

INR261



NATIONAL OPEN UNIVERSITY OF NIGERIA

SCHOOL OF ARTS AND SOCIAL SCIENCES

COURSE CODE: INR261
2 CREDIT UNITS

COURSE TITLE: INTERNATIONAL ENVIRONMENTAL POLITICS

COURSE GUIDE

INR 261: INTERNATIONAL ENVIRONMENTAL POLITICS

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COURSE DESCRIPTION

INR 261 International Environmental Politics (2 Credit Units)

Whether it is water security, the global food crisis, climate change, environmental refuse, nuclear energy, human survival or the rights of non-humans, environmental or green politics has established itself as one of the most exciting sites of political contestation around the globe today. This course will analyse the international discourses in environmental politics ranging from the informal dynamics of networks, groups and social movements through to the more institutionalised responses of organisations, corporations, mass media, legal systems, political parties, governments and administrative systems. Cases are selected from across the globe: from the more affluent worlds of Europe and North America; to the majority worlds of Africa, South America and Asia.

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Introduction

INR 261: International Environmental Politics

Environmental Education -What is EE? the educational process dealing with man's relationship with his natural and man-made surroundings including the relation of population resources allocation and depletion, conservation, transportation, technology, urban and rural planning to the total human environment (Sinha *et al*, 1985).The aim of environmental education is to enable people to understand the complexities of the environment and the need for nations to adapt their activities and their development in ways, which is harmonious with the environment. The goals of EE is to develop a citizen who is aware of the total environment, concerned about it and its associated problems and which has the knowledge, skills, attitude, motivation and commitments to work individually and collectively towards a solution of current environmental problems and the prevention of new ones.

Courses Objectives

The objectives of environmental education are to:

- a. develop a life-long commitment of human environment and the quality of life;
- b. make citizens to be knowledgeable and informed about the possible future consequences of the environmental problems and decisions;
- c. get the citizens to acquire skills needed for solving environmental problems;
- d. get the people to acquire social values, strong feelings of concern for the environment and the motivation for active participation in its protection and improvement and to be committed to doing something about the environment.

The study units are structured into Modules. Each module comprises of 4 units. A Unit Guide comprises of instructional material and also provides a brief description of the instructional material.

In all of the courses, you will find the major components thus:

- (1) Course Guide
- (2) Study Units
- (3) Textbooks
- (4) Assignments

Study Units

There are 16 study units in this course: They are:

MODULE 1 ENVIRONMENT, POPULATION AND POVERTY

- Unit 1 Environment, Population and Poverty
- Unit 2 The State of the World
- Unit 3 The UN and International Security
- Unit 4 Approaches to Environmental Difficulties

MODULE 2 IDEOLOGICAL CONTENT OF ENVIRONMENTAL EDUCATION

- Unit 1 Education, Environmental Ethics and values
- Unit 2 Principles for Understanding and Sustaining the Earth
- Unit 3 Population and Environment
- Unit 4 Environmental Pollution

MODULE 3 MAJOR INTERNATIONAL INSTRUMENT FOR COMBATING ENVIRONMENTAL DEGRADATION

- Unit 1 The Stockholm Conference
- Unit 2 The Rio Conference
- Unit 3 The United Nation Conventions
- Unit 4 International Environmental Institutions

MODULE 4 SUSTAINABLE DEVELOPMENT

- Unit 1 What is Sustainable Development
- Unit 2 Dilemma of Policy and Politics of sustainable development
- Unit 3 Challenges of the Principles of Sustainable Development
- Unit 4 Sustainability in Nigeria

From the above, we can see that the course starts with the basic introduction to the nature of Environmental education and politics and progresses subsequently into comprehensive analysis of the various International Institutions around the world that make laws concerning the earth commons and how to preserve them. The course also looks at Sustainable Development around the world and how successful the various countries of the world have addressed the issues of sustainability. The instructions given in each unit contains objectives, course contents and reading materials. In addition, there are also self-assessment exercises and Tutor-Marked Assignments. All these are intended to assist you in achieving the objectives of each unit.

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Tutor- Marked Assignments/ Self Assessment Exercises

There are 16 Tutor-Marked Assignments (TMAs) in this course. You need to submit at least four assignments of which the highest three marks will be recorded. Each recorded assignment counts 10 percent towards your total course grade. Three recorded assignments will thus count for 30 percent. When you complete your assignments, send them including your form to your tutor for formal assessment on or before the deadline.

Self Assessment Exercises are provided in each unit. The exercises should help you to evaluate your understanding of the materials so far. They are not to be submitted. However, answers are provided or directions given as to where to find answers within the units.

Final Examination and Grading

There will be a final examination at the end of the course. The examination carries a total mark of 70% of the total course grade. The examination will reflect the contents of what you have learnt and the self-testing and tutor-marked assignments. You therefore need to revise your course materials before the examination.

Course Marking Scheme

The table below shows the breakdown of how the student's course assessment is done

Assignment	Marks
Assignment :There are 16 assignments	Four assessments, best three marks out of four count @ 10% each = 30% Course Marks
Final Examination	70% of overall Course Marks
Total	100% of Course Marks

Summary

INR 261: INR 261 is designed to facilitate understanding of the nature of International environment and issues of Sustainable Development. An insight is also provided through the course on how the different international Institutions have been used to promote awareness and the necessity of pursuing sustainable development. The objectives of each unit are specified at the beginning of the units and are to be used as reference points and to evaluate the level of progress in the study. At the end of each unit, the objectives are also useful to check whether the progress is consistent with the stated objectives of the unit. The entire units are sufficient to completely achieve overall objective of the course.

Sustainable Development – What is S.D and its connection to Earth Summit 1992? , What are the SDGs ?

- i. End poverty in all its forms everywhere;
- ii. End hunger, achieve food security and improve nutrition, and promote sustainable agriculture;
- iii. Ensure healthy lives and promote well-being for all at all ages;
- iv. Ensure inclusive and equitable quality education and promote life-long learning opportunities for all;
- v. Achieve gender equality and empower all women and girls;
- vi. Ensure availability and sustainable management of water and sanitation for all;
- vii. Ensure access to affordable, reliable, sustainable and modern energy for all;

- viii. Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all;
- ix. Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation;
- x. Reduce inequality within and among countries;
- xi. Make cities and human settlements inclusive, safe, resilient and sustainable;
- xii. Ensure sustainable consumption and production patterns;
- xiii. Take urgent action to combat climate change and its impacts*
Acknowledging that the UNFCCC is the primary international, intergovernmental forum for negotiating the global response to climate change;
- xiv. Conserve and sustainably use the oceans, seas and marine resources for sustainable development;
- xv. Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss;
- xvi. Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels; and
- xvii. Strengthen the means of implementation and revitalize the global partnership for sustainable development.

Course Overview

There are 16 units in this course. You are to spend one week on each unit. One of the advantages of Open and Distance Learning (ODL) is that you can read and work through the designed course materials at your own pace, and at your own convenience. The course material replaces the lecturer that stands before you physically in the classroom.

All the units have similar features. Each unit has seven items beginning with the introduction and ending with reference/suggestions for further readings.

COURSE OVERVIEW

Units	Title of Work	Week Activity	Assignment (End-of-Unit)
Course Guide			
Module 1	Environment, Population and Poverty		
Unit 1	Environment, Population and Poverty	Week 1	Assignment 1
Unit 2	The State of the World	Week 2	Assignment 1
Unit 3	The UN and International Security	Week 3	Assignment 1
Unit 4	Approaches to Environmental Difficulties		Assignment 1
Module 2	Ideological Content of Environmental Education		
Unit 1	Education, Environmental ethics and Values	Week 4	Assignment 1
Unit 2	Principles for Understanding and Sustaining the Earth	Week 5	Assignment 1
Unit 3	Population and Environment		Assignment 1
Unit 4	Environmental Pollution	Week 6	Assignment 1
Module 3	Major International Instrument for Combating Environmental Degradation		
Unit 1	The Stockholm Conference	Week 7	Assignment 1
Unit 2	The Rio Conference	Week 8	Assignment 1
Unit 3	The United Nation Conventions	Week 9	Assignment 1
Unit 4	International Environmental Institutions	Week 10	Assignment 1
Module 4	Sustainable Development		
Unit 1	What is Sustainable Development	Week 11	Assignment 1
Unit 2	Dilemma of Policy and Politics of Sustainable Development	Week 12	Assignment 1
Unit 3	Challenges of the Principles of sustainable Development		Assignment 1

Units	Title of Work	Week Activity	Assignment (End-of-Unit)
Unit 4	Sustainability in Nigeria	Week 13	Assignment 1
	Revision	Week 14	
	Examination	Week 15-17	
	Total	18 Weeks	

What You Will Need in the Course

There will be some recommended texts at the end of each module that you are expected to purchase. Some of these texts will be available to you in libraries across the country. In addition, your computer proficiency skill will be useful to you in accessing internet materials that pertain to this course. It is crucial that you create time to study these texts diligently and religiously.

Facilitators/Tutors and Tutorials

The course provides fifteen (15) hours of tutorials in support of the course. You will be notified of the dates and locations of these tutorials, together with the name and phone number of your tutor as soon as you are allocated a tutorial group. Your tutor will mark and comment on your assignments, and watch you as you progress in the course. Send in your tutor-marked assignments promptly, and ensure you contact your tutor on any difficulty with your self-assessment exercise, tutor-marked assignment, and the grading of an assignment. Kindly note that your attendance and contributions to discussions as well as sample questions are to be taken seriously by you as they will aid your overall performance in the course.

Conclusion

This is a theoretical as well as empirical course and so, you will get the best out of it if you can read wide, listen to as well as examine international regulations and agreement between and among states and get familiar with international reports across the globe on International Environmental Politics and Education.

HOW TO GET THE MOST FROM THIS COURSE

1. There are 16 units in this course. You are to spend one week in each unit. In distance learning, the study units replace the university lecture. This is one of the great advantages of distance learning; you can read and work through specially designed study materials at your own pace, and at a time and place that suites you best. Think of it as reading the lecture instead of listening to the lecturer. In the same way a lecturer might give you some reading to do. The study units tell you when to read and which are your text

materials or recommended books. You are provided exercises to do at appropriate points, just as a lecturer might give you in a class exercise.

2. Each of the study units follows a common format. The first item is an introduction to the subject matter of the unit, and how a particular unit is integrated with other units and the course as a whole. Next to this is a set of learning objectives. These objectives let you know what you should be able to do, by the time you have completed the unit. These learning objectives are meant to guide your study. The moment a unit is finished, you must go back and check whether you have achieved the objectives. If this is made a habit, then you will significantly improve your chance of passing the course.
3. The main body of the unit guides you through the required reading from other sources. This will usually be either from your reference or from a reading section.
4. The following is a practical strategy for working through the course. If you run into any trouble, telephone your tutor or visit the study centre nearest to you. Remember that your tutor's job is to help you. When you need assistance, do not hesitate to call and ask your tutor to provide it.
5. Read this course guide thoroughly. It is your first assignment.
6. Organise a study schedule – Design a 'Course Overview' to guide you through the course. Note the time you are expected to spend on each unit and how the assignments relate to the units.
7. Important information; e.g. details of your tutorials and the date of the first day of the semester is available at the study centre.
8. You need to gather all the information into one place, such as your diary or a wall calendar. Whatever method you choose to use, you should decide on and write in your own dates and schedule of work for each unit.
9. Once you have created your own study schedule, do everything to stay faithful to it.
10. The major reason that students fail is that they get behind in their coursework. If you get into difficulties with your schedule, please let your tutor or course coordinator know before it is too late for help.
11. Turn to Unit 1, and read the introduction and the objectives for the unit.

12. Assemble the study materials. You will need your references for the unit you are studying at any point in time.
13. As you work through the unit, you will know what sources to consult for further information.
14. Visit your study centre whenever you need up-to-date information.
15. Well before the relevant online TMA due dates, visit your study centre for relevant information and updates. Keep in mind that you will learn a lot by doing the assignment carefully. They have been designed to help you meet the objectives of the course and, therefore, will help you pass the examination.
16. Review the objectives for each study unit to confirm that you have achieved them. If you feel unsure about any of the objectives, review the study materials or consult your tutor. When you are confident that you have achieved a unit's objectives, you can start on the next unit. Proceed unit by unit through the course and try to space your study so that you can keep yourself on schedule.
17. After completing the last unit, review the course and prepare yourself for the final examination. Check that you have achieved the unit objectives (listed at the beginning of each unit) and the course objectives (listed in the course guide).

Summary

This Course Guide has been designed to furnish you with the information you need for a fruitful experience in the course. In the final analysis, how much you get from it depends on how much you put into it in terms of learning time, effort and planning.

I wish you all the best in INR 261 and in the entire programme!

A List of Acronyms and Abbreviations

ACP	African, Caribbean and Pacific
AFRAS	School of African and Asian Studies (Sussex University, Brighton, UK)
ANC	African National Congress (South Africa)
AOSIS	Association/Alliance of Small Island States
ASUU	Academic Staff Union of Universities
CCPY	Committee for the Creation of the Yanomami Park (Amazon, Brazil)
CD	Centre for Disarmament (United Nations)
CDE	Centre for the Comparative Study of Culture, Development and the Environment (Sussex University, Brighton, UK)

CDSN	Conservation of Nature and Natural Resources
CFC	Chlorofluorocarbon
CFE	Conventional Armed Forces in Europe
CIDA	Canadian International Development Agency
CIS	Commonwealth of Independent States
CITES	Convention on International Trade in Endangered Species
CO₂	Carbon dioxide
CRS	Catholic Relief Services
CSCE	Conference on Security and Co-operation in Europe
CWC	The Chemical Weapons Convention
EBRD	European Bank for Reconstruction and Development
ECA	Economic Commission for Africa (United Nations)
ECOMOG	ECOWAS Monitoring Group
ECOWAS	Economic Community of West African States
ENMOD	Environmental Modification (Convention)
EU	European Union
FAO	Food and Agriculture Organisation (United Nations)
GAD	Gender and Development.
GATE	General Agreement on Tariffs and Trade
GDP	Gross Domestic Product
GEF	Global Environmental Facility
GEMS	Global Environmental Monitoring System
GENESYS	Gender in Economic and Social Systems (Brazil Project 1991-1995)
G-5	France, Germany, Japan, United Kingdom and United States
G-7	(G-8) G-5 plus Canada and Italy (Russia is now an Associate member)
GNP	Gross National Product
GRID Global	Resource Information Database
HCFCs	Hydro chlorofluorocarbons
HIPC	Heavily Indebted Poor Country
IAEA	International Atomic Energy Agency
IBRD	International Bank for Reconstruction and Development (World Bank)
ICARA	International Conference on Assistance to Refugees in Africa
ICRC	International Committee of the Red Cross
ICSU	International Council of Scientific Unions
IDB	International Development Bank
IDS	Institute of Development Studies (Sussex University, Brighton, UK)
IIED	International Institute for Environment and Development
IISS	International Institute for Strategic Studies (London)
ILO	International Labour Organisation
IMF	International Monetary Fund

IMO	International Maritime Organisation
INF	Intermediate-range Nuclear Forces
INFOTERRA	International Referral System for Sources of Environmental Information,
IPCC	Intergovernmental Panel on Climate Change
IRO	International Refugee Organisation
IRPTC	International Register of Potentially Toxic Chemicals
ITTA	International Tropical Timber Agreement
IITC	International Tropical Timber Council
ITTO	International Tropical Timber Organisation
IUCN	International Union for the Conservation of Nature (Now World Conservation Union)
MNEs	Multinational Enterprises
NAFTA	North America Free Trade Agreement
NASA	National Aeronautics and Space Administration (US)
NATO	North Atlantic Treaty Organisation
NEAP	National Environmental Action Plan
NGOs	Non-Governmental Organizations
NIEO	New International Economic Order
OAS	Organisation of American States
OAU	Organisation of African Unity
ODA	Overseas Development Agency (now DfID-Department for International Development)
OECD	The Organisation for Economic Co-operation and Development
OPCW	Organisation for the Prohibition of Chemical Weapons
OPEC	Organisation of Petroleum Exporting Countries
OSCE	Organisation for Security and Co-operation in Europe
PAC	Pan-Africanist Congress (South Africa)
R&D	Research and Development
RIMA	Environmental Impact Statement (Brazil)
SACEUR	Supreme Allied Commander, Europe
SADC	Southern African Development Community
SADCC	Southern African Development Co-ordination Conference
SAP	Structural Adjustment Programme
SIPRI	Stockholm International Peace Research Institute
SO₂	Sulphur dioxide
SWAPO	South West African Peoples Organisation
TFAP	Tropical Forestry Action Plan
TNF	Theatre Nuclear Forces
TRFs	Tropical Rain Forests
UN	United Nations
UNCED	United Nations Conference on Environment and Development
UNCHE	United Nations Conference on the Human Environment

UNCLOS	United Nations Convention on the Law of the Sea
UNESCO	United Nations Educational, Scientific and Cultural Organisation
UNDP	United Nations Development Programme
UNDRO	United Nations Disaster Response Organisation
UNGA	United Nations General Assembly
UNHCR	United Nations High Commissioner for Refugees
UNIDIR	United Nations Institute for Disarmament Research
UNICEF	United Nations Children's Fund
UNRISD	United Nations Research Institute for Social Development
UNSSD	United Nations Special Session on Disarmament
USAID	United States Agency for International Development
WCED	World Commission on Environment and Development
WEU	Western European Union
WFP	World Food Programme (United Nations)
WHO	World Health Organisation.
WID	Women In Development
WMO	World Meteorological Organisation
WRI	World Resources Institute.
WRM	World Rainforest Movement
WTO	World Trade Organisation (Warsaw Pact)
World	Trade Organisation
WVF	World Wide Fund for Nature
WWW	World Weather Watch

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- Unit 3 The UN and International Security
- Unit 4 Approaches to Environmental Difficulties

MODULE 2 IDEOLOGICAL CONTENT OF ENVIRONMENTAL EDUCATION

- Unit 1 Education, Environmental Ethics and values
- Unit 2 Principles for Understanding and Sustaining the Earth
- Unit 3 Population and Environment
- Unit 4 Environmental Pollution

MODULE 3 MAJOR INTERNATIONAL INSTRUMENT FOR COMBATING ENVIRONMENTAL DEGRADATION

- Unit 1 The Stockholm Conference
- Unit 2 The Rio Conference
- Unit 3 The United Nation Conventions
- Unit 4 International Environmental Institutions

MODULE 4 SUSTAINABLE DEVELOPMENT

- Unit 1 What is Sustainable Development
- Unit 2 Dilemma of Policy and Politics of sustainable development
- Unit 3 Challenges of the Principles of Sustainable Development
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MODULE 1 ENVIRONMENTAL AND THE ENVIRONMENTAL STATE OF THE WORLD

INTRODUCTION

If it is true that our planet is subject to periodic climatic change in the course of its history, why should we raise an alarm at the global warming the earth is experiencing today? Is the periodic climatic change not normal and natural? It may be affirmed that there must be periodic climatic change. However, it may be argued that the global warming we are experiencing today is dangerously rapid and primarily promoted by human factors, hence the relevance and immediacy of efforts at the control and protection of the environment. Necessarily, the efforts will take place in the context of international politics. Before any meaningful discussion on the environment and its politics can be embarked upon, it is necessary to establish an overview of the state of the world as the context of the discussion.

