wildlife in the colonised territories such as America, Australia, India and Africa.

The 19th century culminated into severe environmental degradation in many countries. For example, in Australia livestock were allowed to increase in population to levels far beyond what the natural forage could support. As a result, many animals were lost during drought, and the system of over foraging destroyed the land to such a degree that they have not yet recovered. In the Southern part of Africa, many types of wildlife were hunted to extinction while the population of the majority of the larger mammals were depleted that could hardly sustain their survival.

Conservation in the Millennium (21st Century) Okorodudu – Fubara posited that "it could have been predicted that the modern conservation movement would have its beginnings not in the settled hands of the old-world but in those areas of the New World, where, within the memory of a single generation, there had been extreme changes in the landscape and in the abundance of wildlife. The response to the destruction of natural resources in those areas necessitated the establishment and development of conservation movement".

The national parks which is meant for preservation of wild nature and the provision of outdoor recreation space, have developed unprecedentedly and side by side with national – forest systems, preserved for the multiple use of wild-land resources have become firmly established.

The conservation of wild life becomes a cause of national interest which led to the establishment of different nature resources and wild land resources, in some cases exceeding their primitive numbers.

Conservation oriented management of forest lands, which developed more from its origin in Europe than from practices in the United State have become more widely acceptable all over the world.

The management of wild animals in extensive wilderness areas of Africa, India and Soviet Union made major strides, which possesses usual wildlife resources and retained large areas of wild land. From the above analysis, the concept of conservation and its management cannot be studied in isolation of its historical growth.

And finally most countries of the world by 1992 had become committed to the principles of conservation.

3.3 Concept of Conservation

1. Natural Resources

The need for natural resources under conservation cannot be ignored with a wave of hand. Natural resources especially the ones found in commercial quantity and quality were regarded as sources of most useful commodities worldwide. These raw materials are found in the environments that were used or capable of being used by people for various purposes: minerals and fuels, forest and grazing resources, wildlife, fisheries/acquirable animals and the like. The concept could mean all of these or more.

It is important to note that the concept of natural resources due to changes and research has been widened to mean that entire natural environment.

Note also that the atmosphere, oceans, deserts and Polar regions have all become valuable resources that must be properly managed with care and sincerity of purpose to provide for the future.

2. The Need for Human (Primary/secondary need)

Generally, the main human primary desires and natural resources needed for the sustenance of life include energy in the form of organic foods that are digestible, are capable of being assimilated and contain adequate amounts of proteins, fats, vitamins, carbohydrate and minerals. Water with low content of dissolved salts and free from toxic or injurious substances, air that contain an adequate quantity of oxygen by no harmful materials, and an external sources of energy for heating and cooling, as well as various materials from which clothing and shelter can be fashioned to provide warmth in cold weather and humidity in excessively hot weather.

Naturally, the need of people all over the world, are almost the same as the world is turning to a global village and these needs are secondary in nature. It is however important to reiterate these needs further. These no

doubt include those materials or energy sources needed to maintain an urban civilisation.

3. Agricultural and Urban Development

The needs of man was sufficient in the early times and where proportionate with what was available the desire for more was virtually absent, but as the population soon increased tremendously then the people soon outnumbered the capacity of the original existing natural environment to supply their primary needs.

As a result, the first set of secondary needs developed – farming tools and later, domestic animals to help use the tools more effectively and, for the latter, the food supplies necessary to sustain and keep them alive. And this led to the need of variety of fertilisers to boost agricultural food production.

However, the need for more non-living natural materials/resources along with the rapid development of agricultural lands and settled villages was inevitable at this instance.

Nevertheless, human wants tend to multiply as the greater leisure of civilise life enables part of the problem not just of survival, but equally to sustaining the environment for the generations unborn.

4. Industrial and Technological Growth

As the world has turned into a global village, the demand for industrial and technological growth is one of the most widely needed of all, and this has actually snowballed. In the present dispensation, concentrations is more on the resource scarcely consumed in the previous centuries and are largely consumed such as berylliums for rockets, uranium for nuclear fuel, natural gas, coal, and petroleum.

The need for other resources is the result of the desire to live in greater numbers and at a standard of living considerably higher than previously enjoyed.

It is imperative to note that, with the growing human population, with an expanding technology that becomes ever more demanding, and with the growing demands for material goods, the pressure on the earth's natural resources increases steadily."Whether or not the available quantities of these resources are sufficient to meet humanity's growing wants and needs, is uncertain" (Okorodudu Wabara, 1998: 24).

3.4 Importance of Conservation

The importance of conservation to mankind or human survival is primary. Generally, it is useful to note that human life depends on proper functioning of the biosphere – the relatively narrow zone of air, water, soil and rock in which all life on earth depends. The ultimate purpose of conservation is to protect the biosphere in a healthy operating condition.

However, plants and animals generate nutrients not left out of this cycle that require to be conserved and which helps to maintain the fertilities of soil, many of the elements that contribute to the proper functioning of the biosphere have not yet been identified. Then the need to preserve and care for the environment is unavoidable.

1. Prevention of Pollution

Conservation prevents pollution of nature: There are many examples of the serious effect of pollutants in air, water or soil on human health and survival which conservation would have prevented. For instance the dumping of toxic wastes in Koko, Delta State and Ilogbon – Iyana Offa, Ibadan, Oyo State, Nigeria which claimed many lives. And the dumping of Mercury containing wastes into the rivers in Japan caused death of many people.

2. Economic Importance

The economic importance of conservation may be rarely appreciated. However, the floating plants of the ocean, the microscopic phytoplankton, are of little direct economic importance to human beings, for instance, their elimination from the food chain would quickly destroy the world's marine fisheries that constitute a major source of human diet and the world's source of Oxygen supply.

3. Aesthetic and Recreational Value

It is pertinent to note that the wild nature is one of the sources of aesthetic pleasure and the use of wild lands and wild-animals resources for recreational enjoyment cannot be ignored with impunity. These values have long been recognised as among the more important values of conservation.

The much exciting traditional and even modern sports that associated with nature like fishing, hunting, beating, swimming, boat racing, sunbathing, skiing and picnicking grouped amid the outdoor based

recreational activities are in tune with the continued existence of natural or near-natural environment as the sites for these activities.

The recreation value or importance of aesthetics of nature in terms of the psychological or sociological importance become very imperative because they vary from one culture to another, evidence indicates that, as personal affluence and the freedom from the sheer struggle for survival increases, the demand for outdoor recreation and outdoor space also increases.

4. Scientific Value

This is one of the vital areas of importance of conservation; it has a great scientific value. This is as a result of the fact that relatively little is known about the past, present and possible future of the biosphere, natural outdoor laboratories including areas of undisturbed nature, must be maintained in order to conduct the studies needed to acquire knowledge.

However, this has brought conservation biology into focus, and the need for so many fields of plants and animals with undiscovered scientific values. This is because wild plants and animals contain a storehouse of genetic and biochemical information, the loss of single specie might cause the loss of information that could ultimately have great value for mankind's welfare and survival.

3.5 Laws and Policies Guiding Conservation

It is imperative to note that no nation can survive in isolation, laws and policies are essential part of survival of any nation. The states of the world have now shifted to the states of sustainable development. The global conferences on environmental development have severally drummed up the sustainability of national programmes and plans meant to protect the current generation and generations unborn.

Law and policy have made great impact towards achieving the holistic objective of nature sustainability through concept of conservation.

There have been a lot of laws and policies from the federal level to the state level, this is however important in all areas of the human endeavour like water, land and air resources just to mention a few.

It is important to note that the misuse of land can have harmful impact on the environment and co-existence of man. Before the promulgation of Land Use Decree in1978 by the Obasanjo Military Regime, ownership

of freehold or customary land imposed no corresponding obligations on the quality of development.

One stunning aspect of the Land Use Decree is the conservation and protectionist policy. For instance, control over the manner in which land is used would if efficiently implemented reduce incidents of slum housing, under utilisation or unproductive use of agricultural lands and wanton assault on or destruction of the natural resources of the land.