Unit 1 Environment, Population and Poverty

Unit 2 The State of the World

Unit 3 International Initiatives

Unit 4 Approaches to Environmental Difficulties

UNIT 1 ENVIRONMENT, POPULATION AND POVERTY

CONTENTS

- 1.0 Introduction
- 2.0 Objectives
- 3.0 Main Content
 - 3.1 Historical Background
 - 3.2 Population
- 4.0 Conclusion
- 5.0 Summary
- 6.0 Tutor-Marked Assignment
- 7.0 References/Further Reading

1.0 Introduction

The 'State of the World' is being addressed systematically, statistically and comprehensively every year (SIPRI Year Book, Bulletin of Atomic Scientists, World Watch Year Book, World Bank Year Report, Global Trend, and so on). In this Module, emphasis is laid on population, security, environmental and developmental issues in so far as they shed light on the discussion of, and the urgency of arresting environmental degradation.

2.0 Objectives

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

- a. Give a historical background on the environment
- b. Discuss in detail the state of the world right now environmentally
- c. Establish the link between the environment and population

3.0 Main Content

3.1 Historical Background

Probably the first type of knowledge human beings acquired was ecological in nature and this was needed to survive in a rich and competitive biotic community. In such a competitive environment, human beings had to ensure a balanced and continuous interaction even when he knew that he had competitors in his environment that were stronger, swifter and hardier. His advantages over other competitors included an advanced reasoning and manipulative ability and an effective social organization which were demonstrated in the early Paleolithic Geological time, by the development of both tools and fire. Hence, the strategy of survival devised by him in such a competitive and rather hostile environment including the use of (ecological knowledge and wise use of the natural resources in his environment) was in a sense, the beginning of environmental education.

This ecological knowledge was an advantage in hunting expedition. Africans for example, had a detailed ecological knowledge of the plants and animals in their environment, and the various uses these could be put in terms of food, medicine, construction and ornament. In the indigenous African setting, malnutrition was rare; starvation and chronic diseases, as we know them today, were relatively low among hunter-gatherers. This is indicative of the extent of the knowledge of ecological balanced among the hunter-gatherers. Dunn (1968) and Neel (1970) also indicated that there was high infant mortality, primarily through infectious diseases, and high social mortality (infanticide, genocide, warfare etc.) which served as primary mechanisms of population control.

Unfortunately, the hunter-gatherers, even with their detailed ecological knowledge and awareness of the importance of maintaining ecological balance for survival, were not good conservationists. Guthrie (1970) indicated that early man exploited his environment at every opportunity emphasizing that he was a persistent forager and a relentless adventurer whose primary goal was survival. He was often nomadic in part because prolonged habitation in only one area depleted game and firewood and accumulated wastes to the extent that the region was no longer habitable.

Man's course for further survival was based in part, on his broad ecological knowledge. And with the rise of civilization and growing professional differentiation of labour, man embarked on the domestication of plants and animals for greater productivity and control over the means of subsistence. As a result, the pattern of human existence and survival was transformed and the development of pastoral and agricultural life marked a beginning of new relationships. This relationship was characterized by the establishment of permanent villages, development of inter-group co-operation and trade routes and the rise of a new type of ecological and economical knowledge, in which the science of economics displaced that of ecology in the struggle for survival.

With the dawn of recorded history about 3000 B.C. and the rise of 'modern' civilizations in Egypt and Mesopotamia (the Bronze and, Iron ages of between 3000 B.C. to 1000B.C.) an elaborate agenda for the exploitation of the environment, was already set in motion, which in the name of agriculture, luxuriant forests were cut, farmlands were cleared, pasture grazes and ploughed and the natural landscape fashioned out to accommodate the growing socio-economic and aesthetic demands of modern man. Hence, agricultural man armed with the gains or -the Bronze and Iron ages set into motion several major ecological forces which now have significant environmental consequences –deforestation, desertification, acid rain, climatic changes, overgrazing, intensive burning, loss of biodiversity and pollution of all forms and magnitude.

The observation of the World Institute Report (1997) in respect of the environment is pertinent here. It states:

Since the Earth Summit in 1992, human numbers have grown by roughly 450 million, which exceeds the combined populations of the United States and Russia. Annual emissions of carbon, which produced carbon dioxide, the leading greenhouse gas, have climbed to a new high, altering the very composition of the atmosphere and the earth's heat balance.

During these past five years, the earth's biological riches have also been rapidly and irreversibly diminished. Huge areas of old-growth forests have been degraded or cleared - in temperate as well as tropical regions - eliminating thousands of species of plants and animals. Biologically rich wetlands and coral reefs are suffering similar fates (World Institute Report. 1999.73) President Jimmy Carter, in 1977 commissioned a study to examine changes in global population, natural resources and the environment to the end of the century. The resultant report (The Global 2000 Report) was submitted in 1980. Specifically, and among others, the report concluded that by the year 2000:

- World population would increase by a half, the greatest growth being in less developed countries;
- The gap between the richest and the poorest - measured in terms of per capita GNP, and the consumption of food, energy and minerals- would widen;
- There would be fewer resources available - notably land, water and petroleum;
- important life-supporting ecosystems-such as forests, the atmosphere, and soil and wildlife species- would be reduced;
- prices of many of the most vital resources would increase;
- The world would be more vulnerable to natural disaster and to disruptions from human causes.

The same report noted with great concern when it stated that

Given the urgency, scope and complexity of the challenges before us, the efforts now underway around the world fall far short of what is needed. An era of unprecedented global cooperation and commitment is essential. The necessary changes go beyond the capability of any single nation.

The subsequent document from the report, *Global Future: Time to Act* was preoccupied with a search for solutions to the problems highlighted. It gave three main reasons why the US should take an active interest in global resource impoverishment and environmental degradation. These were the moral question of poverty and misery for the world's poorest of the poor, the 'future generations' argument and the threat to the political and economic security of the US (national self-interest). In general terms, the Global Future recommended for the US increased financial and scientific assistance for international programmes. Use of its agricultural land sustainably and work towards ensuring that 20 percent of US energy be derived from renewable resources by the year 2000.

Alexander (1996) confirms the observation of the Global 2000 Report in respect of environmental degradation and poverty but goes further to bring out other salient points. He states that the West, with one-fifth of the world's population, consumes seventy-five percent of the world's resources and produces over sixty percent of carbon dioxide (CO₂) emission plus environmental pollution. Furthermore, he states that there is no binding international law for all and that the West provides insurance of all kinds to its people - farm subsidies, welfare packages, research and development grants. Infrastructures of schools, hospitals and, monopoly through patent rights, bankruptcy laws and so on. He affirms also that the developing countries cannot enjoy equal benefits with the West without the earth losing its sustainability (Alexander, 1996).

Similarly, Elizabeth Dowdeswell, UN Under-Secretary General and Executive Director, UNEP, recognizes that global interdependence could no longer be conceived only in economic terms and that there is no environmental protection programme that can make headway without removing the day-to-day pressures of poverty that leave people little choice, that discount the future so deeply and fail to protect the resource base necessary for their own survival and their children's well-being (*Our Planet*, 1999:2).

The World Bank states that many developing countries have reduced poverty by as much as 50 percent (World Bank, 1990). This improvement shows in the decline in average infant mortality rates for low and middle income countries from 107 per 1,000 live births in 1970 to 60 in 1995. Life expectancy at birth increased from an average 55 years to 64 years respectively. So it concluded that The world today is healthier, better educated, and better fed than it was 25 years ago However, it admitted that this global achievement masked vast disparities across regions and countries. This is attested to by the World Bank (1997).

Infant mortality remains above 90 per 1,000 live births in Sub-Saharan Africa and 70 in South Asia, compared with 40 for East Asia. Average life expectancy at birth is only 52 years in Africa, compared with more than 60 for other regions. Primary school enrolment in some African countries has declined, and secondary school enrolment is only 24 percent, compared with over 50 percent for some other developing regions. And as the world approaches the turn of the century, more than 1.3 billion people are living on less than \$1 a day and another 2 billion are only slightly better off. Most of the poor - about 60 percent - Live in South Asia and Sub-Saharan Africa, which together account for 14 percent of the aggregate GDP of developing countries and 3 percent of the world's (World Bank, 1997:29).

Poverty: James Gustave Speth sheds light on what poverty means. It entails far more than meagre incomes. Not to have enough money is only one aspect of a broad and more complex condition of deprivation, which is being named today as 'social exclusion'. He goes further to state that more often than not, poor people have little or no access to basic social services and are therefore undernourished, in bad health and poorly educated. They receive low returns on their

main asset - their labour and are deprived of access to knowledge and other productive resources such as land and credit. Poverty is also a reflection of the existence of a power gap, which keeps poor people isolated, marginalized, helpless and vulnerable. The degree of poverty in the West may be very low in comparison with the developing countries; nevertheless it is present (Our Planet, 1995:2).

The Special NGO Committee for Disarmament, Geneva 1995, summed up the problem of poverty as being among the greatest failures of the global community. It goes on to state that: Around one billion people live below the subsistence levels; half of the world's population may not have access to safe drinking water, three-quarters of the developing world have no adequate sanitary facilities, at least 200 million people lack even basic shelter. To meet minimum health care needs, the developing world requires an additional 4.5 million hospital beds, half a million physicians and 3 million other health workers. These requirements appear daunting, yet their cost is less than the world Spends annually on preparations for destruction (UN, Disarmament, 1995:43).

SELF ASSESSMENT EXERCISE

Explain Poverty with James Gustave Speth, as a guide.

3.2 Population Another phenomenon with environmental implication is the rapid growth of human population. Cities have expanded in proportion to population increase. Farmlands and orchards have given way as people needed more space for living, working and playing. Construction of factories, houses, settlements, roads and development of recreational areas, 'features of development', have taken a substantial proportion of agricultural lands. For instance, the US Department of Agriculture estimates that urban expansion in Java, an island in Indonesia, claimed 20,000 hectares of cropland there in 1994, an area large enough to supply rice to 300,000 Indonesians. Housing development programme continued to take more land. 'Between 1983 and 1992, approved requests for housing started in just three cities in West Java - Bogor, Tangerang and Bekasi - covered nearly 61,000 hectares'. The land loss due to 'development' is experienced in other lands. In the US, 'some 16.8,000 hectares - the equivalent of two New York cities were paved over each year between 1982 and 1992'. The loss jeopardizes much of US fruit and vegetable production (Worldwatch Institute Report, 1997:47)

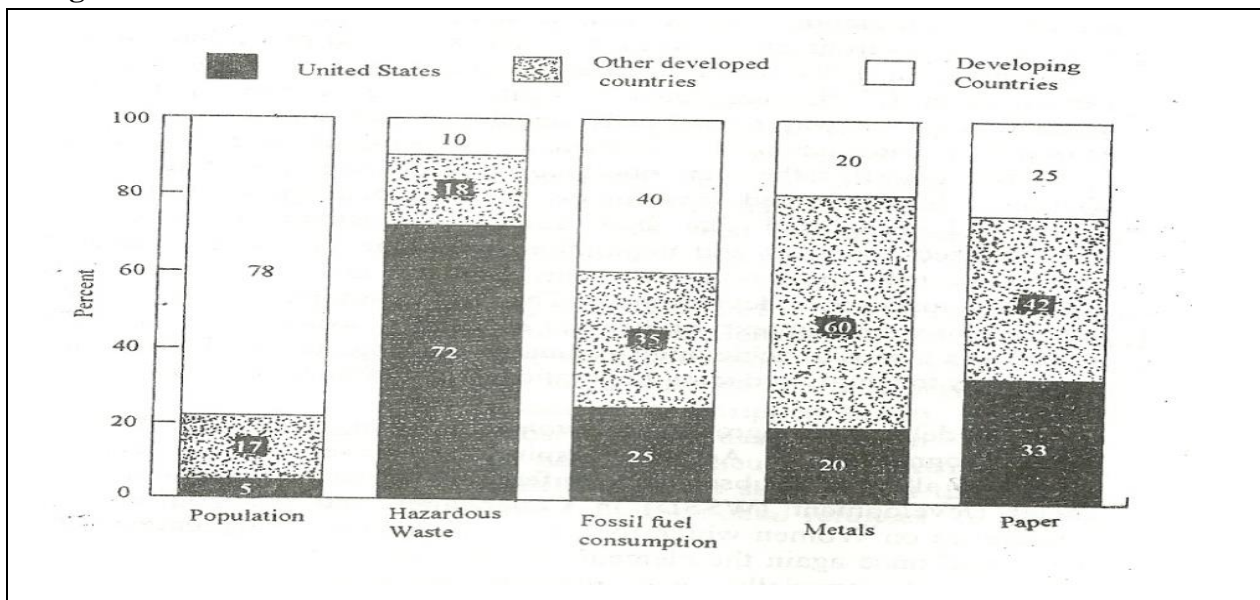
Economic and urban growth also stimulates expansion of transportation infrastructure, which can devour crop land. The interests of motorists and farmers are increasingly at odds as roads and parking lots pave over farmlands.

Automobile ownership is surging in Latin America, Eastern Europe, and especially Asia. In China, domestic car production has been growing at more than 15 percent annually; the

government plans to increase automobile output from 1.4 million units in 1994 to 3 million in 2000. In Vietnam, import quotas for cars were tripled in 1996, and sales of four-wheel vehicles are projected to increase six fold between 1995 and 2000. Vehicle sales and registrations are surging in India, Indonesia, Malaysia, and Thailand as well. Around Asia, the shift to transportation systems that emphasise private automobiles is in full swing (Worldwatch Institute Report, 1997:47).

Developing Countries Share of Population Natural Resource Consumption and Waste Production

Figure 1



Source Natural Resources Defense, Population and Planet Earth, 1993 p.7

Similarly, urbanization and rising prosperity particularly in many developing countries are demanding for recreational facilities and space. For instance, golf has suddenly become the game in some regions. In Thailand, 160 golf courses were built between 1989 and 1994 with each taking between 160-320 hectares of land.

In-mid 1995 the world population totaled 5.7 billion. The progressive growth in population and its implications for development, human welfare and environmental sustainability have led to many international conferences. In 1994, the International Conference on Population and Development (ICPD) convened in Cairo. There, a new approach to population which was consensually developed put human development especially the advancement of women, at the centre of policies to address population growth rather than one focused on demographic targets. The approach also integrated environment into the population development nexus and recognised that both resource consumption patterns of industrialized countries and population growth in

developing countries have important impacts on the environment and on prospects for achieving sustainable development. The conference put family planning into the broader context of health, especially women's reproductive health, as a means to achieving sustainable development goals rather than as a means to simply reducing population growth (Gelbard, 1995:16).

4.0 Conclusion

Over 180 delegations agreed to the non-binding agreement known as the international Conference on Population and Development Programme (ICPD) of Action. Despite the consensus, not everyone supported all of it. Subsequent conferences at the World Summit for Social Development (WSSD) in Copenhagen and the Fourth World Conference on Women which took place in Beijing in September 1995 challenged once again the elements of the Cairo consensus. There was disagreement especially over reproductive health, the family and adolescent sexuality. That notwithstanding, there is little debate that population growth is an important factor linked to economic development and the environment. In general, the key-contributing factor to disagreement as to what needs be done is that not everyone is engaged in the discussion from the same perspective. Until all those involved in discussions in respect of population, wealth and poverty are ready to acknowledge their differences and attempt to find solutions that take them appropriately into account, consensus is unlikely. Solutions to the complex issues must respect human rights and improve conditions for all individuals, families and communities and must recognize and respond to global interdependencies.

5.0 Summary

Unfortunately, the World Order of today has not addressed meaningfully the impending ecological catastrophe, the growing gap between rich and poor, within and between countries, the proliferation of weapons of mass destruction and the denial of basic human rights in most parts of the globe. A development model that does not destroy the environment irreparably is yet to be developed. Progress has been made in many areas of human endeavour particularly in communications, genetic engineering and medicine but environmental degradation has lost out. Why do we have this state of affairs in respect of the environment? A response to this concern constitutes the task of the next units.

6.0 Tutor-Marked Assignment

In two paragraphs explain what you understand by the environment.

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UNIT 2 THE STATE OF THE WORLD

CONTENTS

- 1.0 Introduction
- 2.0 Objectives
- 3.0 Main Content
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 - 3.2 Development Consumption Pattern and Environmental Degradation
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1.0 Introduction

In the previous unit, we discussed the historical background on the environment, discussed in detail the state of the world right now environmentally and tried to establish the link between the environment, population and poverty in the world today. In this unit, we shall focus on global warming, development and consumption pattern and how all these lead to environmental degradation.

2.0 Objectives

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

- a. Define global warming in your own words and state its causes
- b. Elucidate on how development consumption pattern contribute to environmental degradation
- c. State which ways both developed and developing countries contribute to global warming

3.0 Main Content

3.1 Global Warming The problem of global warming is not the result only of a specific destructive activity but of the quantity of human action everywhere in the world. The greenhouse effect, which threatens to bring about a rise-in sea level, will inundate low-lying coastal areas like the fertile and densely populated Nile delta in Egypt and the Bengal delta region, which covers 80 percent of Bangladesh already subject to violent seasonal storms that cause disastrous floods. 46 million people may lose their homes and livelihood in the two deltas alone. Similarly, a rise in sea level could also wipe out entire island nations such as the Maldives, none of which is more than a meter or two above sea level. Together with a whole host of other ecological issues, environmental degradation raises on a global level the question of the consequences of human activity as such. Often, there are unintended effects and unforeseen results (Rodda, 1991:13; Foley, 1991:41, 47). Jacobs (1996) puts in this way:

In many parts of the world, notably in the Middle East and in the water-sheds of India, Pakistan and Bangladesh, dwindling water supplies are causing political tension and threaten military conflict. In 1994 alone there were 28 conflicts between nations over fishing rights as catches outstripped supply. Meanwhile deforestation, soil erosion and desertification are forcing increasing numbers of people, particularly in Africa, to leave their homelands. Detailed estimates suggest that there are now approximately 25 million “environmental refugees” in the world (Jacobs, 1996:54).

Among the major problems associated with global environmental degradation are climate change, ozone depletion, trans boundary air pollution, deforestation, soil loss, desertification and drought, conservation of biological diversity, protection of the oceans and seas, protection of fresh water resources, traffic in toxic and dangerous products and wastes and so on. It must be asserted that North-South economic relations influence the environmental realities and shape the attitudes and policies of developing countries toward global environmental issues. Similarly, the impacts of the structure and dynamics of the global trade system on environmental problems have become widely recognised. Increasingly, environmental concerns are becoming accepted as legitimate national security issues and they constitute the basis for a critique of conventional military-Security policies (Porter and Brown. 1991:107). While action by individuals, organisations and individual nation states is necessary and mandatory to combat these problems, collective efforts are also required. This is because most of these environmental problems transcend national borders and require resources and technologies that are not available to many nations. Moreover, solutions to some of these problems may impinge on the so-called sovereignty of nation states either in the short or long term. Without the pressure of collective commitments, including the willingness to share the short-term costs, few countries will act. Even then, will their response or provisions be adequate to reduce the pace of global change to a level the biosphere can accommodate? The complexity of environmental issues is brought out succinctly by Hurrell and Kingsbury as they stated that:

Environmental issues almost invariably involve a degree of scientific uncertainty that complicates decision-making. We are not yet ‘in charge’ of the natural world. Forecasting tools provide ably crude approximations based on, unverifiable assumptions. Disagreement among technical experts on complex environmental issues is pervasive. Many environmental issues also hinge on the problem of how best to manage a common resource or its converse, how to penalize. ‘Free riders’ (Hurrell and Kingsbury 1992:152).

Often, natural scientists think that socio-economic and political phenomena are at the core of the problem of environmental change. They see the global change, which threatens the physical stability of the planet in the immediate future as a result of human behaviour and human institutions. Economic development and technological advancement have grown to such a scale as to exceed, or threaten to exceed, the carrying capacity of the natural systems and to damage

their recuperative capacities. This is associated with energy use and resource consumption integral to human society. It now impinges on the right to development of the earth's poorest peoples and involves deeply controversial issues of future population levels and population policy (Bretherton and Ponton, 1996:198).

Although there have been some signs of a shift in awareness and concern for the environment since the 1980s. The world is still far from making a transition to an 'environmentally oriented international security system' (Porter and Brown, 1996:108). For instance, this is demonstrated by the firmness with which the US continues to oppose any linkage between the global environment and national security. In 1991, at the First Committee of the United Nations General Assembly, the US opposed a Swedish resolution calling for an expert study of the 'potential uses of resources such as know-how, technology, infrastructure and production currently allocated to military activities to protect the environment' on the ground that issues of security and environment should not be connected, The resolution passed by 113 to 3, and 12 abstentions. Ironically, it was the UK and France that joined the US in voting against the resolution while most of the rest of NATO abstained (Disarmament Time, 1990:1). Fortunately by September 1996, all five declared nuclear states have signed up to the comprehensive Test Ban Treaty. Similarly, the US voted against the biodiversity convention of the Earth Summit in Rio in 1992. In respect of nuclear weapons testing, nearly 100 countries have voted in the UN in favour of the negotiation of a comprehensive ban on testing nuclear weapons. Again, the US, UK and France have opposed it (Porter and Brown, 1996:112). In his 1992 report to the US Senate, the Director of the Central Intelligence Agency did not consider global environmental degradation as a threat (Deutch, 1996).

Arguably, two basic approaches to environmental degradation may be recognised. The orthodox view sees solutions through the adaptation of human institutions, that is, incremental change approach. This model would settle for modest progress toward effective regimes, on the assumption that further increments of progress will follow later. CITES, the London Dumping Convention and the 1987 Montreal Protocol are examples of this approach. Brundtland Commission's 'sustainable development' reflects the orthodox view (incremental approach). It argues that if there is international co-operation, incorporating 'big science' into policy. - business as usual - the scenario may go on 'affirming that the developing countries can develop, industrialize and make a productive place in the global economy while the industrialized nations can maintain and improve their own standard of living' (Bretherton and Ponton, 1996:198).

The radical view argues that the question of environmental degradation can be addressed meaningfully only by an abandonment of current forms of socio-economic development and leveling off of the growth trajectory. If this should fail then, there may be some form of collapse after which the planet will adapt and survive, but not humankind as we know it (Lovelock, 1989).

James Cameron sees solution to the problems of development and environmental degradation in sustainable development paradigm in his chapter “The GATT and the Environment” (Sands, 1993:102). Quoting UNCED he stated that:

Sustainable development means the progressive economic and social development of human society through maintaining the security of livelihood for all peoples and by enabling them to meet their present needs, together with a quality of life in accordance with their dignity and well being, without compromising the ability of future generations to do likewise.

This may be a very good definition but many issues have to be clarified. What does progressive economic and social development mean? In what social milieu? In what context? What is the goal of the UN Charter of Human Rights/Peoples Rights? What does security of livelihood for all peoples entail? Is it security of job, basic necessity of life, freedom from molestation and violence and so on? Who decides the quality of life? Can the present resources match the world’s population? Are the lifestyles in both the North and South now in harmony with the ‘integrity of creation’?

The ‘sustainable development’ paradigm as the solution to environmental degradation is defective if:

...Sustainability requires that growth must not exceed the capacity of the larger system to regenerate resources and absorb waste at sustainable rates and without disrupting other vital natural services such as photosynthesis, nitrogen fixation etc. (Dale, 1992).

Working within the ‘sustainable development’ framework on a global scale is harmful because it prioritises economic growth, which in turn fuels the engine of environmental destruction. Jacobs sums it up as:

...the existing processes of economic development cause poverty even as they generate wealth... Human suffering and injustice can no longer be tolerated on the grounds that ‘progress’ will gradually eliminate them. General aid for economic growth is now morally inadequate. It has become imperative rather for the rich nations to tackle poverty directly, in particular by addressing those aspects of their own international economic policy which contribute to it (Jacobs, 1996:43)

A corollary to the ‘sustainable development’ paradigm is scaling down consumption. It is affirmed that Consumption has become a ‘value’ and permeates the social fabric of society. People increasingly measure success by the amount of ‘waste’ they consume. This is particularly true in the world’s two largest economies of Japan and the US. The Japanese speak of the ‘new three sacred treasures’ of colour television, air conditioning and the automobile. ‘Dynasty’, a

soap opera which portrays the life-style of the richest Americans, has been imported to Europe. In the early 1990s, one fourth of Poles deemed it their favorite television programme while 'Dallas', a television series that portrays American oil tycoons, captured the hearts of many Africans (Durning 1992:22). The world has over 202 billionaires and more than 3 million millionaires (Durning 1992:22). It is argued that if the consumption rate is scaled down, then there will be a solution to environmental degradation. Durning summarized the argument as:

...Reducing the consumption levels of the consumer society, and tempering material aspirations elsewhere, though morally acceptable, is a quixotic proposal. It bucks the trend of centuries yet it may be the only option (Durning, 1992:25).

It must be clear that destitution, the Opposite of over Consumption, is no Solution to environmental degradation. Dispossessed peasants slash-and- burn their way into the rain forests, hungry nomads turn their herds on fragile landscape, reducing it, in no time, to desert and the steep slopes cultivation exposes the mountain terrace to the erosive powers of rain.

The earth cannot support all human beings living like American consumer's much less 5.5 billion people or a future population of about 8 billion. It is also not realistic to abandon the present socio-economic, socio-cultural and political reality. The incremental change approach to environmental problems is not the solution either (Porter and Brown, 1996:146).

From the recent environmental treaties, it may be deduced that there is a growing demand and need for nation states to have access to and use natural resources within the background of a finite and perhaps even shrinking resource base. This has led to increasing interstate tension and conflict. Secondly, in the context of tough competitive global economics, states that do not comply with their environmental obligations, for whatever reasons, are perceived to gain unfair competitive economic advantage over other states that comply. In recent years, the nature and extent of international environmental obligations have been transformed in recent years as states assume greater environmental treaty commitments. But the international community has a long way to go in finding lasting solutions to the problems of development, Security and environmental degradation.

SELF ASSESSMENT EXERCISE

In which ways do both developed and developing countries contribute to global warming?

3.2 Development, Consumption Pattern and Environmental Degradation

The state of affairs we have is a product of our human choices. At its foundation, the World Bank is saddled with a mission to promote a particular kind of economic development. Accordingly, it has funded projects 'such as the Trans-Amazonian Highway or the Indian Sardar

Sarovar and Marmada Sager dams which sacrifice the environment to rather crude concepts of GNP growth. The World Bank is not alone. The GATT world trade regime now under the auspices of the WTO has the same ethos. It exists to encourage the growth of international trade through the elimination of protectionism and discrimination.

The resource implications of such an encouragement, especially in terms of energy consumption and the pressure to alter patterns of agriculture and to indulge in deforestation in order to trade in global markets appear to directly contradict the intentions of the Framework Climate Convention. The IMF can also be regarded as essentially part of the problem because its policies of 'structural adjustment' instruct government to priorities export-led economic stabilization, which all too often involves the depletion of environmental capital (Bretherton and Ponton, 1996:2 14).

The Atlantic Charter of 1941 spelt out the core convictions of Western unity and created a bipolar world of Capitalism and Socialism led by the US and former Soviet Union respectively. The West's convictions are expressed in terms of freedom, democracy, development, human rights, peace and prosperity. Unfortunately, the underpinning political principle of 'united' did not include all peoples but defense of Western interests and the containment of Soviet expansionism. Fear of communism was used to convince the US public of the need to spend large sums of money on defense, rebuild Europe and Japan and to intervene forcefully in other countries across the globe. In the pursuit of 'western unity', the ideals of democracy human rights and the rule of law became more of a rhetoric propaganda war with the Soviet Union. It is true that the West tolerated much greater freedom than the Soviet Union. But many of its interventions in the developing countries and the hounding of internal Opposition to dictatorships of many fragile independent states betrayed its own ideals (Alexander 1996:235).

From the perspective of the South, the implications of the West's ideology on the developing countries can be summarized as:

- An assumption that Western ways are best or indeed the only ways: they are superior;
- national sovereignty and the defense of western security override the rule of law in international affairs;
- the main means of increasing prosperity are the imperatives of property and market forces;
- Democracy as an exclusive and national process about winning and holding state power.

And so developing countries sometimes can be classified as creditor, debtor and nations which are heavily in debt. This system of classification cannot take into account, culture and other attributes. Ironically, though, despite its massive debts, the US is not listed as a debtor country nor has the West been reclassified as 'over-developed' or 'mal-developed' since its damaging impact on the environment became recognised. Judged by rates of murder, rape or crime, the US

would appear among the least developed countries of the world. But the West sets standards against which all other countries are measured. Should this always be the case?

The West has a legacy of pollution from industrialisation, excessive consumption and general over-abundance. People in the industrial world account for only about 21 percent of the global population, and that share is decreasing given the faster rate of population growth in the developing world. But industrial countries consume about 86 percent of the globe's aluminum, 81 percent of its paper, 80 percent of its iron and steel, 75 percent of its energy and 61 percent of its meat. So they are responsible for the vast majority of the hazardous wastes created by the mining and smelting of aluminum and iron ores, the clear-cutting of forests done for the sake of paper production, the air pollution and building of greenhouse gases caused by fossil fuel burning, and the severe soil erosion found on grazing lands. Many of these degrading activities, however, occur disproportionately in developing countries (Worldwatch Institute, 1996:144).

The developing countries contribute to global warming in three main ways:

1. By burning forests for agriculture and ranching (countries such as Brazil not only release more carbon dioxide into the atmosphere, but also destroy valuable carbon dioxide sinks because the forests draw carbon dioxide out of the atmosphere);
2. By raising livestock, which produces methane; and
3. By burning fossil fuels. The OPEC countries fear that mandated limits on carbon emissions might depress the price of oil, their principal source of revenue.

With the exception of the Association of Small Island States (AOSIS), where the externalities associated with climate change are dramatically negative, most of developing countries assign a much higher priority to economic development (Sell, 1996: 197).

In spite of the danger of global warming, there is a rapid increase in emissions in US with 4.4 percent since 1990, Canada by 5.3 percent, Australia 4.2 percent. These three countries share a pattern of low energy prices, large houses and heavy use of automobiles. From mere scientific observation, none of these countries is likely to meet the goals of the climate convention. It must be emphasised that the countries with the lowest demand for carbon abatement measures are the US, the large industrializing developing countries like Brazil, China and India, and the OPEC countries. The US is not convinced that the benefits of sharply reducing global carbon emissions significantly outweigh the costs of compensating developing countries for adopting climate-friendly emissions reductions:

...estimated costs for the United States to comply with the Montreal Protocol are \$2.7 billion. In contrast, the estimated costs of an anti-green house carbon dioxide cut are between \$800 billion and \$3.6 trillion for the United States (Sell, 1996:106).

The citizens of the west enjoy social security and services such as education, health, child protection and public safety as basic rights. Among themselves, the richest countries also provide substantial aid to poorer states within the West. For instance, the US provides military assistance through NATO. The European Union has a well-developed system of automatic international aid through the Common Agricultural Policy, Structural Funds and similar schemes.

Structural Funds allocated some \$170 billion (142 billion ECU at 1992 prices) for 1994-9, almost \$30 billion a year. This is slightly more than the total aid from all European countries to the Majority World (developing Countries). Over half (68%) of European aid is allocated to regions where GDP per head is less than the Community averages (this was about \$13,000 in 1990)...European Structural Funds provide a quarter of public investment in Greece, Portugal and Ireland, increasing GDP by up to 7 percent. Agricultural subsidies can add a further 5-8 percent of GDP. By contrast, structural adjustment for the Majority World means cuts in living standards and a reduction of public investment the world's poorest countries receive on average, 3 percent of their GDP in aid often given in the context of emergency and disaster. Europe gives more aid to its cows than to people in the Majority World (Alexander, 1996:79).

4.0 Conclusion

All Western countries support selected manufacturing industries through direct subsidies, research and development, and assistance with restructuring. Britain, France and the US pour large sums of money into arms industries. Aerospace enjoys extensive, mostly hidden, subsidies for development and production of aircraft, air traffic control, airports and national carriers as well as tax-free fuel. The Japanese Ministry of International Trade and Industry (MITI) sponsors strategic sectors to develop internal infrastructure and exports abroad. Throughout the West, industrial decline and over-capacity have been made more bearable through redundancy payments, retraining and stimulus for new industries. Concern over unemployment has also prompted most Western states to develop regional programmes and investment incentives to attract large employers. For example, states within the US spent between \$120 million and \$325 million to attract investment from the car industry while Britain spent over \$1 billion on sustaining and restructuring its car industry and continues to provide grants for foreign investors (Alexander, 1996:81).