There are other specific laws and national policies which complement the objective of Land Use Decree. And that the performance of the agricultural sector is critical to conservation of land resources. The main objective of land resources policy outlined under the National Agricultural Policy, 1988, "is to rehabilitate areas of the country that are affected by drought, desert encroachment, soil erosion and flood; to prevent the spread of these natural disasters to other areas through effective protection measures".
Several attempts have been made to control the problems of deforestation and desertification which are some of the main problems of our environment through the enactment of appropriate legislation. These problems are caused mainly by the haphazard spread of agriculture, commercial timber felling, and wood cutting for fuel to serve the energy needs of the people both in urban and rural areas, game related, bush burning, accidental, and deliberate bush burning. For example, the Ondo State Government enacted the control of Bush Burning Edict 1989, Edict No. 4 purposely to protect the State and its people from the adverse effects of indiscriminate bush burning. This was a decisive response to one of the major causes of forest depletion in Nigeria.

Other international treaties that Nigeria ratified asides the laws it enacted are the Convention on International Trade in Endangered Wild Species of Fauna and Flora which aimed at ensuring through international cooperation, the protection of certain species of wild animals and plants against over exploitation through trade. However, in 1977, Nigeria and Cameroun with Niger Republic ratified an agreement in the Joint Regulation of Fauna and Flora on the lake Chad Basin.

The promulgation of the Endangered Species (Control of International Trade and Traffic) Decree 1985 not only gives municipal effect to the related international treaties provisions but equally significant it expressly prohibits the hunting, capture of, or trading in any of the ninety one animal species as specified in scheduled 1 and 2 of the Decree. There are also legislations in other to protect the water of the nation and these are:

- The River Basin Development Authorities Decree, 1987 which repealed an earlier statute, the River Basin Development Authorities Decree 1976. The Law establishes eleven River Basin Development Authorities in the country. The statute specified the following requirements in each of the authorities' specific region of operation.

And each states as well as the Federal government promulgated laws to avert the surge of water pollution.

- The Oil in Navigable Waters Decree, 1968, prohibits the discharge of oil into designated sea areas and made provision for penalties for the specified offences. It gives municipal effect to the international convention for the prevention of pollution of the sea by oil, 1954, which Nigeria acceded to on April 22, 1968. The minister of Petroleum is mandated to full charge by the Decree.
- The Petroleum (Drilling and Production) Regulations, 1969 which provides that a licensee or lessee shall take practicable precautions to avoid pollutions of inland water systems as well as territorial water of Nigeria or the high seas by oil, mud or other fluid or substances capable of causing harm or destruction to fresh water or marine life. If such pollution through spillage occurs, the licensee or lessee must take prompt steps to control and if possible prevent it. This is in line with S.26 of Petroleum Decree 1969.
- The Harmful Waste (Special Criminal Provisions etc) Decree, 1988, which was enacted by the Federal government in swift reaction to the illegal dumping of hazardous wastes from abroad in certain parts of the country, prohibits the dumping of harmful waste in any form into any territorial water or Exclusive Economic Zone of Nigeria or its inland waterway.
- Lagos State government made a provision similar to the above when it enacted Lagos State Environmental Pollution Control Edict, 1989, that "No person or group of persons shall dump or burry or cause or allow to be buried or dumped in any water within the state any toxic or hazardous substance or harmful wastes". This was repealed by Lagos State Environmental Protection Agency Edict No. 9, 1997.

These are laws and policies in relation to the protection and conservation of the air we breathe, for a clean air situation to be attained. The National Policy on the Environment 1989 and 2007 has enumerated the following strategies.

a. Designating and Mapping of National Air Control Zones (ACZ).
b. Declaring air quality objectives for each designated Air Control Zones.
c. Establishing ambient air quality standards and monitoring stations at each designated zones.

d. Provision of standards for factories and other activities which emit pollutants into the air.
e. Licensing and registering of all major industrial air polluters and monitoring their compliance with laid down standards.
f. Provision of guidelines for abatement of air pollution.
g. Prescribing stringent standards for the level of emission from automobile exhausts and energy generating plants and stations.

4.0 CONCLUSION

Conservation is an inevitable aspect of our daily life and it is pertinent to protect our environment to the fullest and make judicious use of it for the next generation. It is imperative to note that conservation through the efforts of various non-governmental organisations has done a lot in preserving our environments.

5.0 SUMMARY

In summary, this unit has been able to discuss conservation in general as it relates to human existence. It is of paramount concern that you should be able to discuss conservation from its definition, to the historical development of the concept and its importance to the human race and finally the laws and policies guiding its sustenance.

6.0 TUTOR-MARKED ASSIGNMENT

i. Define the concept of conservation and relate its importance to the human race.
ii. Discuss the efforts of both international organisations and the Nigerian government towards sustaining our natural resources.
iii. state the laws and policies guiding conservation
iv. state the importance of the environment and populace

7.0 REFERENCES/FURTHER READING

David, W. (2002). *Environment and Law*. London and New York: Routledge.

David, W. QC *et al.* (2008). Environmental Law. Oxford: Oxford University Press.

Grove, R.H. (1997). *Ecology, Climate and Empire: Colonialism and Global Environmental History 1400-1940*. Cambridge: Whitehorse Press.

Land Use Act 1978.

UNIT 2 WASTE AND WASTE MANAGEMENT

CONTENTS

1.0 INTRODUCTION

Waste generation is a part and parcel of our daily life, as it is reiterated that only the dead do not generate waste, it is considered that every human being is expected to generate waste. The management of this waste is imperative in order to avoid some level of environmental pollution. It is also pertinent that waste is a natural consequence of life in both human and ecosystems and industries. As human consumption increases, so does waste.

The thinking of government and many others in this direction of waste has changed radically

2.0 OBJECTIVES

At the end of this unit, you should be able to:

- discuss the concept of waste and waste management;
- mention the sources of laws regulating this concept; and
- note the efforts of some Nigerian state governments in the management of waste.

2.1 HOW TO STUDY THIS UNIT

In this unit you are expected to:

1. Read through the course contents on your own
2. First attempt the activities, then the TMA without looking at the hints provided by the author
3. Make observations on all your difficulties to your facilitator
4. Confirm your work on the activities after you have done your best to get all correct

3.0 MAIN CONTENT

3.1 Waste

Waste has been defined by various environmental experts. It is defined in the Oxford Advanced Learners Dictionary' 4th Edition as something that is not or no longer useful and is to be thrown away, or disposed of.

It was also defined by M. Purdue, as any act or omission which results in a change in the land for better or for worse, example, and conversion of arable land into a timber plantation.

Then, the World Health Organisation (W.H.O) defines the concept as something which the owner no longer wants at a given place and time and which has no current or perceived market value.

The United Kingdom Environmental Protection Act of 1990 defines waste as:

a. Any substance which constitute a scrap material, an effluent or other unwanted surplus substance arising from the application of any process.
b. Or any substance or article, which needs to be disposed of, as being broken, worn out, contaminated or otherwise spoiled.

However, the Lagos Sate Environmental Sanitation Edict of 1985 No12 attempts a definition similar to that of the United Kingdom.

Sources of Wastes

Wastes can be classified into various sources like the control wastes, and dangerous wastes. Control wastes are household wastes e.g. food, office wastes, commercial wastes and wastes from stores. These are set of wastes that can be easily managed, treated, recycled and disposed of.

However, dangerous wastes are wastes that are too treacherous to treat, keep or dispose of. These are wastes that include acid, alkalis lead, mercury, and methyl etc. they are wastes that are dangerous to human life if swallowed, inhaled, or in contact with the human nature.

3.2 Waste Management

Waste management is the collection, transport, processing or disposal, managing and monitoring of waste materials. The term usually relates to materials produced by human activity, and is generally undertaken to reduce their effect on health, the environment or aesthetics. Waste

management is a distinct from resource recovery which focuses on delaying the rate of consumption of natural resources

Waste management practices differ for developed and developing nations, for urban and rural areas, and for residential and industrial producers. Management for non-hazardous waste residential and institutional waste in metropolitan areas is usually the responsibility of local government authorities or the state.