5.0 Summary

All Western countries support selected manufacturing industries through direct subsidies, research and development, and assistance with restructuring. Britain, France and the US pour large sums of money into arms industries. Aerospace enjoys extensive, mostly hidden, subsidies for development and production of aircraft, air traffic control, airports and national carriers as well as tax-free fuel. The citizens of the West enjoy social security and services such as

education, health, child protection and public safety as basic rights. Among themselves, the richest countries also provide substantial aid to poorer states within the West.

6.0 Tutor-Marked Assignment

How do the entire Western industrialized lifestyle and the pursuit of 'development' by the developing countries endanger our planet in the context of climate change?

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UNIT 3 THE UN AND INTERNATIONAL MILITARY SECURITY

CONTENTS

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 - 3.1 United Nations and International Security
 - 3.2 Some International Environmental Crime
 - 3.3 Arms Trade and Environmental Implications
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1.0 Introduction

In the previous unit, the discussion was on global warming and developmental consumption pattern and how the resultant environmental degradation endangers our planet. In this unit we shall continue focusing on more International environmental crimes, the United Nations and International Military Security and Arms trade and its environmental implications.

2.0 Objectives

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

- a. List the main purposes of the United Nations and criticize it ‘inability to deliver’.
- b. Identify some international environmental crimes
- c. Discuss critically the arms trade and its environmental implication.

3.0 Main Content

3.1 UN and International Military Security

Chapter 1, article 1 of the United Nations lists the main purposes of the Organisation. These are the ‘maintenance of international peace and security’ and the ‘development of friendly relations among nations’. The third was the ‘achievement of international co-operation in solving international problems of an economic, social, cultural or humanitarian character’. The fourth purpose is ‘to be a centre for harmonizing the actions of nations in the attainment of these common ends’.

As wonderful ideals as the main purposes of the UN are, the experiences and observations of the developing countries in the practices of UN do not seem to be encouraging. The General Assembly can make recommendations to member states or the Security Council (Article 11) but it cannot make recommendations on any matters being considered by the Security Council unless

asked. Under the 'Uniting for Peace' resolution of 1950, it may act if the permanent members of the Security Council do not, but it lacks forces and resources to act independently. This gives enormous power to the permanent members since no decisions can be made without their consent. Opposing Western interests in the Security Council can be costly for poor countries. For instance, the US cut aid to Yemen after it voted against Western intervention in the Gulf Again, when the African region nominated Boutros Ghali, the Secretary General of the United Nations, for a second term in 1996, the US vetoed the nomination simply because it considers the Secretary not to be subservient to it.

Posts and positions of influence at the UN are filled through an 'old-boys' network, which gives the five permanent members of the Security Council a veto over most post appointments. The process does not include open advertisement, publication of job descriptions, and scrutiny of candidates nor open election. Again, this process does not support fair play to all the members of the UN.

The lack of a reliable and trustworthy international court also gives countries like Libya grounds to fear that its citizens cannot get a fair trial abroad, as in the case of the two Libyans accused of the Lockerbie bombing. The case also highlights the need for an international criminal court to deal with terrorism, hijacking, drug trafficking, genocide, war crimes and other offences which cross state frontiers or are of global significance but cannot be tried in one country.

In relation to the criticism of the UN's 'inability to deliver', it must be borne in mind that Its central budget is less than that of the New York police and fire departments;

...its central offices employ fewer people than the city of Stockholm; and world-wide it has fewer employees than McDonalds. UN peacekeeping expenditure is less than 1 percent of the estimated \$868 billion in military spending by all the world's states combined. Yet the UN is starved of cash' and on the verge of insolvency. With no major income-generating capacity of its own, it is almost entirely dependent for revenue on the contributions of its member states, both compulsory assessed contribution, and voluntary contributions (SIPRI, 1996:127).

As of 15 January 1996, unpaid assessment by member states totaled \$3.3 billion, more than the annual running costs, including \$1.6 billion for the regular budget and \$1.7 billion for peace-keeping. The US, the largest contributor as well as the largest debtor, owed \$1.4 billion. In the area of socio-economic well-being, the United Nations Educational, Scientific and Cultural Organisation was created, but it has very limited powers. The World Bank, IMF and World Trade Organisations, also organs of the UN, are not accountable to it and have no obligation to carry its wider aims. The coordinator of the activities of the UN, the Secretary-General is conspicuously excluded from the meetings of institutions that are nominally part of the UN System, but nonetheless exercise tremendous influence on the socio-economic and security

issues of the world. Unlike the President of the European Commission, the UN Secretary-General is not invited to GX Summit meetings, NATO or the OECD, World Bank and GATT where fundamental and far-reaching decisions are often taken. Through this arrangement one could infer that a particular rather than the interest of international community is being served. International security for all is to be realized!

SELFASSSESSMENT EXCERCISE

What are the main purposes of establishing the United Nations?

3.2 Some International Environmental Crimes

The observation in section under development, consumption pattern and environmental degradation above may lead one to conclude that most Western governments and economic decision-makers never wanted strong developing countries. The trick has been to weaken them and at the same time to be seen to be promoting 'Democracy. This is done through the propaganda rhetoric that all the developing countries must open their economies to global influences on terms that would make them remain exporters of raw materials while their industries die in the battle of indescribable heightened inflation.

Within the framework of 'protective' economic order and national interest, tragically, violations of rights of individuals, communities and nations that want to protect the environment are being recorded regularly. Blanca Jeannette Kawas Fernandez, an activist in Honduras, was assassinated by an unidentified man, while he believed he was receiving government protection. Kawas as the president of PROLAN-STATE an environmental organisation fighting illegal logging and government backed development in Punta Sal National Park. Similarly, on 8 December 1994, Chan Dara, a journalist, as found dead in Cambodia two days after being warned by the police to desist from looking into the military's illegal involvement in the Country's timber industry.

Other areas of the world neither are nor spared of the atrocities that are being committed in the name of national economic interest. The Ogonis and the people of delta regions of Nigeria still face the daunting task of saving their homeland from the local environmental ravages perpetrated by oil companies in collusion with the government.

American environmentalists have not been spared. They have been victims of vandalism harassment assaults, and even torture, rape, arson and murder. The house of the Greenpeace US's toxic coordinator Pat Costner, was burnt to the ground just a few weeks before she was to report on scheduled hazardous waste incinerators. Investigators later found the fuel can that arsonists had used to express their support of incineration (World watch Institute, 1996: 138).

In relation to international trade in toxic substances industrial countries are responsible for more than 90 percent of the 400 million tons of hazardous waste produced globally each year.

Similarly, they produce 70 percent of global emissions of carbon, the main contributor to greenhouse gases.

Per capita carbon emissions in the United States are about 20 times higher than in India.. Yet the average person in India has just as much of a right to a stable climate as the average American does. And people in India and most developing nations will be especially hard hit by global warming because their climate is already quite hot, making them highly susceptible to drought and desertification. Small island states, meanwhile, and the developing world's coastal nations, will have to face a significant rise in the level of the oceans with hardly any dependable infrastructure in place to deal with flooding. For developing nations in particular, the greenhouse effect could mean a crippling loss of cropland, the creation of millions of environmental refugees, and an expansion in the range of tropical diseases (World watch Institute, 1996: 146).

SELF ASSESSMENT EXERCISE

What do you understand by international trade on toxic substances and hazardous waste?

3.3 Arms Trade and Environmental Implications

What are light weapons? Broadly speaking, the term refers to any weapon that can be carried by one or two people. Examples range from military-style guns....pistols, carbines, assault rifles, and light machine guns, to grenade launchers, mortars, mobile antitank guns and rocket launchers, and shoulder-fired anti-aircraft missile launchers. Munitions used with these weapons (such as bullets, grinds and missiles), landmines, and explosives are also encompassed by the term.

Why the focus on these weapons now? With the end of the cold war, increased attention is being paid today to the devastation wrought by armed conflict around the world. Previously referred to by official Washington as "low intensity conflicts," these wars have resulted in the death of well over one million people this decade. The vast majority of these casualties—as many as 90 percent are civilian victims of indiscriminate warfare.

The international committee of the Red Cross has determined that small arms are the principle cause of death in conflicts. In fact, these arms are thought to be responsible for 90 percent of recent war casualties. Small/light arms are cheap and portable, and are used by all combatants—state militaries, militias, and insurgents. Widespread proliferation—of these arms, combined with their indiscriminate use that renders them responsible for so much of killing.

In addition, small and light arms are used in crime and terrorist acts around the world.

Who is impacted by the spread of these arms?

Civilians- Millions of people are caught in the crossfire of warfare or become victims of armed crime. Many are women and children- The light weight and small size of these weapons has

made it possible (easy) for children to be recruited or compelled to become soldiers. Child soldiers were particularly exploited in recent wars in Liberia and the Sudan.

Political dissidents, union organizers, land rights activists, journalists, etc. small arms are the principle tools of intimidation used by repressive police and militant forces. The massacre in Chiapas last December of 45 unarmed civilians, carried out by government-affiliated paramilitary forces with high powered AK-47 assault rifles, is one of countless examples.

Foreign relief and development workers—Armed conflict often creates the humanitarian emergencies that relief workers are called in to alleviate. In addition, aid workers are increasingly coming under fire---being killed, kidnapped, or threatened.

International peacekeeping troops—the United Nations fund that small arms and light weapons pose the principle threat to international troops seeking to establish or maintain peace among combatants. Local and foreign business people, wealthy business people are often kidnapped or extorted with these arms. More generally, the widespread diffusion of weapons undermines economic development and often results in the total collapse of a functioning economy.

Does this proliferation constitute a national security threat?

In recent years the White House and Pentagon have identified international crime (including drug trafficking), terrorism and internal and regional conflict as major security threats. Speaking before the UN General Assembly in 1995, President Clinton highlighted these threats and urged states “to shut down the grey markets that outfit terrorists and criminals with firearms.”

How many of these weapons are out there? Estimate range from 100 to 500 million military style weapons in circulation, in addition to hundreds of millions more designed for police or civilian use. The wide range points to the lack of available data: small arms and light weapons are rarely reported in official statistics on the arms trade, are impossible to quantify independently and are often manufactured and transferred covertly.

Where are these guns coming from?

More than 70 states produce various light weapons and ammunition. Direct sales from weapons manufacturers to foreign governments or private entities are a principle source of supply. Such sales are usually regulated (that is, licensed for export) by national governments. In 1996, for instance, the U.S. over \$470 million of light military weapons for export. The Commerce Department, which has jurisdiction over industry-direct sales of shotguns and police equipment, approved an additional \$57 million of exports. While these amounts are small in trade (estimated at some \$30 billion annually), at \$100-300 per gun these figures represent enormous quantities of weapons.

Cold war-era surplus stocks are a second major source of light weapons supply today. In the past few years the U.S. military has given away or sold excess assault rifles, carbines, 45 calibre

pistols, machine guns and grenade launchers. Germany, the Netherlands, the former Soviet Republics and several Eastern European countries have been unloading surplus guns on the world market. Covert gun-running by government to foreign government or—more often insurgent groups is a third source of small/light arms proliferation. Such policies are fraught with danger, as evidenced by the disastrous legacy of weapons shipped by the Soviet Union and United States to combatants in Afghanistan, Angola and Central America. These weapons outlived the original purpose for which they were shipped and have since been recycled to other conflict or to bandits.

The black market is another major channel of supply, where private dealers knowingly violate the arms sales laws and policies of the source, transit or recipient state for commercial gain.

Are most of the weapons of concern obtained legally or illegally? There is a thriving global black market in small/light weapons. These arms are particularly attractive to smugglers, as they are cheap, and easily concealed and transported. The secretive nature of arms smuggling makes it impossible to know with any certainty the magnitude of the traffic, but some have estimated that it accounts for as much as half of all light weapons transfers. Moreover, illegally-acquired arms contribute disproportionately to the violent constitute the principal source of supply for insurgents, governments under embargo, and criminals. Human Right Watch found, for instance, that illegal gunrunning to both sides of the conflict in Burundi has fuelled tensions and made possible the commission of serious human right abuses.

The licit and illicit traffic in small arms are closely intertwined. Arms that are originally exported legally, but are not properly tracked or secured, often fall into illegal circulation. In 1994, for instance, foreign governments reported 6,238 unlawfully acquired U.S. origin firearms to Bureau of Alcohol, Tobacco and Firearms. Over half (3,376) were discovered in Mexico. In 1996, the BATF receive approximately 30,000 requests to trace weapons used in crimes

Theft or capture of state security forces arms are a major source of black market supply around the world. In one frightening example, the General Accounting Office has reported that U.S. military forces cannot account for 40 ‘stringer’ shoulder-launched anti-aircraft missiles shipped to the Middle East during the Persian Gulf war. These weapons are ideal for terrorists.

The domestic U.S. gun markets is another principle source of black market guns. For several years, the Mexican government, in particular, has pointed out that drug cartels (and other criminals) are getting many of their arms north of the border. Underscoring the point, several recent high-profile assassinations in Mexico were carried out with guns purchased illegally in the United States.

Finally, cold war “covert arms supply by the U.S. and Soviet Union, particularly during the 1980s, is a principal source of the light arms in unlawful possession around the world today. The two countries donated huge quantities of rifles, machine guns, mortars and other weapons to insurgents or government allies in Afghanistan, Angola and Nicaragua. Because these weapons

were transferred in a secretive and unaccountable manner, they are particularly prone to fall into the black market. Many of these arms remain in active service today, contributing to a legacy of insecurity and violence in Southern Asia, Southern and Central Africa and Central America.

What controls on light weapons flows are already in place?

Traditional arms control arrangements, such as the U.N. Register of conventional Weapons and the “Wassenaar Arrangement,” pay scant attention to light weapons. During 1997, however, governments and international organizations made progress in calming down on illicit weapons trafficking.

Last November, the United States and 27 other governments from the hemisphere signed a Mexican-backed convention, negotiated of American States, against illicit manufacture and trafficking of firearms, ammunition and related materials. The treaty requires state to strengthen border controls, mark firearms and share information on weapons producers, dealers, importers and exporters. The 15 members of the Europeans in June 1997, and the ‘Group of 8’ industrialized nations (which includes Russia) is considering the adoption of an international agreement along the lines of the OAS convention.

The United Nations has also been at the forefront of efforts to restrain the spread of light weapons, from both a conflict prevention and crime prevention perspective. In 1995, a panel of government experts investigated the proliferation of small/high arms and recommended increased information sharing, stronger laws and regulations, improved security for surplus weapons storage, and the destruction of weaponry within the mandate of UN peacekeeping operation.

In addition to nuclear, conventional, biological and chemical arsenals, there are anti-personnel mines and other inhumane weapons which include cluster-bombs, blinding weapons, small-caliber bullets, fuel-air explosives and high-tech directed energy weapons which. There are a number of Conventions for which the International Committee of the Red Cross (ICRC) is the Depository Organisation. The principal treaties relevant to contemporary warfare are the four Geneva Conventions of 1949 and their two Additional Protocols of 1977 and the 1980 ‘Inhuman Weapons’ Convention (of which the UN is the Depository) A Review Conference of the Inhuman Weapons Convention that took place in 1995 is yet to outlaw the production, possession and use of these weapons. However, the crusade of Late Diana, Princess of Wales manifested in her visit to Angola and Bosnia and her death have instrumentally affected the outcome of the Landmines Convention of 1997. Although the US refused to sign the convention, the New Labour Government in Britain did not only sign but also banned their production, use and storage by 2005. This is a move in the right direction.

The state of the world today admits ‘One-third of the world’s children are undernourished, and 12.2 million die before the age of five years, 95 percent of them from poverty-related illnesses’

(Jacobs 1996:41). In addition it notes the very large number of street children, abused children. And children damaged psychologically by the effects of war, a picture of the third category is beautifully registered by Sister Doreen, teacher in Southern Sudan when she stated that the children of the victims of war 'are difficult to deal with'. Most of them 'are wild, without manners' and it is 'difficult to discipline them' they 'fight a lot, insult each other and use bad words'. She went on to state that:

The presence of a teacher means nothing to them. Young as they are, they have hatred in them towards other tribes. Most sit according to their tribe or language. Children of one tribe easily join together to fight children of a different tribe. Association between tribes does not take place. This is unusual as children do not usually have enemies, but these children do. They can talk freely of beatings, killings, and molesting. I am sure they gather all this information at home from adults who are already bitter and wounded and, beyond healing (I do not think that anybody is beyond healing-author). The environment they live in is poor, so living is poor, so the little help the school tries to give disappears in the home environment. With these children I see little hope for the future of Africa. They have much bitterness gathered and stored in them. Most of these small children, ranging from three to six years, have painful stories which put adults off. Most have encountered much hardship born on the roadside when parents were on the run for safety, walking long distances on foot without food and water, sleeping in unknown jungles. They see all the uncertainties on their parents' faces as they encounter attacks, shelling, having their homes burned, and always beginning again from nothing. Some have even witnessed the killing of parents, relatives or fellow-travelers. Added to these has been the lack of proper medical care, and long periods without education. (Sister Doreen *Africa 1997:12*)

Turning the searchlight on women, it will be discovered that women constitutes half of the world's population and yet, particularly in developing countries, they do not have equal access to land, credit, technology, education, employment, food, and political power. They spend more time working than men. In the formal economic sector, women are increasingly present and powerful. 59 and 60 percent of women in Asia, and the former Soviet Union respectively, are economically active. In Southeast Asia and Sub-Saharan Africa the percentage is between 45 and 50. In almost every country of the developing countries, women bear the greatest burden of poverty translated in lower incomes, worse health, worse educational levels and longer working hours, than men (Jacobs, 1996:43).