There several methods of waste disposal that makes the management easier and effective are landfill, incinerator, energy recovery and resource recovery.

1. Landfill

Disposing of waste in a landfill involves burying the waste, and this remains a common practice in most countries. Landfills were often established in abandoned or unused quarries, mining voids or borrow pits. A properly designed and well-managed landfill can be a hygienic and relatively inexpensive method of disposing of waste materials.

Many landfills also have landfill gas extraction systems installed to extract the landfill gas. A typical example of a landfill is the one located in Ojota in Lagos State.

2. Incineration

This is also another method of waste disposal that aids the effective management of the concept. Incineration is a disposal method in which solid organic wastes are subjected to combustion so as to convert them into residue and gaseous products. This method is useful for disposal of residue of both solid waste management and solid residue from waste water management. This process reduces the volumes of solid waste to 20 to 30 percent of the original volume.

Incineration is common in countries such as Japan where land is scarce, as these facilities generally do not require as much area as landfills. Waste-to-energy (WtE) or energy-from-waste (EfW) is part of the features of incineration. A typical incineration in Lagos State is the centre in Simpson and the waste to energy center in Ikorodu.

There a lot of other waste management methods but are rarely in use in Nigeria and they include Energy recovery, Resource Recovery and Avoidance and reduction methods of waste management. Recycling is also a part of the methods of waste management in use in Nigeria.

Waste collection methods vary widely among different countries and regions. Domestic waste collection services are often provided by local government authorities, or by private companies in the industry. However, in Lagos State, the state government is responsible for waste collection through the private participation of companies, and the effective door to door collection have seriously reduced the menace of refuse disposal in the state.

The issue waste management cannot be discussed without a mention of marine waste management, the NIMASA DG Mr. Zikiade Patrick Akpobolokemi, noted that investment in waste management in the Nigerian marine environment would not only improve the country's rating in the global maritime industry, but also have a multiplier effect of employment generation in Nigeria amongst others. "It is to the benefit of Nigerians that this public private partnership model of managing waste in our marine environment is sustained and encouraged to grow rapidly.

Stages in Waste Management

The various stages involved in waste management are:

1. **Generation**: This is the stage when materials becomes waste and is discarded. The generation rate is often defined as the weight of material discarded as solid waste by one person in one day.
2. **Storage**: House storage, keeping solid waste in place or containers which is the responsibility of the individual members of the household while, Command storage, is the responsibility of the refuse collection agency.
3. **Collection**: This has to do with transportation of the solid waste from the point of storage to the point of disposal; two stages are involved in the collection stages.
    a) **The direct collection:** which makes uses only one means of transportation i.e. the Solid waste is picked up from the point of storage in a truck that takes it to the disposal site.
    b) **The second stage collection:** carries the solid waste from the storage facility to the Transfer Station, at the Transfer Station, the waste is loaded into the secondary stage, to transport the refuse to the Disposal site.

c) **Disposal**: The final destination of solid waste, usually it is dumped on land at a tip, this may be done in an engineered and hygienic way: - sanitary landfill or controlled tipping, or in a carelessly open tipping or crude dumping.

3.3 Sources of Laws Governing Waste Management in Nigeria

There are lots of laws governing waste management in Nigeria, these waste could come in different ways including the marine wastes just to mention a few. And these laws dates back to the colonial era:

- Public Health Act, 1917
- Water Works Act, 1915
- FEPA Act 1988, now NESREA Act 2007
- Petroleum Act, 1969
- Oil in Navigable Waters Act of 1968
- Lagos State Environmental Pollution Control Edict of 1991

Others at the international level are:

- Basel Convention on the control of Trans-boundary Movement of Hazardous Wastes and their Disposal 1989
- Vienna Convention on the Protection of the Ozone Layer 1987
- Montreal Convention on Substances that deplete the Ozone Layer 1987.
- The Kyoto Convention on the Depletion of the Ozone Layer, 2003

4.0 CONCLUSION

Waste generation, disposal and management are a daily part of our life that needs not to be treated with impunity. It is important to also reiterate the efforts of the Lagos State government in waste management including hazardous and medical wastes just to mention a few.

5.0 SUMMARY

In this unit, it is important to note that we discussed the concept of waste and its management. You should be able to provide different definitions of it; you should also be able to explain the concept of waste management and the sources of laws regulating its management.

6.0 TUTOR-MARKED ASSIGNMENT

i. Waste Management in Nigeria is a concept that is relatively new. Explain this with the methods of waste management available.
ii. Explain the relevant laws that are sources of law on waste management in Nigeria.

7.0 REFERENCES/FURTHER READING

Atsegbua, L. *et al*. (2003). *Environmental Law in Nigeria: Theory and Practice*. Lagos: Ababa Press Ltd.

David, W. QC. *et al* (2008). *Environmental Law*. Oxford: Oxford University Press.

UNIT 3 ENVIRONMENTAL POLLUTION AND MANAGEMENT

CONTENTS

1.0 INTRODUCTION

It is important to note that pollution is an inevitable aspect of the environment. It is pertinent to note also that industrialisation has resulted in high degradation of the environment causing untold human health hazards, especially in most urban and semi-urban centres.

The workers in most of these industries and the members of public are not protected against the health hazards due to exposure to hazardous chemicals which these industries release into the environment.

The global environment is also being threatened by the problem of acid rain, ozone layer depletion and climatic modification. The effect of this is devastating on the environment and the health of the populace in general.

2.0 OBJECTIVES

At the end of this unit, you should be able to:

- discuss the definition, nature and history of the term pollution;
- state the types and sources of pollution to the environment;
- explain the causes and its effect on the environment and the people; and
- mention laws, policies and regulations guiding it.

2.1 HOW TO STUDY THIS UNIT

In this unit you are expected to:

1. Read through the course contents on your own
2. First attempt the activities, then the TMA without looking at the hints provided by the author
3. Make observations on all your difficulties to your facilitator
4. Confirm your work on the activities after you have done your best to get all correct

3.0 MAIN CONTENT

3.1 Definition of Pollution

Pollution is the introduction of contaminants into a natural environment that causes instability, disorder, harm or discomfort to the ecosystem i.e. physical systems or living organisms. Pollution can take the form of chemical substances or energy, such as noise, heat or light. Pollutants, the elements of pollution, can be either foreign substances/energies or naturally occurring contaminants.

Pollution is the harmful effect on the environment of by-product of human activity, principally industrial and agricultural processes. For example, noise, smoke, car emissions, chemical affluent in seas and rivers particularly sewage and household waste (all contribute to greenhouse effect).

It is further stated that natural disasters may also cause pollution; volcanic eruptions, for example, cause ash to be ejected into the atmosphere and deposited on land surfaces. Pollution can also be the consequence of a natural disaster. For example, hurricanes often involve water contamination from sewage.

Pollution is assumed to be a relative concept because although almost no substance exists in pure state, it is only when the impurities rise above a certain level that it becomes dangerous and harmful. Therefore, pollution can be defined as the addition to air, water and or of any material (or heat) usually found there or that is in excess of normal amount.

Pollution has also been defined under the Environmental Protection Act 1990 S 1(1); this involves pollution due to the release into any environmental medium from any process of substances which are capable of causing harm to man or any other living organisms supported by the environment.

Hodge posited that pollution is the introduction by man into the environment of substance or energy liable to cause hazards to human health, harm to living resources and ecology system, damage to structure or amenities or interference with legitimate of the environment.

In a similar vein, the FEPA Act in S38 defines "Pollution" as "Man-made or man – aided alteration of chemical, physical or biological quality of the environment to the extent that is detrimental to that environment beyond acceptable limits".

The UN conference on Environment in 1972 at Stockholm defines pollution as "the discharge of toxic substances and the release of heat, in such qualities or concentration as to exceed the capacity of the environment to render them harmless".

3.2 History and Nature of Pollution

The history of pollution dates back to the 1272 in England when King Edward I banned the burning of sea-coal by proclamation in London in 1272, after its smoke had become a problem. Air pollution is the most common type of pollution and would continue to be a problem in England, especially later during the industrial revolution, and extending into the recent past with the Great Smog of 1952.