Generally, the majority of women's work is in the non-cash economy. It includes subsistence agriculture, care for children and family dependants, provision of clothing, primary health care, and household duties. Most of these are unpaid work. In developing countries, the number of poor women continues to grow in absolute terms and in relation' to men. Poverty has increased by 47 percent among rural women as they often lack access to resources and much of their

labour is not paid for; they have little opportunity to pursue cash-earning occupations (Bottorf, 1995:203).

Ordinarily, life of women in most countries is already over-burdened. And when there is conflict and war made possible by the availability of arms, agricultural land would be mined and the forested environment, rivers and lakes polluted. With further ecological deterioration, life of women would become difficult and unbearable.

4.0 Conclusion

The state of the world today admits 'One-third of the world's children are undernourished, and 12.2 million die before the age of five years, 95 percent of them from poverty-related illnesses' (Jacobs 1996:41). In addition it notes that there are very large number of street children, abused children and children damaged psychologically by the effects of war.

5.0 Summary

Proliferation of arms and war is very bad for mankind.

6.0 Tutor-Marked Assignment

How does Arms trade impact on the environment?

7.0 References/Further Reading

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UNIT 4 APPROACHES TO ENVIRONMENTAL DIFFICULTIES

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1.0 Introduction

In the previous unit discussed International environmental crimes, the United Nations and International Security and then more discussions on Arms trade and its environmental implications. In this unit, we shall focus on the approaches to environmental difficulties, security and structural stability and then we shall move on to the environmental impact of military security activities.

2.0 Objectives

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

- a. Explain how different developed and developing countries create environmental pollutions and how they also try to tackle the difficulties thereof.
- b. Discuss the major arguments why developed countries support environmental policies
- c. To provide a convincing argument why North-South economic arrangements influence global environmental politics.

3.0 Main Content

3.1 Approaches to environmental difficulties

It may be argued that given current holdings of the world's wealth and resources, the north is the only one able to pay the amounts probably needed and provide the necessary technology for the alleviation of poverty, although a thorough going co-operation of the developing countries is called for. This is because much of what needs to be done must take place inside the borders of the major actors of the nations. For instance, China, India, and Indonesia burn a considerably large quantity of coal and experience the consequences, between 1990 and 1994, China's emissions of carbon-dioxide went up 13 percent, Brazil 16, India 24, and South Korea 44. These trends are projected to continue and will likely push global emissions up as we approach the

millennium. If they are not to continue the burning of the mountain of coal at the present rate in future with the same technology with which the US and the UK burned most of their own coal in the past. Then they must agree to USC the improved but more expensive technologies which only the wealthy nations like the US and Japan can afford, to underwrite alternative technologies. Failure to receive the necessary assistance will imply that none environmentally friendly development' as opposed to desirable 'environmentally clean development' will go on with added gigantic increments to the gases that cause global warming. For the North to make necessary resources available to encourage the developing countries to embark on 'sustainable development' entails justifiable sacrifices in the sense of using the wealth and resources otherwise.

The present rational bargaining approach to conventions and treaties must include the idea of justice as understood to mean:

...not squeezing people for everything one can get out of them, especially when they are already much worse off than oneself. A commitment to justice includes a willingness to choose, to accept less good terms than one could have achieved - to accept only agreements that are fair to others as well as to one. Justice prevents negotiations from being the kind of rational bargaining that maximizes self-interest no matter what the consequences are for others. There are some bargains too favourable for a just person to accept. Justice means sometimes granting what the other party is in no position to insist upon. In this case, it means sharing the costs of coping with the Haitis and Malis of the world, which cannot insist, as well as with the Chinas and Indias, which probably can insist (Hurrell and Kingsbury, 1992:385).

Similarly, it must be understood and accepted that:

....In very poor nations almost all big problems are life- threatening. This is what it means to be 'very poor: it means having no cushion to fall back upon, no rainy-day fund, no safety-net, and no margin for error. Being very poor means living on the edge, and having a big problem - sometimes, even, having a small problem - means going over the edge: losing one or two of the children, for example. In spring 1991 the Kurds in Northern Iraq and the Bangladeshis near the Bay of Bengal have each just provided another demonstration of the meaning of being very poor: one big disruption to the normal routine and people start starving left and right. For such a group, dealing with 'its own problems with its own resources' means sitting and watching loved ones while they die (Hurrell and Kingsbury 1992:393).

So when the North demands and insists on sacrifice and ignores provisions for coping from the poor nations of the South at international environmental treaties and conventions, often what is implied is that they, the poor nations, should relinquish their vital interests, namely survival.

In the developing countries, there is an immense conflict potential that is characterised by growing wealth differentials, an exploding demography, climatic shifts and the prospect of environmental disaster combined with resource conflicts. While for the North Americans and

Europeans, unemployment, environmental pollution, declining welfare statism, violence and excessive military spending are presumed problems touching on security.

Such a world order could not provide security, well-being or freedom to most of the world's people. In fact, it may be inferred that the goal of the world today is not to reduce domination and exploitation but to perpetuate them under new conditions. (The Multilateral Agreements on Investment for instance (Randel and German, 1997:14-15) unipolar world order due to the demise of the USSR does not necessarily constitute a credible world order. In the Gulf War coalition, the US provided military equipment and trained personnel, some Arab countries provided base areas, the emirs, the Japanese and the Germans provided cash. The Security Council, dominated by the major powers, provided legitimation for the active effort. The coalition model actually reflected the inability of the US or any other single nation to function as a hegemonic power on its own.

Similar coalitions of the 'powerful' had already functioned in the World Bank and International Monetary Fund where conservative policy makers backed by the US and a few wealthy allies have forced poor countries to accept structural adjustment programmes' which open their resources to foreign corporate exploitation and turn their economies into money machines for the benefit of their rich creditors. At the end of the Uruguay Round, the power of coalition was at work again. Previously GATT had powers only over trade in manufactures. With the new World Trade Organisation (WTO), jurisdiction now extends not only over trade in new areas such as agriculture and services, but also 'over investments in services, rules governing entry and operations of foreign investments in general and over each member countries intellectual property rights regimes' (South Centre No 19:6). As usual, the WTO will have enormous powers, particularly over the developing countries: The WTO will have an integrated disputes settlement system which in effect means that if a country does not follow obligations in one area (say intellectual property), sanctions can be applied against it in another area which hurt it most (for example, its exports of primary produce). This possibility of cross-sectional retaliation' will be used to get the South to conform to policy objectives set by the North (*South Centre* No.19:8). Brian Urquhart describes the characteristics of the world today in his essay in the *New York Review of Book* of March 1991 when he stated that the world is now fraught with: instability characterised by long standing international rivalries and resentment, ethnic and religious turmoil, a vast flow of arms and military technology, domestic disintegration, poverty and deep economic inequalities, instantaneous communication throughout the world, population pressures, national and ecological disasters, the scarcity of vital resources and huge movements of population.

The world today is a product of the world order dominated by the World Bank, International Monetary Fund, World Trade Organisation and coalition of the powerful. This World Order has made every major aspect of North-South economic relations to lead to the North-South gap

Porter and Brown describe it in these terms: Unfavorable terms of trade for commodity exports, protectionism in industrialized states toward developing country manufactured goods, indebtedness, and the flow of financial resources out of debtor nations to the industrialized world (Porter and Brown, 1996:124)

The above North-South economic arrangements influence global environmental politics in three interrelated ways: they are constraint on the ability and willingness of developing countries to participate in global environmental agreements, a source of ideological conflict between North and South, and the potential object of linkage policies by developing countries (Porter and Brown, 1996:125) Unfortunately, the World Order of today has not addressed meaningfully the impending ecological catastrophe, the growing gap between rich and poor within and between countries, the proliferation of weapons of mass destruction and the denial of basic human rights in most parts of the globe. A development model that does not destroy the environment irreparably is yet to be developed. Progress has been made in many areas of human Endeavour particularly in communications, genetic engineering and medicine but environmental degradation has lost out.

SELF ASSESSMENT EXERCISE

Why do we have this state of affairs in respect of the environment?

3.2 Environmental Impact of Military Security Activities

World-wide military arsenals include nuclear, conventional, biological and chemical weapons. Theoretically any or all of them could be used in the event of a war. In the context of this probability, and in fact there has been many wars, the consequences of military activities on the environment call for a critical discussion. The environment has been degraded by military activities in many ways.

Historically, destruction of forests and the release of waters have been standard procedures in the manipulation of the environment for hostile military purposes (Renner, 1991:132-52; Westing, 1990; 1988). In 1938, the waters of the Yellow River were released by dynamiting the Huaguanknow dike to hold back the advancing Japanese. During the Second Indo-China War of 1961-75 the US made extensive use of herbicides. In 1986, South Korea regarded the North Korean proposal to construct the Kungangsan hydroelectric dam on a northern tributary of the Han River as an aggressive act. It was seen as a potential military threat because of its capacity to store up to 20,000 metric tons of water, which, if released, could submerge much of central Korea (Cowell, 1990:A4). At the minimum, if the dam were to collapse, whether accidentally or by intention, the Seoul metropolitan area would be flooded, and the resultant chaos would facilitate the progress of an invading army (Small, 1991:11-12; Pain. 1991:13)

In the area of conventional weaponry, the effect of military security on the environment is best demonstrated in the Iran-Iraq war of 1980s and the Persian Gulf War in 1991. After an Iraqi attack in 1983, over half a million barrels of oil poured from a shattered drilling platform into the Gulf waters. In the 1991 Gulf War, Iraq let loose hundreds of thousands of barrels of crude oil from Kuwaiti facilities into the Gulf. Vast numbers of marine plants and animals died and the desalination plants on which Saudi Arabia's drinking water depends were disrupted. Most of Kuwait's 950 oil wells were set on fire creating toxic smoke that blocked out the sun and could implicate agriculture throughout south-western Asia for years. Within a few weeks of the wells' igniting, tens of thousands of Kuwaitis had left the country, complaining of burning throats and respiratory problems (Horgan, 1991:17-24).

The burning of the Kuwaiti oil fields by the retreating Iraqi army and bombardment of Iraqi chemical, biological and possibly even nuclear facilities by the multinational force in the 1991 Gulf conflict have brought in a new phase of environmental warfare. The precise effect of these actions on Kuwait and Iraq is not yet known, let alone on wider climatic conditions or on the South Asian monsoon. Even the peaceful destruction of lethal weapons, such as the nuclear weapons of the former Soviet Union, can pose enormous environmental problems. In the same vein, the long-term health effects of the Chernobyl disaster of 1986 will take generations to unfold. Although there is no experience of a nuclear war to go by, many studies by climate and environmental specialists have, nonetheless, warned that, in the event of a nuclear war, human civilization as we know it will cease to be because of its probable climate effects (Oyeshola, 1995:23).

Accordingly, the clouds of ashes and soot could block 80 percent or more of the sunlight in the mid latitudes of the Northern Hemisphere, reducing average temperatures by 41 to 68 degrees Fahrenheit (5 to 20 degrees Celsius) within two weeks. Without rain, warmth or light, normal agricultural production would be paralyzed in the northern half of the globe, while nitrogen oxides would simultaneously be destroying 50 percent of the ozone layer (Warner, 1988). It can be inferred that security anchored on the use of nuclear weapons is a mortal threat both to the environment and human life; it cannot provide national or international security it promises to provide.

It is true that the possibility of a nuclear exchange in the post-cold war and disarmament era is remote, particularly between NATO nuclear weapon states and Russia. But the risks of civil strife and war in Russia are still very high because of the fragility of the State. Were Russia to explode socially then the dangers of 'irrational' behaviour and subsequent nuclear exchanges would be considerable. The nuclear deterrence policies of the West require these weapons to be tested for their accuracy and effectiveness. The 1963 Test Ban Treaty banned only the above ground testing when radioactive fallout was found to be making its way into the bodies of babies through the food chain. Underground testing is still continuing in spite of the fact that testing of

nuclear weapons risks contamination of ground water as well as serious geological stresses that could cause a test area to cave in and release radiation from hundreds of nuclear tests.

Nuclear weapons production is complex. One of its by-products is nuclear wastes that present long-term threats to the environment. Plutonium, an essential component from which nuclear bombs are made, is so toxic that inhaling one millionth of an ounce can cause cancer; and it remains radioactive for thousands of years. So it will outlive any container that can be produced to 'bury' it. Already, US weapons programmes have generated 700 times more high-level nuclear wastes than those generated by commercial nuclear-power plants. The US Department of Energy has estimated that,

3,700 sites in US weapons manufacturing complexes could contaminate ground-water and threaten the environment in other ways. Some, like the 571-square mile (1,480-square-kilometre Hanford Reservation in Washington State, already have so much radioactivity in their soil and underground water that they can never be reclaimed and will become 'national sacrifice zones' (Porter and Brown, 1996:112).

Another area of nuclear weapons security risks is in its nuclear-powered submarines potential threat to the global commons. Of the world's 745 nuclear power plants, submarines contain 340. Their operations remain totally secret from the public. Between the former Soviet Union and the US, five nuclear-powered submarines have been lost at sea with an estimated total radioactive Content that is 212 times greater than all the radioactive wastes known to have been dumped at sea deliberately (Arkin and Handler, 1989:7). Unfortunately the London Dumping Convention does not cover nuclear-powered submarines at sea.

At peace time, activities of military establishments on the environment can be devastating. With the retreat of the Soviet military from Eastern Europe at its demise, the government of Czechoslovakia discovered large-scale toxic pollution at military sites previously occupied by Soviet troops. Czechoslovakia ground water, in particular, has been seriously polluted by the Soviet military disposal of fuel (International Environmental Reporter. 1990:203-204).

A similar pattern of environmental degradation by the US military has emerged. The 871 US domestic military bases occupying 25 million acres (10.1 million hectares) of land have been producing more hazardous wastes every year than the five biggest US chemical companies combined. In addition, 'the costs of cleaning up nuclear weapons production facilities have been estimated at between \$130 and \$300 billion, not to mention the additional costs of long-term storage of radioactive wastes' (Porter and Brown, 1996:115). Both the costs of cleaning up nuclear weapons production facilities and the cost of cleaning up the environmental damage associated with military bases which has been estimated at \$20.40 billion annually, are not charged to the defense budget (Military Toxic Network, Executive Summary: iv).

Military activities, even when there are no armed hostilities do long-lasting and serious damage to natural systems and the health of living things. Military maneuvers and war games, low level test flights, the dumping of solvents and fuels, the procurement of excess and unnecessary materials which are wasted and discarded - all these contribute to the degradation of the common heritage of humankind (UN, Disarmament, 1995:53; Oyeshola, 1995:22)

Space exploration, mostly security oriented, presents its own problem because many of the satellites that are in use are nuclear powered. Wood Kaczmar reported that in the period 1973-81, seven American Delta rockets exploded in space before the manufacturers McDonnell Douglas, realized their fate. Over the period 1964-86, the Soviets destroyed over thirty satellites for security reasons. The fragments of the destroyed satellites are in space. Half of the rubbish in space is the product of explosions deliberately or accidentally caused by the US and Russia. They are the major culprits of space degradation. The tiny fragments of rubbish travelling at a high velocity could cause fatal damage to spaceships and astronauts, as well as to space stations. Moreover, that damage will itself result in many more dangerous fragments in space (Thomas, 1992:150).

4.0 Conclusion

Military activities, even when there are no armed hostilities do long-lasting and serious damage to natural systems and the health of living things. Military maneuvers and war games, low level test flights, the dumping of solvents and fuels, the procurement of excess and unnecessary materials which are wasted and discarded - all these contribute to the degradation of the common heritage of humankind.

5.0 Summary

Environmental degradation and its politics touch on every aspect of our lives be it ecological, biological, biotechnological, economic, socio cultural and moral. But emotional, Personal and life-threatening dimensions are often overlooked or completely ignored in discussing environmental degradation and its politics.

6.0 Tutor-Marked Assignment

Discuss the effects of military security and nuclear weapons disarmament on the environment.

7.0 References/Further Reading

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MODULE 2 IDEOLOGY AND ENVIRONMENTAL EDUCATION

INTRODUCTION

Ideology as used in this text means a broad and interlinked set of ideas, beliefs and values about the relationships between man and his environment, held by a group of people and which those people demonstrate both in behaviour and action. These systems of beliefs also reflect the attitudes and perceptions which the people show about the environment, its problems and how these relate to man's global survival. In the context of environmental education, beliefs, values, attitudes and behaviour are husked concepts because they individually or collectively influence the awareness, concern and actions about the environment and environmental problems around which objectives of EE are predicated.

Even if environmental educators were merely motivated and concerned with the acquisition, interpretation and transmission of environmental knowledge (however narrowly conceived and defined) they are forced to deal with their own set of beliefs, values, attitudes and behaviours as well as those of the learners as these sets represent preferred social and personal priorities and intentions. As used in this text, the theories of knowledge, teaching, learning and assessment considered in contemporary literature of education form the fundamental building blocks of an adequate ideology of environmental education, comparing competing ideologies of education.