It was the industrial revolution that gave birth to environmental pollution as we know it today. The emergence of great factories and consumption of immense quantities of coal and other fossil fuels gave rise to unprecedented air pollution and the large volume of industrial chemical discharges added to the growing load of untreated human waste.

Pollution became a popular issue after World War II, due to radioactive fallout from atomic warfare and testing. Then a non-nuclear event, The Great Smog of Pollution began to draw major public attention in the United States between the mid-1950s and early 1970s, when Congress passed the Noise Control Act, the Clean Air Act, the Clean Water Act and the National Environmental Policy Act. In1952 in London it killed at least 4000 people.

The issue of environmental pollution became glaring worldwide and in the continent of Africa respectively shortly after the 1972 United Nations Conference on Human Environment at Stockholm the emergence of environmental protection as a new focus of legislation was confirmed so as to avoid crisis but equally emphasised the close inter relation between the environment and development. (Mowoe K 1990 – 171 – 2)

In Nigeria, the issue of pollution came to the forefront after the Koko toxic waste saga that happened in 1988. It is important to reiterate further that oil spill is another form of environmental pollution that has become a menace that need to be fought.

It was this issue that triggered the response of the Federal Military Government to this incident that led to promulgation of the Federal Environmental Protection Agency Act, 1988 and the Harmful Waste (Special Criminal Provision)) Act of 1988.

Subsequently, in 1992, the UNO's Earth Summit in Rio de Janerio in Brazil emphasised the close relationship between the environment and development. They also insisted that development must be sustainable through meeting the needs and aspirations of the current generation without compromising those of future generations.

3.3 Types of Pollution

Pollution can take any form; it depends on which area of the environment that has been polluted that will culminate into a particular type of pollution.

There are various forms of pollution in the environment and these include:

- *Air pollution*: - the release of chemicals and particulates into the atmosphere. Common gaseous pollutants include carbon monoxide, sulfur dioxide:- chlorofluorocarbons (CFCs) and nitrogen oxides produced by industry and motor vehicles. Photochemical ozone and smog are created as nitrogen oxides and hydrocarbons react to sunlight.
- *Light pollution*: - includes light trespass, over-illumination and astronomical interference.
- *Littering*: - the criminal throwing of inappropriate man-made objects, unremoved, onto public and private properties.
- *Noise pollution*: - which encompasses roadway noise, aircraft noise, industrial noise as well as high-intensity sonar.
- *Soil contamination:* occurs when chemicals are released intentionally, by spill or underground leakage. Among the most significant soil contaminants are hydrocarbons, heavy metals, MTBE, herbicides, pesticides and chlorinated hydrocarbons.
- *Radioactive contamination*: resulting from 20th century activities in atomic physics, such as nuclear power generation and nuclear weapons research, manufacture and deployment. (See alpha emitters and actinides in the environment.)

- ***Thermal pollution***-: is a temperature change in natural water bodies caused by human influence, such as use of water as coolant in a power plant.
- ***Visual pollution***-: which can refer to the presence of overhead power lines, motorway billboards, scarred landforms (as from strip mining), open storage of trash or municipal solid waste.
- ***Water pollution***-: by the discharge of wastewater from commercial and industrial waste (intentionally or through spills) into surface waters; discharges of untreated domestic sewage, and chemical contaminants, such as chlorine, from treated sewage; release of waste and contaminants into surface runoff flowing to surface waters (including urban runoff and agricultural runoff, which may contain chemical fertilisers and pesticides); waste disposal and leaching into groundwater; eutrophication and littering.

However, for the purpose of this study only four will be discussed that is the land, water, noise and air pollution that affect our daily life in this part of the world.

1. Water Pollution

Water pollution is contamination of water bodies such as lakes, streams, rivers, oceans and groundwater caused by human activities, which can be harmful and injurious to organisms and plants that live in these water bodies through toxicity. It occurs when pollutants are discharged directly into water bodies without treating it first.

Water pollution is the process of altering the properties of any water which renders it unfit for consumption.

According to Akande, all fresh water contain dissolved materials such as phosphates, gases such as oxygen organic compounds, suspended particulate material such as silt and micro organisms. The quantities of each vary greatly from one area to another. But a lack of balance between them or a dramatic increase in any of them can lead to aquatic chaos in which whole ecology of the water body is upset. The water became unfit for human consumption and some or all focus of aquatic life are killed.

Water pollution can be classified into several ways which includes:

i. Pollution by putrescible: refers to foul smelling, rotting of organic materials by bacteria materials such as waste from human, paper pulp plants, and canaries. Organic pollution is controlled by accelerating the process of decomposition of these organic wastes. When discharged into stream or river or lake, the organic materials

decompose by using large quantities of oxygen from water. And this results into a large scale of water pollution.

ii. Pollution by heated effluents: Oxygen is readily restored when the water is cool. The hotter it is, the lower the Oxygen holding capacity of the water. The bubbles that arise from heated water demonstrate what happens to the gases in hot water. The discharge of clean hot water into an unpolluted stream is hence as harmful as the discharge of organic wastes. In these cases the oxygen content of water is drastically reduced. It is as a result of all these that water pollution is a serious issue in tropical countries. The temperature is always warm that it is difficult for the streams to absorb the necessary quantities of oxygen.

iii. Pollution by toxic materials: These are toxic wastes which are not easily settle out and easily broken down by biological means. Such toxic wastes such as DDT, Mercury, heavy metals, herbicides and pesticides are poisonous toxic when consumed or contacted by plants and animals depending on the degree and rate of consumption or dosage received.

iv. Pollution by inert materials, those which may affect biological conditions and equally de-oxygenate water. De-oxygenating materials includes sewage and organic wastes.

v. Pollution by radioactive elements and compounds.

2. Air Pollution

Air pollution comes from both natural and manmade sources. Though globally man made pollutants from combustion, construction, mining, agriculture and warfare are increasingly significant in the air pollution equation.

Motor vehicle emissions are one of the leading causes of air pollution. Agricultural air pollution comes from contemporary practices which include clear felling and burning of natural vegetation as well as spraying of pesticides and herbicides.

> Air pollution in the words of Lawrence Atsegbua *et al* (2003, p.75) "is the upsetting of the natural arrangement of different gases in the air. Air pollution is the accumulation of substances in the air, insufficient concentrations to produce measurable effects on man, plants and animals. It involves the emission of harmful substances into the atmosphere, which cause danger to any living things"

It is also referred as the presence of foreign bodies in the air such as gaseous, particulate or a combination of all, which are highly hazardous to the health, sustenance and welfare of man (Awake, 1999 p. 28).

The sources of air pollution could take effect from its various locations, activities or factors which are responsible for the realising of pollutants in the air. There are two keys major categories of sources of air pollutants. That is anthropogenic sources and natural sources.

Anthropogenic sources are human made activities mostly related to burning different kinds of fuel. The sources cover:

i. Stationary sources (smoke attacks)
ii Mobile sources (vehicular exhaust)

a. Natural sources include dust, wind, methane emitted by digestion of food by animals e.g. cattle

b. Industries/Factories, motor vehicle exhaust electric cables, homes, incinerators, mechanic villages, bush burning, locomotive railway, aeroplane, etc. Out of all these, vehicular emissions account for about half of air pollution in the whole world whereas digging, tillers and burning of fires when clearing bushes or cooling account for the rest half. For instance, burning of oil and other local elements produces sulphur IV oxide which is very dangerous and account for air pollution that cause discomfort to humans or other living organisms or damages the natural environment and is a threat to human health as well the earth ecosystems.

Also, the greenhouse gases and global warming effect causes the release of carbon dioxide, while vital for photosynthesis, it is sometimes referred to as pollution, because it raised levels of the gas in the atmosphere affecting the Earth's climate.

3. Land Pollution

Land pollution can arise in different ways; it could be through authorised and unauthorised means. Although in many cases, pollution of land is just one part of licensed activities.

In Nigeria as a nation the main sources of pollution of land through waste disposal in the landfill system. The term land pollution equally includes anything laid in land which automatically impairs its arableness, yield or cultivability such as land mines, booby traps and other similar military devices.

Without fiddling, the major cause of Land pollution in Nigeria and other parts of the world particularly in the millennium age can be traced to development of technology, that is, industrialisation which led to the

bursting of urbanisation and the over concentration of the world population in the areas of the landmass.

In addition, land pollution could also be in the form of solid waste and has been defined as 'non – liquid, non – soluble materials hanging from municipal garbage to industrial wastes that contain complex substances and sometimes hazardous substances' (Hesketh, 1970 p.20)

4. Noise Pollution

Noise can be described as unwanted or unbearable excessive sound. Be that as it may, "noise pollution" seems to have been taken for granted and in fact accepted by most people in the society.

Noise is a sound, especially when it is loud, unpleasant or disturbing. It can be countable or uncountable (Hornby, 1984, 991)

In the words of Ola (1984), he reiterated that the average urban dwellers are open to health problems as a result of long continuous exposure to noise, "sometimes at high intensities".

It has been observed by medical experts that frequent or chronic exposure to both high and low intensity sound may cause stress on all higher forms of marine life, potentially affecting growth, reproduction and liability to resist disease.

Generally, there various types of noise pollution and they are:

i. Environmental noise and
ii. Occupational noise.

The occupational noise hazard is more important to our discussion in this unit due to the fact that workers in most of industries are exposed to high levels of uncontrollable noise over a long period of time. (Awake,1999 p.28).

In these industries workers are exposed to indigotic situation of noise pollution because earmuffs to protect their eardrums are not provided, where they provide it, the workers due to gross carelessness refused to use the safety stuff that protects their ears from the excessive noise that may cause deafness.

It is important to note that there are various sources of noise pollution, which is peculiar to us in Nigeria.

- Amplified musical engine

- Domestic noise
- Motor vehicle noise
- Noise generated by the religious houses
- Voices/sound from the neighbours
- Road traffic noise
- Noise from construction sites
- Factories – mining, quarrying noise
- Noise emission from industries
- Mechanic and welder workshops' noise.

3.4 Causes and Effect of Pollution

There are several causes of pollution to the environment ranging from the types of pollution that have been discussed in this unit. We will analyse the causes and effect of these pollutions as discussed.

The causes of water pollution will be discussed and they include:

- Oxygen –depleting substances may be natural materials, such as plant matter like leaves and grass as well as man – made chemicals.
- Chemical substances are sources of toxicity for instance, pathogens produces waterborne diseases in either human or animal hosts.
- Surface water and groundwater pollution sources.

The effects of the water pollution are numerous on the environment on human, animals and aquatics and they include:

- Water borne infectious diseases.
- Arsenic Poisoning has adverse effects. It causes kurtosis, a skin disease, and severe liver damage.
- Oil Spills equally result in health hazards to human beings and can also cause fire outbreaks, constituting extensive damage to life and property.

It is also important to note that the effects of noise pollution are numerous on human beings generally; it causes impairment, decrease efficiency, psychological disorder, disturbance of sleep and emotional disturbance.

The causes of this pollution especially in Nigeria are from numerous factories like The national and localised problems include cement Kiln dust SO2 from the fertiliser plants in Kaduna and Rivers States, cement factories in Sokoto, Ewekoro, Ogun State, and Kabba in Kogi States,

multiple pollutants from the Nigerian National Petroleum Corporation (NNPC) refineries and gas flaring in the air coastal regions, industrial furnaces, boilers and thousands of private electrical generators. These contribute in no small measure to air pollution particularly in Lagos which generate more than 60% of Nigeria's industrial activities are located.

The effect of air pollution is obvious, mainly the effect is health in nature, according to a medical expert, the injury to human health depends upon the degree of toxicity concentration, duration of exposure and individual susceptibility.

The degree of industrial emission is second to vehicular carbon monoxides emission which is a major source of urban air pollution problems.

3.5 National and International Law Regulating Pollution

There are several laws governing pollution in the entire hemisphere within national boundaries and international. This ranges from water pollution, to air, land and noise pollution.

There were laws regulating water pollution before the Koko toxic waste incident and they ranged from River Basins Development Authorities Act No 25 of June 15, 1976, the Chad Basin Development Authority Act No 32 of August 14, 1973, the Sokoto Rima Basin Development Act No 33 of August 14, 1973, the Sea Fisheries Act No 30 of June 10 1971, the Oil in Navigable Water Acts No 34 of April 22, 1968.

The Petroleum Act of 1969 which specifically deals with prevention of pollution of water courses and the regulations under this Act contained in Petroleum (Drilling and Production) Regulations 1969.

The establishment of the Federal Environmental Protection Agency (FEPA) through Decrees 589 of 1988 and 59 of 1992 (as amended) then the National Environmental Standards and Regulations Enforcement Agency (NESREA) established in 2007 via the Act of Parliament as the backbone of environmental protection in Nigeria which replaced the Federal Environmental Protection Agency.

One of the boards set up to protect water pollution is the Governing Board for the National Oil Spill Detection and Response Agency (NOSDRA) which came into being by the Establishment Act 15 of 2006. This agency was established as part of overall strategy to bring about healthy and clean environment in the country especially in Niger Delta region (Punch, 2010: 17).

The Official Regulation for the Control and Management of Noise is published in the National Environmental/Noise Standards and Control) Regulations 2009 Vol. 96, No 67. Government Notice No 288.

There is little or no regulation guiding air pollution in Nigeria Noxious Acts; the Lagos Public Health Bye Laws 1958 and the Criminal Code Act Cap 42, Laws of the Federation of Nigeria, 1958.

The Courts have been alive to their responsibilities under civil liability since all the laws already mentioned fall under criminal law. **Ryland vs. Fletcher (1868 LR 3 HL p 330)** is the umbrella under which the courts have dealt vividly with various environmental cases. The principle involved in this case is known as "Sic utere tuo et alienum non laedas" meaning "that one should not use one's property or exercise one's rights in such away as to interfere with the rights of others."

In Karagulamus vs. Kolawole Oyesile (1973) 3 UI.L.R, the fumes coming out of the defendants machines to the Plaintiff's bedroom were offensive to the Plaintiff who successfully sued.

And finally, the Land use Act 1978, is the main law regulating Land and all matter relating to Land pollution in Nigeria.

4.0 CONCLUSION

In conclusion, pollution is a day to day activity in our environment; it is however pertinent to note that pollution is an inevitable part of our life but with the promulgation and enactment of several Acts, human action in polluting the environment will be managed.

5.0 SUMMARY

In summary we have discussed pollution generally ranging from the definition of the concept to the nature and history, types and sources, also to the effect of pollution on the populace and the environment.

However, by now you should be able to differentiate between laws regulating pollution generally.

6.0 TUTOR-MARKED ASSIGNMENT

i. Define the concept pollution and give a brief history of its evolution.
ii. Write on four major types of solution and discuss their regulatory laws.

7.0 REFERENCES/FURTHER READING

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UNIT 4 OIL POLLUTION

CONTENTS

1.0 INTRODUCTION

It is important to note that this is one of the major sources of pollution in Nigeria asides the once that have been discussed earlier. In this study oil spills in the Niger Delta will be our main discourses. It is however pertinent that oil is spill is caused major by a lot of issues relating to petroleum.

According to a study carried out by a team of Nigerian and international environmental experts in 2006, the Niger Delta is "one of the world's most severely petroleum-impacted ecosystems". They stated: "The damage from oil operations is chronic and cumulative, and has acted synergistically with other sources of environmental stress to result in a severely impaired coastal ecosystem and compromised the livelihoods and health of the region's impoverished residents."

2.0 OBJECTIVES

At the end of this unit, you should be able to:

- discuss oil spill and pollution generally
- cite several cases previously treated in that regard
- demonstrate the harmful effect of oil pollution
- state laws regulating oil spills.