Unit 1 Education, Environmental Ethics and Values

Unit 2 Principles for Understanding and Sustaining the Earth

Unit 3 Population and Environment

Unit 4 Environmental Pollution

UNIT 1 EDUCATION AND ENVIRONMENTAL IDEALOGY

CONTENTS

- 1.0 Introduction
- 2.0 Objectives
- 3.0 Main Content
 - 3.1 Education, Environmental Ethics and Values
 - 3.2 Radical and Reformist Environmental Ideologies
 - 3.3 Basis of Beliefs
- 3.0 Conclusion
- 6.0 Summary
- 6.0 Tutor-Marked Assignment
- 7.0 References/Further Readings

1.0 Introduction

This is the first among the four units that that constitute the module. By way of introduction, this unit focuses on Education, Environment and Ethics and from there we shall explore Radical and Reformist environmental Ideologies. We shall also discuss the basis of these beliefs.

2.0 Objectives

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

- a. Define education and compare the three ideologies of education
- b. Discuss in detail the radical and reformist environmental ideologies
- c. State the objectives of Tbilisi Intergovernmental Conference on Environmental Education contained in the Tbilisi Declaration (1978)
- d. Mention at least six out of Miller's (1991) lists of eight attitudes which express the basic belief structure of industrialized societies

3.0 Main Content

3.1 Education and Environmental

The aims of education in any society are shaped by the belief structure and values, identified and agreed upon by members, usually adult members of that society. The transition of knowledge which has been historically singled out as the main aim of education is achieved within a conceptual framework of prevailing belief systems, equity, social justice, moral rectitude, the priorities defined by personal and social intentions as well as national values. Hence, in transmitting for example, environmental knowledge in whatever forms, we indirectly transmit collective social and cultural beliefs and values because education being a subsystems of the society cannot be expected to neglect or be neutral to the inculcation of dominant shared beliefs and values sanctioned by the society.

Fig 2

Comparison of ideologies of Education

Transmission ideology	Interpretation ideology	Autonomous study-ideology
Knowledge is believed to exist in the form of public disciplines, known as subjects, developed in the past and currently being extended.	Knowledge is believed to exist in the knower's consciousness and his ability to organize thought and action. Subjects are one of several available resources.	Knowledge is believed to exist in the present and future, since existing subject knowledge is seen as limited in copying with modern complex problem.
The learner's performance is valued in so far as his measure up to the standards and criteria of the subjects.	The learner's activity to interpret his reality is valued, so that criteria arise from both learner and teacher.	The learner's performances in learning techniques of learning and developing new knowledge and understanding are valued.
The teacher's task is perceived as correcting the learner's performance according to the subject criteria known by the teacher.	The teacher's task is perceived as the setting up of dialog in which the learner can reshape his knowledge through interaction, both with others and with subject seen as resources.	The teacher's task is perceived as organising learning experiences so that the learners gradually learns to make all the decision about learning for themselves.
assessment will be one of the end product in some examination probably written, supervised by teacher or examiner, and where entry to the subject is rationed, some reasons, norm referencing will be the system adopted.	Assessment will take place throughout the course as a means of the monitoring the reshaping the of knowledge, phase by phase. It will tend to the criterion referenced, where ever possible to achieve this result.	Assessment will gradually pass from the control of the teacher to the learner as he learns how to access effectively his own learning. It will tend to be criterion referenced throughout.

Source: Ehindero 1984; 1986**3.2 Radical and Reformist Environmental Ideologies**

presents some forms of environmentalism - an ideological orientation rooted in politics and (political) approaches politic& and economic approaches to modern environmental problems. Two main beliefs and approaches to the environment and environmental problems are distinguished in the radical and reformist ideologies.

The reformist ideology and approaches rely on and embraces mainstream cultures' ideologies of liberalism and democratic socialism. The approaches adopt a technocratic rationalism with its faith in science and technology to intervene and manage the excesses of human impacts on the ecosystems.

Radical ideology is basically pro-active both in perspective and in its approaches to environment and its problems. It opts to eliminate environmental problems at their roots rather than simply reacting to the damage caused by unsustainable economic activities.

Accordingly, radical environmental ideology, attempts to effect fundamental socio-economic and political changes rooted in a counter-culture rather than in a mainstream cultural/economic framework. Radical environmental ideology focuses on

- Social ecology - based largely on anarchist principles.
- Eco-socialism, which is libertarian, decentralist and communalist in principle and a brand of socialism ultimately opposed to the state.
- Deep ecology - which focuses on fundamental changes in attitudes and values towards nature-bringing society everywhere to conform to ecological principles (for e.g. the principle of "carrying capacity" which implies limits to population and economic growth)

Radical and Reformist Environmental Ideologists

Hence, the existence of hierarchical value structures in the society creates dilemma for educators trying to ascribe and advance the course of particular environmental values and behaviours. Education especially in a multicultural setting is expected to be rooted in different value structure and hence to perform different functions especially, since it serves different socio-cultural political and economic interests. In such a setting, the productive functions of education are dictated by the hierarchical social structure and sometimes competing and conflicting values' system. Education thus functions either to re-create different social, political, economic environmental values and beliefs or legitimize usually dominant ones. Beliefs and values thus provide a framework for environmental issues or problems and their responses to them. Beliefs and values in this context are central to all purposive human behaviour. In human learning and teaching, for example beliefs and social values become personalized interpretations of experiences, which were mediated, but not totally determined by those very experiences and which provide criteria for personal action and behaviour by the individual and collective social action by the group.

Educators are beginning to be aware that in teaching, we transmit more than mere facts, that the how and why we transmit are invariably value-bound. Teaching is in reality, a moral and value-bound process. In fact, we are beginning to be aware of the value- context of the teaching and learning processes. Before we can adequately grasp the crucial role of values in achieving the ultimate objectives of environmental education, it is first necessary to analyse the concept of value as we have done above in its individual social and behavioural contexts. Environmental Education (EE), designed to advance the course of environmental knowledge and create awareness of environmental problems and issues is decisively influenced by the dominant social value system. If the ultimate objective of EE is to mobilize the public to change their individual and collective attitude and behaviour positively towards the environment and participate actively in understanding and solving current and emerging environmental problems, then, beliefs and values individually and collectively experienced and distilled must be applied to prevailing environmental problems and issues.

Environmental Education can be regarded, in a global ethical context, as mankind's search for a wisdom that will provide knowledge of how to acquire and use knowledge for survival and the improvement of the quality of life of the individual. Environmental Education is concerned with the science, technology and ethics of global survival on earth. Because of its greater concern for man's survival, EE derives its major guiding principle, philosophy and agenda from ecological knowledge with its elaborate vision cutting across the traditional boundaries of knowledge. The central and ultimate aim of education in general and environmental education in particular is the moulding of human behaviour. The relationship between this aim of EE and ideology is that the components of an adequate ideology are pre-requisites of achieving the objectives for EE as defined by the 1977 Tbilisi Intergovernmental Conference on Environmental Education. These objectives are contained in the Tbilisi Declaration (1978) and are:

Awareness: To help social groups and individuals acquire an awareness and sensitivity to the total environment and its allied problems (or issues).

Sensitivity: To help social groups and individuals gain a variety of experiences in, and acquire a basic understanding of the environment and its associated problems (or issues).

Attitudes: To help social groups and individuals acquire a set of values and feelings of concern for the environment and motivation from actively participating in environmental improvement and protection.

Skills: To help social groups and individuals acquire skills for identifying and solving environmental problems (or issues).

Participation: To provide social groups and individuals with an opportunity to be actively involved at all levels in working toward resolution of environmental problems (or issues).

In order to translate these objectives into instructional reality, a broad ideological and conceptual framework incorporating both traditional as well as contemporary thinking about behaviour is necessary. A linear model which links increase in knowledge to favourable attitude and ultimately to action, has for some time dominated traditional thought in the field of Environmental Education. This is illustrated below:

This model is in fact too simplistic and cannot identify and situate the complex variables involved in behavior modification.

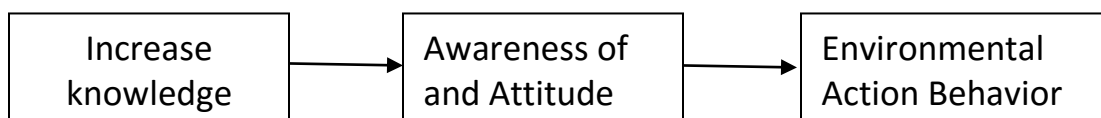


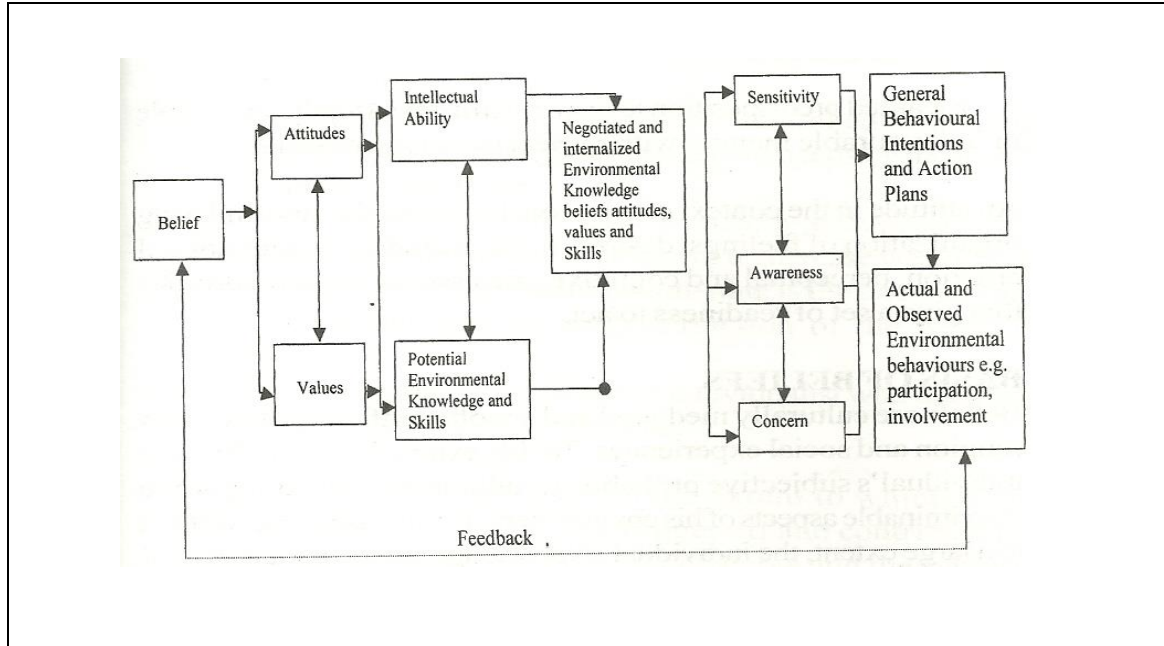
Fig 3

In particular the model fails to identify or discuss the role of beliefs and values in the model. It also does not establish the relationships among the different variables, e.g. beliefs, attitudes, values' Deception and action in environmental behavior modification.

Below (Fig. 5.2) is a conceptual framework for environmental action and behavior. It shows a radical departure from the traditional linear and simplistic view of how behavior is molded in an environmental education puzzle.

This model is predicated on the fact that beliefs are the fundamental building blocks of molding behavior about the environment.

Fig 4



Conceptual Framework of Environmental Behaviour (Ehinderer 2006 p.91)

Beliefs about the environment serve as the informational bases which ultimately determine individual attitudes, values, intentions and behaviors about environmental problems and issues and disposition to act in a consistently predictable way on these environmental problems and issues. An individual’s attitude according to Rosemburg (1956) is:

... relatively stable affective response to an object; it is usually accompanied by a cognitive structure made up of beliefs about the potentialities of that object for attaining or blocking the realization of valued states.

Fishbein and Ajzen (1975) view attitude as:

‘...a learned predisposition to respond in a consistently favorable or unfavorable manner with respect to a given object’

An attitude in the context of our model is a complex and enduring organization of feelings, desires, fears, prejudices, motivational emotion, perceptual and cognitive processes or other tendencies that give a set of readiness to act.

SELF ASSESSMENT EXERCISE

Define Environmental education and compare the three ideological concepts

3.3 Basis of Beliefs

Beliefs are culturally mediated and are often influenced by one's religion and social experiences. To this extent, beliefs refer to an individual's subjective probability, judgments concerning some discriminable aspects of his environment. In this case, beliefs reflect to a large extent, the individual's knowledge and understanding of himself, his environment and the relationships between both. To a large extent most environmental problems are rooted in our basic beliefs (attitudes and values) our religions' conception of development, the industrial and economic models adopted to achieve our developmental plans and our life styles. Miller (1991) lists eight attitudes' items which express the basic belief structure of industrialized societies: These are:

1. Humans are the source of all values (anthropocentrism).
2. Nature exists only for our use.
3. Our primary purpose is to produce and consume material goods. Success is based on material wealth.
4. Matter and energy resources are unlimited because of human ingenuity in making them available.
5. Production and consumption of goods must rise endlessly because we have a right to an ever-increasing material standard of living.
6. We need not adapt ourselves to the natural environment because we can remake it to suit our own needs by means of science and technology.
7. A major function of the state is to help individuals and corporation exploit the environment to increase wealth and power. The most important nation-state is the one that can command and use the largest fraction of the world's resources.
8. The ideal person is the self-made individual who does his or her own thing and hurts no one.

The origin of these attitudes and the extent to which they have individually or collectively trigger off and contribute to our ecological dilemma and crisis is debatable and the subject of controversy. Our moral and ethical dilemma about this crisis or dilemma is rooted in prevailing western inspired Cartesian conception which reduces everything other than human consciousness to the law of mechanics. According to this view:

... nature is something separate and apart and over which humans can exert mastery and control; establishes a dualism between ourselves and non-human species which are regarded as 'things or

‘objects’ denudes world of subjects; separates knowledge from value; and tends to accept what science tells us about the world in preference to our own experience of value in the world.

The position would seem to derive legitimacy in the Judeo-Christian conception as articulated in Genesis 1:26 which states that:

“...be fruitful and multiply, fill the earth and subdue it, and have dominion over the fish of the sea and over the birds of the air and over every living thing.”

However, a growing number of ecologists and environmental educators are less inclined to a philosophy that is rooted in a sharp distinction between ourselves and everything else and would recognize that ecosystems and non-human species have their own intrinsic value. We are of the firm conviction that we are urgently in need of a harmonious, more caring and sensuous relationship with nature for instrumental and intrinsic values. In contrast to mechanistic position, one only has to analyze the biblical directives in Genesis 2:15, Deuteronomy 8:17, Matthew I 6:12, 22-39 and Luke 12:16- to appreciate the degree to which human beings are expected to render their stewardship to nature. In addition, African traditional religions and aspects of Eastern Religions e.g. Taoism and Zen Buddhism emphasize the harmony of nature and humans as well as reference for all living creature.

What follows are sets of principles (environmental, scientific, economic and political), world views and ethical guidelines necessary to understand, promote, and appreciate sustainable planet earth within a broad ideological context of environmental education. Incorporated in these sets are four hierarchical levels of environmental awareness (Miller 1991), instrumental to the achievement of environmental education.

4.0 Conclusion

Environmental Education can be regarded, in a global ethical context, as mankind’s search for a wisdom that will provide knowledge of how to acquire and use knowledge for survival and the improvement of the quality of life of the individual. Environmental Education is concerned with the science, technology and ethics of global survival on earth.

5.0 Summary

A growing number of ecologists and environmental educators are less inclined to a philosophy that is rooted in a sharp distinction between ourselves and everything else and would recognize that ecosystems and non-human species have their own intrinsic value. We are of the firm conviction that we are urgently in need of a harmonious, more caring and sensuous relationship with nature for instrumental and intrinsic values.

6.0 Tutor-Marked Assignment

Mention at least six out of Miller's (1991) lists of eight attitudes which express the basic belief structure of industrialized societies

7.0 References/Further Readings

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UNIT 2 PRINCIPLES FOR UNDERSTANDING AND SUSTAINING THE EARTH

CONTENTS

- 1.0 Introduction
- 2.0 Objectives
- 3.0 Main Content
 - 3.1 Resources, Pollution and Environmental Awareness
 - 3.2 Economics and Politics
 - 3.3 Four Level of Environmental Awareness
- 4.0 Conclusion
- 5.0 Summary
- 6.0 Tutor-Marked Assignment
- 7.0 References/Further Readings

1.0 Introduction

In unit one, we focused on Education, Environment and Ethics and from there we explored the Radical and Reformist environmental Ideologies. We also discussed the basis of these beliefs. In this unit, we shall focus attention on Resources, Pollution and Environmental Awareness, Economics and Politics, and the Four Levels of Environmental Awareness.

2.0 Objectives

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

- a. Explain the relationship between Resources, pollution and environmental degradation
- b. Enumerate and discuss the Scientific Principle of nature
- c. Enumerate and discuss the Economic and Political Principles of nature
- d. Enumerate and discuss the Worldview and Ethics Principle of nature

3.0 Main Content

3.1 Resources, Pollution and Environmental Degradation

- Resources are limited and must not be wasted; there is not always more (principle of limits).
- Output, or end-of-pipe, pollution control and waste management approaches are better than nothing but eventually overwhelmed because they only shuffle around the growing outputs of societies; diseases are not cured by merely treating their symptoms (bandages-are-only temporary principle).
- Input, or front-of-pipe methods that prevent pollution and reduce wastes are the best and cheapest ways to sustain the earth; the best way to reduce pollution and waste is not to produce so much (pollution-prevention principle).

- Reducing resource consumption and waste production is the most important priority, followed by re-using items, and then re-cycling key mineral resources (the three Rs of earth care).
- Humans are the only species that deliberately wastes resources (wastes are potential resources we should be reusing and recycling).

Stress the use of perpetual and renewable resources, and use renewable resources no faster than they're replenished by natural processes (principle of sustainable yield). Everyone is downwind or downstream from everybody (principle of the global commons). Ehindero O. J *Environmental Education and sustainable development*, Lantern books Literamed Publications (Nig) Ltd 2006

Scientific Principle

- We cannot create or destroy matter; we can only change it from one form to another. Everything we think we have thrown away is still here with us in one form or another; there is no waste (law of conservation of matter).
- There is no waste in functioning biological communities; the wastes or dead bodies of one form of life are food or nutrients for other forms of life (no waste-in-nature principle).
- Organized and concentrated matter is high-quality matter that can usually be converted into useful resources at an affordable cost; disorganized and dispersed matter is low-quality matter that often costs too much to convert to a useful resource (principle of matter quality).
- Don't dilute, disperse, mix, burn, or bury matter products or wastes that can be recycled or reused (principle of affordable recycling and reuse).
- We cannot create or destroy energy; we can only change it from one form to another. We can't get energy for nothing; it takes energy to get energy (first law of energy, or law of conservation of energy).
- Organized or concentrated energy is high-quality energy that can be used to do things; disorganized or dilute energy is low-quality energy that is not very useful (principle of energy quality).
- In any conversion of energy from one form to another, high- quality, useful energy is always degraded to lower quality. less useful energy that can't be recycled to give high-quality in terms of energy quality, we can't break even (second law of energy, or law of energy-quality degradation).
- We shouldn't use high-quality energy to do something that can be done with lower-quality energy; don't use a chain saw to cut butter or electricity to heat a house or household water (principle of matching energy quality to energy tasks).
- Life on earth depends on the one-way flow of high-quality energy from the sun through the earth's life-support systems and eventually back into space as low-quality heat, and the recycling of vital chemicals by a combination of biological, geological, and chemical processes (principle of carrying capacity).

- Each species and each individual organism can tolerate only a certain range of environmental conditions (range of-tolerance principle).
- Too much or too little of a physical or chemical factor can limit or prevent the growth of a population in a particular place (limiting-factor principle).
- No population can keep growing indefinitely (principle of carrying capacity).
- Every species has a specific role to play in nature (ecological- niche principle).
- Average precipitation and temperature are the major factors determining whether a particular land area is a desert, grassland, or forest (climate and Vegetation principle).
- A population of a particular species can change its size, age, structure, and distribution to avoid or reduce the harmful effects of an environmental stress (principle of population dynamics).
- A population of a particular species can better adapt to changes in environmental conditions by changing its genetics structure and producing more offspring who can tolerate the changed conditions (principle of natural selection and biological evolution).
- Biological communities can adapt to severe changes in environmental conditions by gradually developing different and usually more complex communities (principle of ecological succession).
- Over billions of years, nature has evolved a variety of species (species diversity), genetic variety within species (genetic diversity), and natural system (ecosystem diversity) in response to environmental change and as mechanisms for responding to future changes (principle of biodiversity).
- The earth's solid outer-layer (crust and upper mantle) is made up of several gigantic floating plates that over millions of years move and in the process shape and alter the earth's crust, cause continents to move, and concentrate some of the minerals we extract and use (theory of plate tectonics).
- The earth's atmosphere, hydrosphere, and forms of life are continually changing in response to changes in solar input, movements of the earth's crust, other natural changes, and changes brought about by human and other living organisms (dynamic-earth principle).
- Species that cannot adapt to changing environmental conditions brought about by natural processes or by human actions become extinct forever (adapt-or-die principle, or the-earth-can-easily-get-along-without-us principle).
- The earth's life-support systems can take much stress and abuse, but there are limits (law of limits).
- In nature we can never do just one thing; everything we do creates effects that are often unpredictable (first law of ecology, or principle of ecological backlash)
- Everything is connected to and intermingled with everything else; we are all in this together (second law of ecology, or principle of interdependence).
- Any chemical that we produce should not interfere with the earth's natural biogeochemical cycles in ways that degrade the earth's life support systems for us or

other species (third law of ecology).

We can't expect to reduce the dangers from most hazards to zero, but the risks can be greatly reduced (principle of risk-benefit analysis).

- Any system that depends on alliable humans for its design, operation, and maintenance will sooner or later fail (limitation of-risk-benefit-analysis principle).

Nature is not only more complex than we think but also more complex than we can ever think (principle of complexity). Ehindero O. J *Environmental Education and sustainable development*, Lantern books Literamed Publications (Nig) Ltd 2006

3.2 Economics and Politics

- The market price of anything should include all present and future costs of any pollution, environmental degradation, or other harmful effects connected with it that are passed onto society and the environment (principle of internalizing all external costs).
- Some forms of economic growth are harmful; don't produce harmful goods (principle of economic cancer).
- Short-term greed leads to long-term economic and environmental grief don't deplete the earth's natural capital and mortgage the future (don't-live-off-earth-capital principle).
- Don't give people subsidies or reward only producers who reduce resource waste, pollution, and environmental degradation (principle of economic and ecological wisdom).
- Put the poor and their environment first not last; help the poor to sustain themselves and their local environment. (eliminate-the-poverty -trap principle).
- Change earth degrading and depleting manufacturing processes, products, and businesses into earth-sustaining one (break-it-and-fix-it -better principle).
- We cannot have a healthy economy in a sick environment (economics -as-if-the-earth-mattered principle).
- The earth can get along without us, but we can't get along without the earth; an exhausted earth is an exhausted economy (respect-your-roots, or earth-first principle).
- Anticipating and preventing problems is cheaper and more effective than reacting to and trying to cure them; an ounce of prevention is worth a pound of cure (prevention, or input-control principle).
- History shows that the most important changes come from the bottom up, not the top down (individuals-matter principle).
- Every crisis is an opportunity for change (bad-news-can-be-good-news principle).

Think globally, act locally (principle of change). Ehindero O. J *Environmental Education and sustainable development*, Lantern books Literamed Publications (Nig) Ltd 2006

Worldview and Ethics

- The earth does not belong to us; we belong to the earth (principle of humility).
- Our role is to understand and work with the rest of nature, not conquer it (principle of cooperation).

- Every living species has a right to live, or at least to struggle to live, simply because it exists; this right is not dependent on its actual or potential use to us (respect-for-nature principle).
- The best things in life aren't things (principle of love, caring, and joy).
- Something is right when it tends to maintain the earth's life-support systems for us and other species and wrong when it tends otherwise; the bottom line is that the earth is the bottom line (principle of sustainability and ecocentrism).
- It is wrong for humans to cause the premature extinction of any wild species and the elimination and degradation of their habitats economic terms (preservation-of-wildlife-and biodiversity principle).
- When we alter nature to meet what we consider to be basic or non-basic needs, we should choose the method that does the least possible harm to other living things; in minimizing harm, it is generally worse to harm a species than an individual organism, and still worse to harm a biotic community (principle of minimum wrong).
- It is wrong to treat people and other living things primarily as factors of production, whose value is expressed only in economic-is-not-everything principle).
- All people should be held responsible from their own pollution and environmental degradation (responsibility-of-the-born principle).
- No individual, corporation, or nation has a right to an ever-increasing share of the earth's finite resources; don't let need slide into greed (principle of enoughness).
- We should protect the earth's remaining wild ecosystems from our activities, rehabilitate or restore ecosystems we have degraded, use ecosystems only on a sustainable basis, and allow many of the ecosystems we have occupied and abused to return to a wild state (Principle of ecosystem protection and healing).
- In protecting and sustaining nature, go farther than the law requires (ethic-often-exceed-legality principle).
- To prevent excessive deaths of people and other species, people must prevent excessive births (birth control is better than death control principle).
- Don't do anything that depletes the earth's physical, chemical and biological capital, which supports all life and human economic activities; the earth deficit is the ultimate deficit (balanced-earth-budget principle).
- To love, cherish, and understand the earth and yourself take time to experience and sense the air, water, soil, plants. Animals, bacteria, and other parts of the earth directly; learning about the earth indirectly from books, television images, and ideas is not enough (direct-experience- is- the- best teacher principle)

Learn about and love your local environment, and live gently within that place; walk lightly on the earth (love-your- neighborhood principle). Ehindero O. J *Environmental Education and sustainable development*, Lantern books Literamed Publications (Nig) Ltd 2006

SELF ASSESSMENT EXERCISE

Enumerate and discuss at least five scientific principles of nature.

3.3 Four Levels of Environmental Awareness**First Level of Awareness****Pollution and Environmental Degradation**

Environmental problems are seen as essentially pollution problems that threaten human and welfare. Each environmental problem can be solved in isolation by waiting until it reaches a crisis level and then dealing with it by the use of legal, technological, and economic methods, mostly, temporary output approaches. There are three major problems with staying at this awareness level. First, it is exclusively a human-centered view, not a life-centered view. Second, individuals see their own impacts as too tiny to matter, not realizing that billions of individual impacts acting together threaten the life-support systems for us and other species. Third, this approach seduces people into thinking that environment and resources can be solved by quick technological solutions.

Second Level of Awareness**Consumption Overpopulation**

We recognize that the causes of pollution, environmental degradation, and resource depletion are a combination of people over-population in poor countries and consumption overpopulation rich countries, with the most environmentally damaging populations living in industrialized societies devoted to very high rates of resources consumption and waste production. At this level the answers seem obvious, stabilize and then reduce population sizes in all countries, reduce wasteful consumption of matter and energy resources - especially in the affluent countries that consume 80% of the world's resources.

At this level there is little emphasis on transforming political and economic systems in ways that help sustain the earth and in setting aside or restoring much larger areas of the earth's natural systems. Wilderness area, parks, and wildlife preserves. There is little awareness that most protected natural areas are too small to sustain their natural diversity of organisms and are being rapidly overwhelmed and biologically impoverished by the pollutants and unsustainable use of resources and the pollutants produced by technological, growth-oriented societies. This second level of awareness still views humans as above or outside nature and as more important than other species.

Third Level of Awareness**New Age and Spaceship Earth**

The goal at this level is to use technology and existing economic and political systems to control population growth, pollution, and resource depletion to prevent environmental overload. The earth viewed as a spaceship - a machine that will have the capacity and the duty to control and

dominate by using advanced technology. If the earth becomes too crowded we will build stations in space for the excess population. If the earth becomes depleted of mineral resources, we will mine other planets. Genetic engineering will be used to control the evolution of life forms and develop organisms that produce more food, clean-up oil spills and toxic wastes, and satisfy more of our wants. Because of our ingenuity and power over the rest of nature, there will always be more.

This view of the earth as a spaceship is a sophisticated expression of the idea that through technology and human ingenuity we can control nature and create artificial environments and life avoid environmental overload, instead of novelty, spontaneity, joy, freedom, and biological and cultural diversity, the spaceship model is based on cultural sameness, social regimentation (ground control), artificiality, monotony, and gadgetry. This approach also cause environmental overload and resource depletion in the long run because it is based on the false ideas that we understand how nature works and that there are limits to the earth's resources and our ability to overcome any problem with technology innovations. This view calls for sustainable economic development sustainable societies for humans. But careful analysis reveals that some of the proposals now being made under the guise sustainability are in the long run, unsustainable. The human-Centered spaceship worldview is inadequate for dealing with an overpopulated environmentally stressed, and globally interconnected world that lives by depleting and degrading earth's natural Capital.

Fourth Level of Awareness

Sustainable Earth

The first three levels of understanding are human-centered views in which we shape the world to meet our needs. They do not recognize that the Solution to our problems lies in giving up our destructive fantasies of omnipotence. Instead, we must develop an earth-centered or life-centered world-view based on the principles summarized on the preceding pages on understanding and sustaining the earth.

4.0 Conclusion

We cannot have sustainable or any form of economic development or sustainable societies unless we help to sustain the entire earth by working with the earth's natural processes. We must do this not only because it helps to ensure our survival but also because it is wrong to do otherwise.

5.0 Summary

The view of the earth as a spaceship is a sophisticated expression of the idea that through technology and human ingenuity we can control nature and create artificial environments and life, avoid environmental overload, instead of novelty, spontaneity, joy, freedom, and biological and cultural diversity, this spaceship model is based on cultural sameness, social regimentation (ground control), artificiality, monotony, and gadgetry.

6.0 Tutor-Marked Assignment

Discuss the four levels of environmental awareness

7.0 References/Further Readings

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UNIT 3 POPULATION AND ENVIRONMENT

CONTENTS

- 1.0 Introduction
- 2.0 Objectives
- 3.0 Main Content
 - 3.1 Population and the Environment
 - 3.2 Concepts in Population
 - 3.3 Nigeria Population
- 4.0 Conclusion
- 5.0 Summary
- 6.0 Tutor-Marked Assignment
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1.0 Introduction

In the previous unit, the discussion centered around Resources, Pollution and Environmental Awareness, Economics and Politics, and the Four Levels of Environmental Awareness. In this unit, we shall discuss in greater detail Population and the Environment Concepts in Population and the Nigeria Population.

2.0 Objectives

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

- a. Define and state what you understand by population
- b. Establish a link between the population and the environment
- c. Explain the graphical representations in the unit