2.1 HOW TO STUDY THIS UNIT

In this unit you are expected to:

1. Read through the course contents on your own
2. First attempt the activities, then the TMA without looking at the hints provided by the author

3. Make observations on all your difficulties to your facilitator
4. Confirm your work on the activities after you have done your best to get all correct

3.0 MAIN CONTENT

3.1 Oil Spills

Most of the oil in Nigeria is found within the Niger River Delta, the largest delta in Africa and the third largest in the world. The inhabitants of the Niger Delta are primarily ethnic minorities, who are socially, politically and economically marginalised. Oil spills and gas flaring are the most frequently referenced forms of oil-related pollution in the Niger Delta, there are in fact several other ways in which the oil industry is harming the environment.

The Niger Delta has suffered for decades from oil spills, which occur both on land and offshore. Oil spills on land destroy crops and damage the quality and productivity of soil that communities use for farming. Oil in water damages fisheries and contaminates water that people use for drinking and other domestic purposes.

There are a number of reasons why oil spills happen so frequently in the Niger Delta. Spills result from corrosion of oil pipes, poor maintenance of infrastructure, spills or leaks during processing at refineries, human error and as a consequence of deliberate vandalism or theft of oil.

However, today companies increasingly maintain that the majority of oil spills are caused by sabotage and not by their poor infrastructure or operational problems. Communities, and many NGOs, strongly disagree over the number of spills that are attributed to sabotage, and accuse companies of designating controllable spills as sabotage in order to avoid liability for compensation.

There is no doubt that sabotage, vandalism of oil infrastructure and thefts of oil are serious problems in the Niger Delta, although the scale of the problem is unclear. Sabotage ranges from vandalism by community members to theft of oil and deliberate attacks by criminal groups. Some people damage pipes while trying to steal small quantities of oil for sale at local markets or for personal use. Others damage pipes and installations to extort compensation payments or clean-up contracts from companies.

The amount of oil spilt since oil production began in 1958 is not known with any certainty.

Only SPDC reports publicly, from year to year, on the number of spills in its operations. Between 1989 and 1994 the company reported an average of 221 spills per year involving some 7,350 barrels of oil per year. The Department of Petroleum Resources (DPR) has reported that 4,835 oil spill incidents were recorded between 1976 and 1996, with a loss of 1.8 million barrels of oil to the environment. These data are based mainly on what companies report to the DPR. According to UNDP, more than 6,800 spills were recorded between 1976 and 2001, with a loss of approximately 3 million barrels of oil.

Oil spill incidents have occurred in various parts and at different times along our coast. Some major spills in the coastal zone are the GOCON's Escravos spill in 1978 of about 300,000 barrels, SPDC's Forcados Terminal tank failure in 1978 of about 580,000 barrels and Texaco Funiwa-5 blow out in 1980 of about 400,000 barrels. Other oil spill incidents are those of the Abudu pipe line in 1982 of about 18,818 barrels, The Jesse Fire Incident which claimed about a thousand lives and the Idoho Oil Spill of January 1998, of about 40,000 barrels. The most publicised of all oil spills in Nigeria occurred on January 17 1980 when a total of 37.0 million litres of crude oil got spilled into the environment. This spill occurred as a result of a blow out at Funiwa offshore station. Nigeria's largest spill was an offshore well-blow out in January 1980 when an estimated 200,000 barrels of oil (8.4million US gallons) spilled into the Atlantic Ocean from an oil industry facility and that damaged 340 hectares of mangrove (Nwilo & Badejo, 2005).

Pirates are stealing Nigeria's crude oil at a phenomenal rate, funneling nearly 300,000 barrels per day from our oil and selling it illegally on the international trade market. Nigeria lost about N7.7 billion in 2002 as a result of vandalisation of pipelines carrying petroleum products. The amount, according to the PPMC, a subsidiary of NNPC, represents the estimated value of the products lost in the process. Illegal fuel siphoning as a result of the thriving black market for fuel products has increased the number of oil pipeline explosions in recent years. In July 2000, a pipeline explosion outside the city of Warri caused the death of 250 people. An explosion in Lagos in December 2000 killed at least 60 people. The NNPC reported 800 cases of pipeline vandalisation from January through October 2000. In January 2001, Nigeria lost about $4 billion in oil revenues in 2000 due to the activities of vandals on our oil installations. The government estimates that as much as 300,000 bbl/d of Nigerian crude is illegally bunkered (freighted) out of the country.

3.2 The Harmful Effects of Oil Spills

The harmful effects of oil spill on the environment are many. Oil kills plants and animals in the estuarine zone. Oil settles on beaches and kills organisms that live there; it also settles on ocean floor and kills benthic (bottom-dwelling) organisms such as crabs. Oil poisons algae, disrupts major food chains and decreases the yield of edible crustaceans. It also coats birds, impairing their flight or reducing the insulative property of their feathers, thus making the birds more vulnerable to cold. Oil endangers fish hatcheries in coastal waters and as well contaminates the flesh of commercially valuable fish.

Oil spills in the Niger Delta have been a regular occurrence, and the resultant degradation of the surrounding environment has caused significant tension between the people living in the region and the multinational oil companies operating there.

One of the major oil spills that affected many lives negatively are the Idoho oil spill traveled all the way from Akwa Ibom state to Lagos state dispersing oil through the coastal states, up to the Lagos coast. This culminated in the presence of sheen of oil on the coastal areas of Cross river state, Akwa Ibom state, Rivers state, Bayelsa state, Delta state, Ondo state and Lagos state.

In April 1997, samples taken from water used for drinking and washing by local villagers were analyzed in the U.S. A sample from Luawii, in Ogoni, where there had been no oil production for four years, had 18 ppm of hydrocarbons in the water, 360 times the level allowed in drinking water in the European Union (E.U.). A sample from Ukpeleide, Ikwerre, contained 34 ppm, 680 times the E.U. standard.

However following the major Texaco Funiwa spill of 1980, it was reported that 180 people died in one community as a result of the pollution. On several occasions, people interviewed by Human Rights Watch said that spills in their area had made people sick who drank the water, especially children.

3.3 Laws and Policies Regulating Oil Spills

There are several national and international laws regulating oil spills in Nigeria, some will be discussed in this unit and the purpose they each serve also.

a. Oil Pollution Act (OPA) of 1990

The Oil Pollution Act of 1990 (OPA, 1990) is responsible for many of the nation's improvements in oil spill prevention and response. OPA 1990 provides guidance for government and industry on oil spill prevention, mitigation, cleanup and liability. The majority of OPA 1990 provisions were targeted at reducing the number of spills followed by reducing the quantity of oil spilled. OPA 1990 also created a comprehensive scheme to ensure that sufficient financial resources are available to clean up a spill and to compensate persons damaged by a spill.

b. National Oil Spill Detection and Response Agency (NOSDRA)

A National Oil Spill Detection and Response Agency (NOSDRA) have been approved by the Federal Executive Council of Nigeria.

The establishment of the contingency plan and the agency was in compliance with the International Convention on Oil Pollution Preparedness, Response and Cooperation (OPRC90) to which Nigeria is a signatory. The draft bill on the NOSDRA has been forwarded to the National Assembly for deliberation and enactment into law (Alexandra: Gas and Oil Connections, 2006).

c. The Niger Delta Development Commission (NDDC)

To reduce the rate of oil incidents along the Nigerian Coast particularly as a result of vandalisation, the Federal Government through an act of the National Assembly in 2000 passed into law the Niger Delta Development Commission (NDDC).
The NNDC Act is a strategic way of dealing with all forms of pollution activities in the Niger Delta:

- Tackle ecological and environmental problems that arise from the exploration of oil in the Niger-Delta area.
- Liaise with the various oil mineral and gas prospecting and producing companies on all matters of pollution prevention and control.

d. Petroleum -Related Laws and Regulations

The following relevant national laws and international agreements are in effect:

a. Endangered Species Decree Cap 108 LFN 1990.
b. Federal Environmental protection Agency Act Cap 131 LFN 1990.
c. Harmful Waste Cap 165 LFN 1990.
d. Petroleum (Drilling and Production) Regulations, 1969.
e. Mineral Oil (Safety) Regulations, 1963.
f. International Convention on the Establishment of an International Fund for Compensation for Oil Pollution Damage, 1971.
g. Convention on the Prevention of Marine pollution Damage, 1972
h. African Convention on the Conservation of Nature and Natural Resources, 1968.
i. International Convention on the Establishment of an International Fund for the Compensation for Oil Pollution Damage, 1971.

e. Oil Trajectory and Fate Models for Oil Spill Disaster Monitoring

Oil spill simulation model is used in oil response and contingency planning and as a tool in oil fate and impact assessment (Rossouw, 1998). In the event of an oil spill taking place, predictions of the slick can be supplied, provided that the necessary meteorological information is available (Rossouw, 1998). Oil spillage can also be treated or removed by natural means, mechanical systems, absorbents, burning, gelling, sinking and dispersion.

4.0 CONCLUSION

Oil spill in the Niger Delta of Nigeria has been the major surge of environmental pollution in that part of the world. It is also important that oil spill has been with us for a very long time, and if adequate measures of sabotage, pipeline vandalism and that most oil companies and the Federal Government beef up security in this regard it will still continue to be a source of worry, and environmental degradation and an easy ticket to death.

5.0 SUMMARY

In summary, this unit has discussed oil spill in general in the Niger Delta area of the country. However, its impact on the environment has been largely discussed as well. It is also important that you should be able to discuss and expatiate more on the laws regulating oil spill in Nigeria.

6.0 TUTOR-MARKED ASSIGNMENT

i. Discuss the concept of waste and waste management
ii. Oil spill in Nigeria a menace to the people of Niger Delta. Discuss focusing on its environmental impact on the people.
iii. List the sources of laws regulating waste management in Nigeria.
iv. Explain the laws and policies available to combat oil spill in Nigeria.

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UNIT 5 HUMAN RIGHTS AND THE ENVIRONMENT

CONTENTS

1.0 INTRODUCTION

International awareness of the linkages between human rights and environmental protection has expanded considerably since conservation of the environment became a matter of national and international concern some two decades after human rights emerged on the international agenda.

Generally, Environmental rights do not fit neatly into any single category or generation of human rights. We should talk about human rights and the environment within the existing framework of human rights law in which the protection of humans is the central focus – essentially a greening of the rights to life, private life, and property – or has the time come to talk directly about environmental rights? – In other words a right to have the environment itself protected.

The Constitution of the Federal Republic of Nigeria 1999 has not really or specifically protects the rights of its citizens in relation to the environment; it only does that in the chapter 2 of the Constitution which is not specifically enforceable.

2.0 A: OBJECTIVES

At the end of this unit, you should be able to:

- discuss the general rights of citizens as it concerns the environment; and
- state the obligations of states to the right to a healthy environment.

2.0 HOW TO STUDY THIS UNIT

In this unit you are expected to:

1. Read through the course contents on your own
2. First attempt the activities, then the TMA without looking at the hints provided by the author
3. Make observations on all your difficulties to your facilitator
4. Confirm your work on the activities after you have done your best to get all correct

3.0 MAIN CONTENT

3.3 Human Rights and the Environment

International environmental agreements, especially since 1992, more commonly consider certain human rights as essential elements to achieving environmental protection.

Birnie and Boyle define environmental human rights as: "terminology [used] to ascribe value or status to the interests and claims of particular entities".

While, Churchill defines the term as "[…] broadly the right of an individual or group to a decent environment, […] that extends beyond what is judicially enforceable but limited to genuine rights […] as they are found in existing human rights treaties".

However, the last definition seems to be the most useful for purposes of this unit 'Environmental right' in this report is the term used to describe both existing human rights with environmental implications (or derivative rights) and the emerging right to a clean and healthy environment.

Generally, human rights and the environment in this unit will discuss the right of an individual as it relates to its environment. The first approach is essentially anthropocentric as it focuses on the harmful impact on individual humans, rather than on the environment itself: it amounts to a 'greening' of human rights law, rather than a law of environmental rights.

The second approach is seeing the environment as a good in its own right, but nevertheless one that will always be vulnerable to tradeoffs against other similarly privileged but competing objectives, including the right to economic development.
However, there are some significant examples of collective rights which in certain contexts can have environmental implications, such as the protection of minority cultures and indigenous peoples or the right of all

peoples freely to dispose of their natural resources recognised in the 1966 UN Covenants on Civil and Political Rights and Economic, Social and Cultural Rights, and in the 1981 African Charter on Human and Peoples Rights.

It is important to note that some legal texts and authors proclaim the existence of a right to a safe and healthy environment as an independent substantive human right. At present, examples of this in positive law are found predominantly in national constitutions, in regional human rights treaties and in International treaties. Thirty-five years ago at the United Nations Conference on the Human Environment held in Stockholm, Principle 1 of the Declaration declared that *Man has the fundamental right to freedom, equality and adequate conditions of life, in an environment of a quality that permits a life of dignity and well-being.*

And it was further stated that he bears a solemn responsibility to protect and improve the environment for present and future generations.

This grand statement might have provided the basis for subsequent elaboration of a human right to environmental quality (Dinah Shelton).

Among human rights treaties only the 1981 African Charter on Human and Peoples' Rights proclaims environmental rights in broadly qualitative terms. It protects both the right of peoples to the 'best attainable standard of health' and their right to 'a general satisfactory environment favourable to their development'.

Article 24 of the Charter imposes an obligation on the State to take reasonable measures "to prevent pollution and ecological degradation, to promote conservation, and to secure ecologically sustainable development and use of natural resources". Article 11 of the American Convention on Human Rights in the area of Economic, Social and Cultural Rights is also a regional instrument like the African Charter on the protection of its citizens as it relates to the environment.

However, in similar circumstances, the Inter American Commission and Court of Human Rights has interpreted the rights to life, health and property to afford protection from environmental destruction and unsustainable development and go some way towards achieving the same outcome as Article 24 of the African Convention. See the case of Ogoniland and Maya indigenous community of the Toledo District v. Belize, Case 12.053, Report No. 40/04, Inter-Am. C.H.R., OEA/Ser.L/V/II.122 Doc. 5 rev. 1 at 727 (2004).
The European Convention on Human Rights makes no explicit reference to the environment at all or did so only in relatively narrow terms focused on human health

If Stockholm did little for the development of international environmental rights, it may have had greater impact on national law. Environmental provisions of some kind have been added to an increasing number of constitutions since 1972.

A human rights dimension has also emerged in the context of climate change discussions. Resolution 7/23 entitled "human rights and climate change", adopted by the Human Rights Council in March 2008, expressed concern that "climate change poses an immediate and far-reaching threat to people and communities around the world and has implications for the full enjoyment of human rights".

However, on 25 March 2009, the Council adopted resolution 10/4 "Human rights and climate change" in which it, inter alia, notes that "climate change-related impacts have a range of implications, both direct and indirect, for the effective enjoyment of human rights …"

3.4 Obligations of States on Human Rights and the Environment

Enforcement of environmental rights involves courts in not only determining the mandated environmental quality, but also in assessing whether or not the government has taken the requisite actions to achieve that quality.

It is pertinent to note that rights-based approaches are preferable, however, because human rights are maximum claims on society, elevating concern for the environment above a mere policy choice that may be modified or discarded at will. Some clearly create no rights based approach towards the right of its citizens as it concerns the environment.

Article 48A of the Indian Constitution provides only that "The state shall endeavour to protect and improve the environment and to safeguard the forests and wild life of the country". This article obviously creates no enforceable rights.

Nigeria as a nation is also not specific, as this right is not drafted under Chapter 4 of the constitution which talks about the fundamental human rights of the people rather under Chapter 2, Section 20 which states that "the state shall protect and improve the environment and safeguard the water, air and land, forest and wild life in Nigeria". This is a right that is not enforceable.

However, some constitutions have lived up to their responsibility Article 35 of the Constitution of the Republic of Korea declares that "All citizens shall have the right to a healthy and pleasant environment."

While, others give it stronger human environmental rights Article 45 of the Spanish Constitution declares that everyone has "the right to enjoy an environment suitable for the development of the person as well as the duty to preserve it."

Article 56 of the Turkish Constitution states that: "Everyone has the right to live in a healthy, balanced environment. It shall be the duty of the State and the citizens to improve and preserve the environment and to prevent environmental pollution."

The 1996 South African Constitution gives everyone the right "to an environment that is not harmful to their health or well-being; and to have the environment protected, for the benefit of present and future generations, through reasonable legislative and other measures that prevent pollution and ecological degradation; promote conservation; and secure ecologically sustainable development and use of natural resources while promoting justifiable economic and social development".

In Yanomami v. Brazil, Res. No. 12/85, Case 7615 (Brazil), in Annual Report of the IACHR 1984-1985, the Inter-American Commission found that the government had violated the Yanomani rights to life, liberty and personal security guaranteed by Article 1 of the Declaration, as well as the right of residence and movement (Article VIII) and the right to the preservation of health and well-being (Article XI) because the government failed to implement measures of "prior and adequate protection for the safety and health of the Yanomami Indians."

However, in Okyay and Others v. Turkey concerned the failure of Turkish authorities to enforce constitutional rights and statutory environmental laws.

The African Commission also has identified governmental obligations in this field by reference to environmental norms. In *SERA cv. Nigeria*, Case No. ACHPR/COMM/A044/1, May 27, 2002. The African Commission held that Article 24 "imposes clear obligations upon a government to take reasonable and other measures to prevent pollution and ecological degradation, to promote conservation, and to secure an ecologically sustainable development and use of natural resources."

4.0 CONCLUSION

It is important to note that right to the environment is a fundamental human right that should be followed to the letter. We will reiterate further that most states should do more about enforcing the right; countries like Nigeria should make it a fundamental human right as in South Africa.

Most other regional instruments should stand up to their responsibility like the African charter which is one of the main regional instruments that is alive to it responsibilities in protecting the rights of citizens as it concerns the environment.

5.0 SUMMARY

In summary we have discussed human rights in relation to the environment and the obligations of the state in that regard and the role of the courts in enforcing this unique human right as it relates to the environment.

6.0 TUTOR-MARKED ASSIGNMENT

i. Discus the concept of human rights and the environment in line with the Stockholm Declaration.
ii. Briefly state the obligations of the state as it concerns citizen's rights in relation to the environment.

7.0 REFERENCES/ FURTHER READING

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UNIT 6 INTERNATIONAL AND REGIONAL ENVIRONMENTAL LAWS

CONTENTS

1.0 INTRODUCTION

International and regional law is relatively a new subject, but there are a lot of laws and policies in that regard to support the subject to its fullest. It is also important to reiterate that there are lots of international laws that have done well in protecting the environment and the citizen's right in that regard.

The regional efforts are also not left out of this campaign for environmental protection. The Stockholm Declaration is the first of the international laws that was set for the protection of the environment and it came into force in 1972, followed by the Rio Declaration of 1992.

Naturally, international environmental law consists primarily of treaties, conventions, protocols and other international legal instruments. Nigeria as a nation is a signatory to many of these treaties dealing with the environment, but only few will be discussed here.

2.0 OBJECTIVES

At the end of this unit, you should be able to**:**

- discuss international and regional laws and policies as they relate to the environment;

- list and discuss the conventions which include the Stockholm Declaration, the Basel Convention, the Kyoto Protocol and the Copenhagen Accord, and
- stress the importance of the main regional Declaration-the African Charter on Human and People's Right, and that of the Bamako Convention.

2.1 HOW TO STUDY THIS UNIT

In this unit you are expected to:

1. Read through the course contents on your own
2. First attempt the activities, then the TMA without looking at the hints provided by the author
3. Make observations on all your difficulties to your facilitator
4. Confirm your work on the activities after you have done your best to get all correct

3.0 MAIN CONTENT

3.1 The Stockholm Declaration of 1972

The United Nation Conference on the Human Environment is generally referred to as the Stockholm Declaration and is considered as the cornerstone of modern international law. The declaration also affirms the sovereign right of states to exploit their own resources pursuant to their own environmental policies in accordance with the United Nations Law.

However, the counterpart to this treaty is the Rio Declaration which came into existence in 1992, and the principle is generally the responsibilities of states in view of their different contribution to global environmental degradation and the need to reduce and eliminate unsustainable patterns of production and consumption.

3.2 The Basel Convention 1989

This is a convention on the control of Trans-boundary Movement of Hazardous Wastes and their Disposal, and it came into force in 1989. Nigeria as a nation is a signatory to this convention. This is one of the major international treaties after the Koko toxic saga in Nigeria.

The Convention is to protect by strict legal control, human health and environment against adverse effect, which may result from generation and management of hazardous waste.

One of the significant attributes of this convention under Article 8 is that if wastes are smuggled into the territory of one state without the competent authority's consent or consent is obtained by fraud, such waste can be returned back by the country. This was however, the case in Koko toxic incident, where Nigeria as a country returned the waste back to Italy.

3.3 The Kyoto Protocol

This was the convention that focused on the Green house gas effect and the depletion of the ozone layer which the global warming inspires world leaders to deliberate. It was adopted on 11 December, 1997 in Kyoto, Japan but came into force on 16 February, 2005 after so many nations have ratified. As at September 2011, 191 states have signed and ratified the protocol with the exception of USA, Afghanistan, Andorra and South Sudan.

The purpose is on treating the green house gases instead of allowing it to radiate back into space.

3.4 The Copenhagen Accord 2010

The Copenhagen Accord is a document that delegates at the 15^{th} session of the conference of parties (COP 15) to the United Framework Convention on the Climate Change agreed to take note of at the final plenary on 18 December, 2010.
It is not a legally binding document and does not commit countries to agree to a binding successor to the Kyoto Protocol, which present round ends in 2012.

The Accord

- Endorses the continuation of the Kyoto Protocol.
- Underlines that climate change is one of the greatest challenges of our time and emphasises a strong political will to urgently combat climate change in accordance with the principle of common but differentiated responsibilities and respective capabilities.
- To prevent dangerous anthropogenic interference with the climate system, recognises "the scientific view that the increase in global temperature should be below 2 degrees Celsius", in a context of sustainable development, to combat climate change.
- Agrees that developed countries would raise fund of $30 billion from 2010-2012 of new and additional resources to tackle environmental issues.
- Agrees a goal for the world to raise $100billion per year by 2020, from a wide variety of sources, to help developing countries cut

carbon emissions (mitigation). New multilateral funding for adaptation will be delivered backed up with a governance structure.

3.5 The African Charter on Human and People's Right 1981

The charter was adopted in 1981, the aspect of the charter that treated environmental issue was particularly the Article 24, and this is the first international instrument to proclaim the right to a satisfactory environment as a human right to which all people are entitled.

The main reason behind the charter was a response to the danger posed by the export of toxic waste from Europe to Africa. It also represents sustainable development of the continent.

3.6 The Bamako Convention

This was a convention that came into existence as a result of the dissatisfaction of developing countries with the Basel Convention over the partial ban on trans-boundary movement of hazardous waste.

The Bamako Convention permits the trans-boundary movement of waste within Africa, so that the prohibition is therefore limited to importation into Africa

4.0 CONCLUSION

It is important to note that International Environmental law like the Conventions, Protocols and Accords has attained the standing of an independent discrete subject with its own principles.

5.0 SUMMARY

In summary, we have discussed most international environmental laws that are relevant, ranging from the Stockholm Declaration to the Copenhagen Accord, which is the latest in the environmental world. You are expected to read more on the laws that are not discussed here to broaden their knowledge of the international environmental law.

6.0 TUTOR-MARKED ASSIGNMENT

i. discuss international and regional laws/policies as they relate to the environment
ii. Briefly explain the edge of the African Charter over other International Environmental Laws.
iii. Discuss the purpose of the Bamako Convention that the Basel Convention did not address.

iv. List and discuss the following conventions: Stockholm declaration, Copenhagen Accord, and Bamako convention

7.0 REFERNCES/FURTHER READING

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