3.0 Main Content

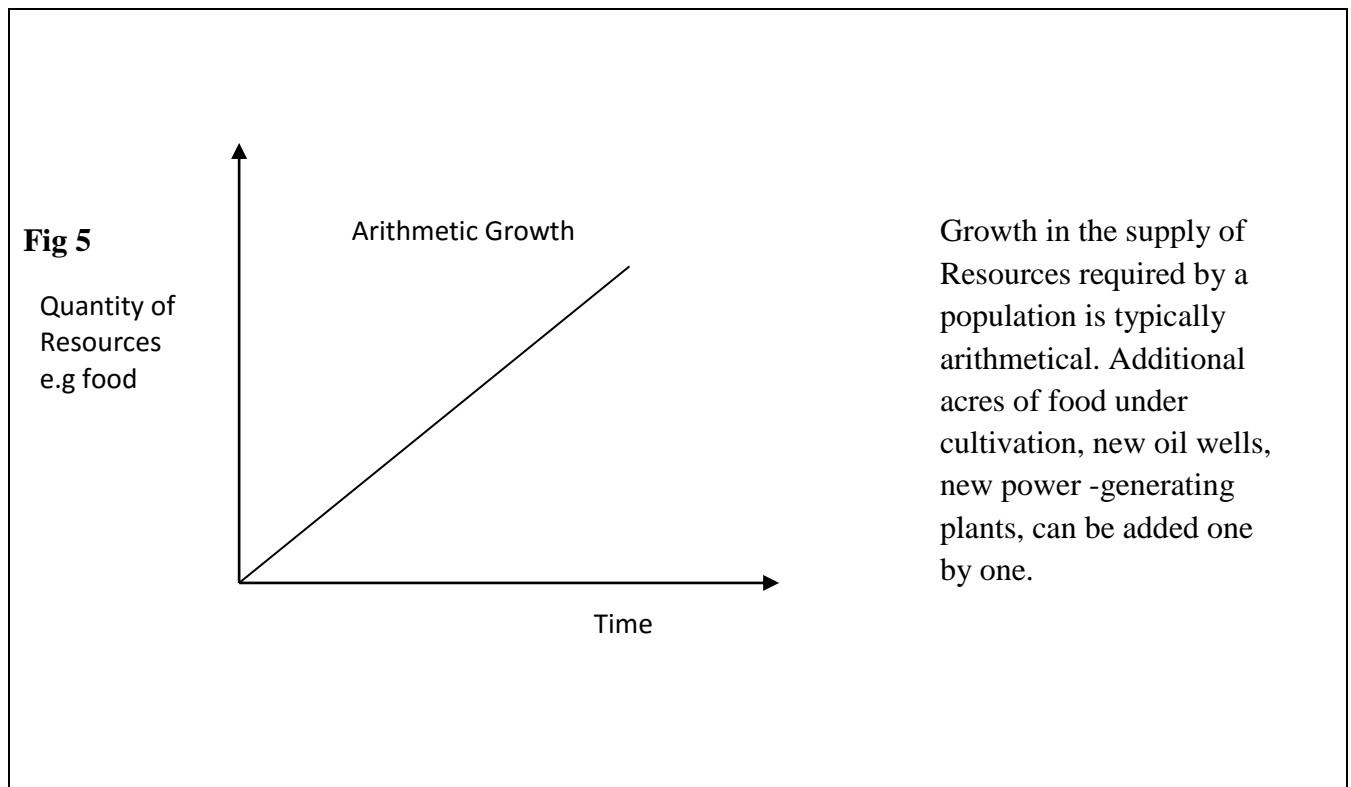
3.1 Population and the Environment

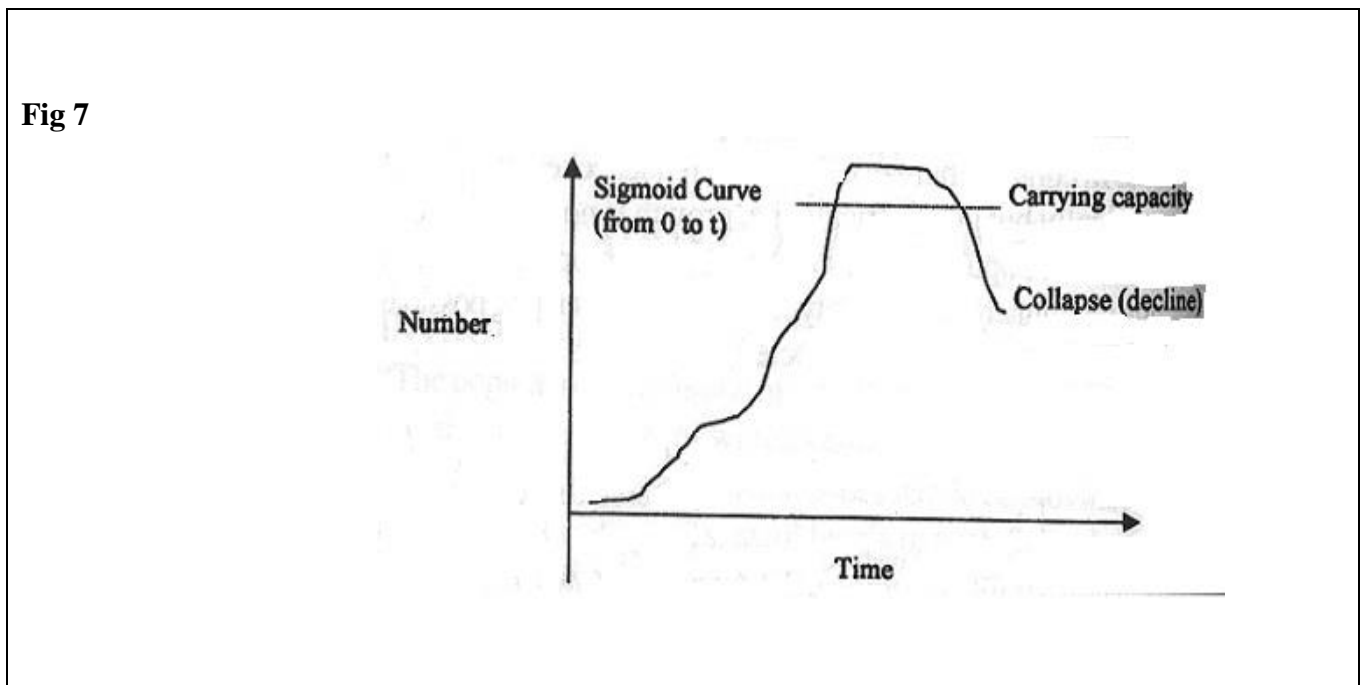
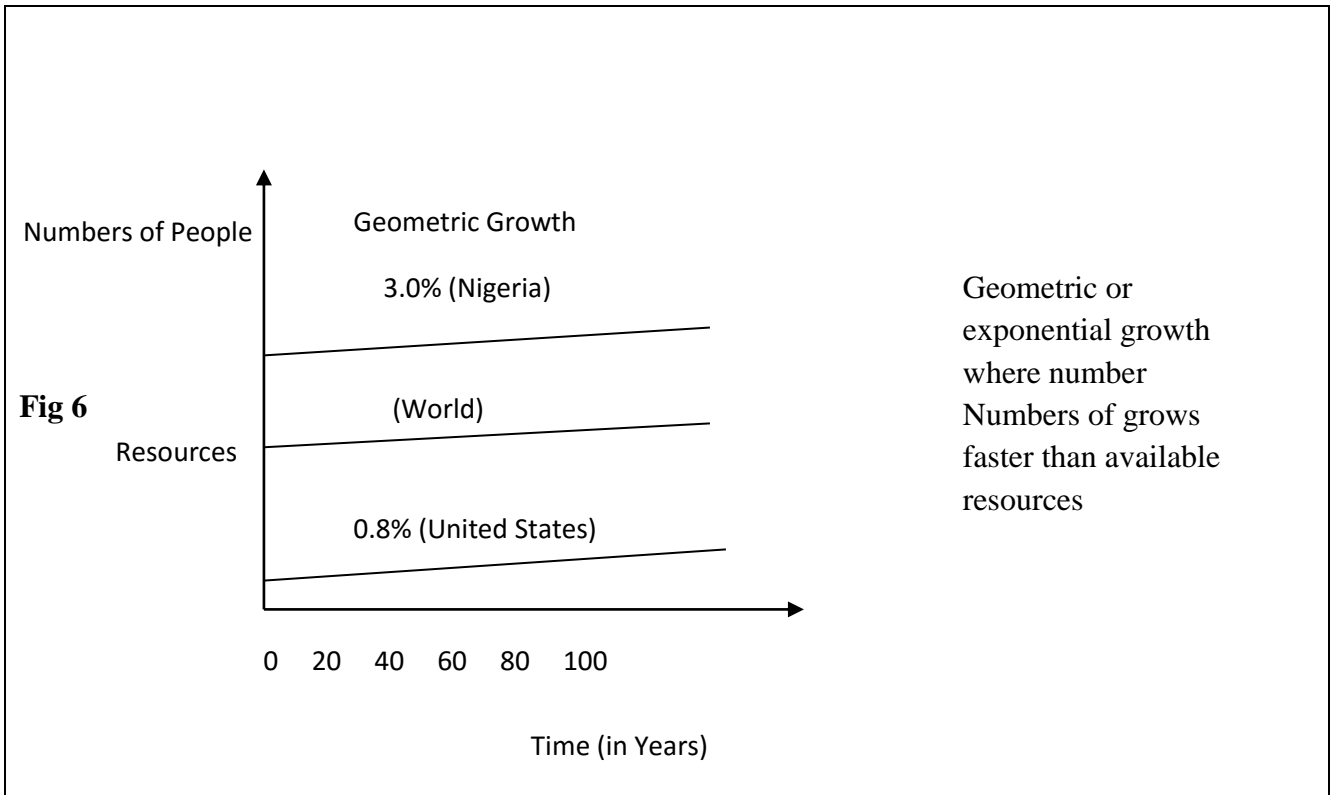
“The population issue is one of today’s major planetary problems towards the solution of which education must contribute. An education concerning population issues should be provided to both sexes and all age-groups, at all levels in both formal and informal education,” Istanbul Declaration; First International Congress on Population Education and Development 14-17 April 1993.

Many of the problems of environment and development revolve around population, reproductive health and women issues. The world population is put at more than 6 billion persons with a daily increase of a quarter of a million people ie about 3 or 4 persons each second. More than 95 percent of this increase occurs in developing countries; Environmental Education Dossiers (1993). If the present population trend continues, energy’ consumption and the effectual resume

of production of pollution will double over the next 20 years. As a result, about 20 percent of the world's population consumes 80 percent of the planet's resources and produces 80 percent of the global pollution. The issues at stake are the total number of persons, the depletion of non-renewable resources and the pollution produced by the person. The population problem has been recognized as far back as 1798 when Malthus observed that the means of subsistence (resources food, shelter) grow in an arithmetic fashion, that is, their growth is additive. In contrast, human population, if unchecked, grows not arithmetically but geometrically i.e. growth is not additive but multiplicative. Population growth in geometric proportion cannot continue indefinitely. Below are types of graphs illustrating possible population growth in (human) societies (Hardy: 1975)

Additive. In contrast, human population, if unchecked, grows not arithmetically but geometrically i.e. growth is not additive but multiplicative. Population growth in geometric proportion cannot continue indefinitely. Below are types of graphs illustrating possible population growth in (human) societies (Hardy 1975).





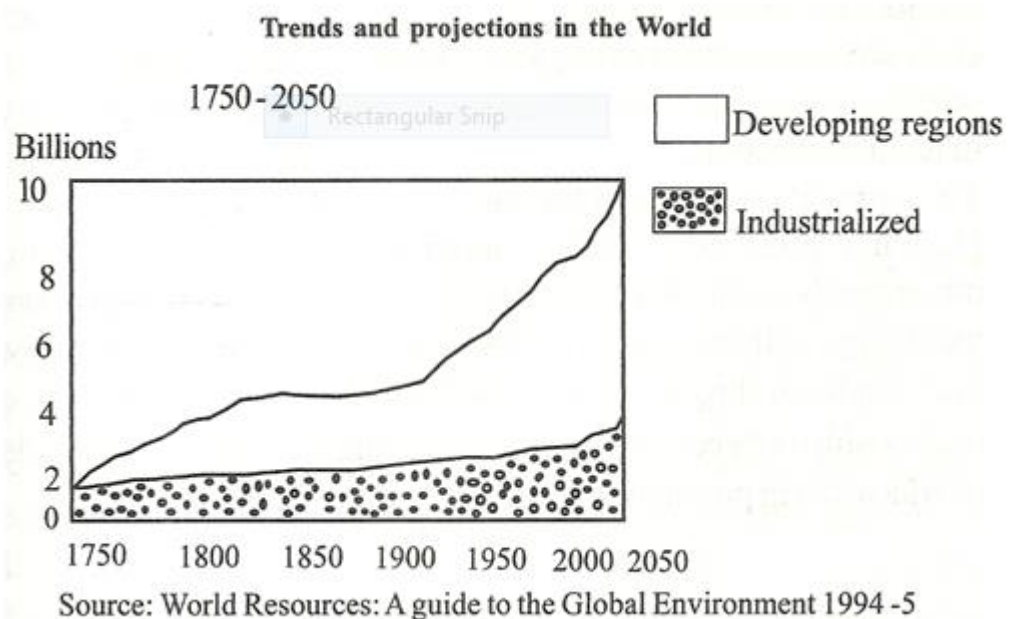
All resources are finite. As a required resource (or resources) is depleted by a growing population, the scarcity of the resources slows down the rapid geometric growth by acting as a negative feed-back loop. Finally, growth becomes negligible as the population reaches the

‘carrying capacity’ of the environment. At that point, the limiting resources are not available in sufficient quantities to allow further growth.

Population growth is limited by the availability of essential resources. Eventually, factors in the environment such as crowding diseases, depletion of food resources, or a combination of such factors, halt further population growth resulting in a Sigmoid Growth Curve. Fig 7

Trends and Projections in the World

Fig 8



An adequate account of environmental education will be incomplete without a consideration of the problems and issues about population. The problem of an interest in population dates back to the sixteenth century when Grant (1662) reported by Krebs (1978) undertook a quantitative study of the human population. He identified the main categories that could be factored into a comprehensive analysis of a given population emphasizing the value of such quantifiable variables as birth and death rate, sex ratio and age structure of human populations. Malthus' Essay on Population (1798) provided a conceptual framework for structuring the different forms of population growth. His studies not only elaborated the distinction between geometric population growth (1248 1632 ...) and arithmetic growth (1, 2, 3, 4 , 5...) but he also demonstrated that while population growth can increase geometrically, their food supply may never increase factor arithmetically. This disproportional increase led Malthus to establish a relationship between the reproductive rate and food production in terms of population size and its

regulation. This controversial construct although questioned by contemporary social scientists, provided a framework for investigating Darwin's theory of natural selection. The cumulative effects of the early works of Malthus (1798) and Darwin (1858) led to a better understanding of the factors and processes that influence human population growth and regulation including a delineation of a defined discipline of population study. Such studies indirectly provided a framework for establishing the relationship between education and population and hence the role of education in population growth.

SELF ASSESSMENT EXERCISE

Using the graphs 1 2 3, explain the relationship between Resources, population and environment.

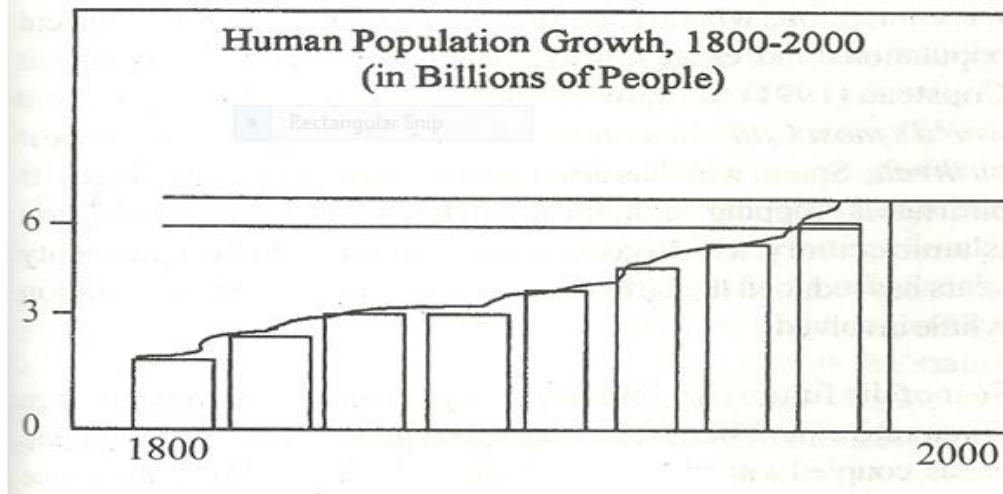
3.2 Concepts in Population

In order to appreciate the nature and consequences of population on the human environment, there is need to define and explain terms that are pertinent to an adequate understanding of the relationships among population, environment and development.

A population is a collection or group of organisms of the same species occupying a particular space at a particular time. According to UNESCO (1986) publication, a population is a self regulating phenomenon, which has a birth rate as well as a death rate, a growth form, density, an age structure and a numerical dispersion in time and space. At the beginning of the last century, the world's population was about 1.6 billion. While pollution and other environmental problems prevailed, these were localized, managed and accommodated by built-in natural mechanisms. Around the 1950s, during the agrarian revolution coupled with results of the scientific-industrial-medical complexes, the world started to shrink with a population growth of 2.5 billion. Associated with this was 'multiplied per capita consumption of natural resources and per capital pollution. With increased population came a wide range of basic human needs for food, shelter, air and water pollution and a heightened concern about the cumulative effects of toxic industrial wastes on the population. At the beginning of the 1990s, the world's population has more than doubled from its 1950s figure of about 3 billion (Fig. 9) to about 6.2 billion while global economic outputs quadrupled with the effects that the pressure of agricultural and industrial developments began to manifest, to crowd out and extinguish other species at a rapid rate, to visibly erode the carrying capacity of the planets' soils, forests, estuaries, and oceans and to alter the chemical and physical composition of the atmosphere. The magnitude of this alteration resulting mainly from geometric growth in human population has been captured in the report of Our Common Future:

Planetary Growth

Fig 9



(Source: Ehindero 2006 p.111)

.. the planet is passing through a period of dramatic growth and Fundamental change. Our human world of 5 billion must make room in a finite environment for another human world. The population could stabilize at between 8 billion and 14 billion sometime in the 21st Century, according to UN Projects. One of the world's environmental dilemmas is the rate and forms in which natural resources are being consumed and wastes are being produced even as developing countries are visioning the same developmental patterns that have led the world to its present environmental trap. In the words of the French oceanographer Jacques-Yves Cousteau, when asked to comment on the dangers that threaten the earth today... "The resources of our planet are finite.., there is a limit that should not be exceeded, a habitability threshold that must not be crossed." Over-population is our planet's number one problem, of the 5.7 billion people on earth, less than 2 billion live in decent condition, The UNESCO Courier 1991.

It is contentious whether religion is a prominent factor in current population trend, especially in developing societies. According Cousteau (1991), religion has nothing to do with it. Italy is the world's most Catholic country and yet it has the world lowest birth rate. Spain, which is also Catholic, is in a similar position, its birth rate is dropping vertiginously. In Indonesia, the world's biggest Islamic country, a birth control campaign within the last twenty years has reduced the

birth rate by almost 50 percent. So, religion is little involved. Fear of the future (i.e. insecurity) e.g. insurance against old age when retirement benefits cannot adequately take care of basic needs, coupled with the ingrained cultural belief and the importance attached to male children seem, influence the high birth rate served in many developing societies. These, in addition to poverty and illiteracy especially among women in rural communities, compound the population problem faced by the world.

Population density is defined as the size of a particular population in relation to a specific unit space, and expressed with reference to the number of species per unit area or volume. Hence, human population density is described in terms of 100 persons per square kilometer; plants in 300 trees per hectare and for bacteria or diatoms 6 million bacteria per cubic meter of water. The density of an organism on an area varies, changing with weather conditions, season, and nutrients. Smith (1966) stated that there is an upper limit to the density of a population within a unit area imposed by size and trophic level. Generally, the smaller the organism, the greater is the abundance per unit area. The larger the size of the organisms, the lesser is its numerical density. The lower the trophic level of the species, the greater is its density.

Population density is determined by three related terms - natality, mortality, and dispersal. In other words, population density is determined by the number of organisms added to the population through reproduction and the number leaving it through death. Natality is the production of new individuals in the population. It is a comprehensive term which covers all forms of production; fission, germination, hatching and birth. Technically, natality refers to the number of offspring's-produced per female per unit time and for humans, the term birth rate is used rather than natality. Mortality refers to death of organisms in a given population leading to a decrease in number. It is expressed as the number of individuals dying in a given period. For human beings, death rate (rather than mortality) is used and it denotes the number of deaths in a given time interval divided by the average population. Mortality varies with age and it is better expressed in terms of life expectancy because the number of individuals who survive is of more significance in a population than those who die (UNESCO: 1986), identifies two forms of mortality, physiologic or maximum longevity and ecological longevity. According to it, physiological longevity refers to the average life span of members of a population living under optimum conditions and natural deaths due to old age or senescence. It is constant for a given population. Ecological longevity, on the other hand, depends on and varies with environmental conditions.

The movement of organisms and other agents of reproductive structures (e.g. seeds, spores, larvae, nymphs, tadpoles etc) in or out of the population is referred to as dispersal. For human beings it is called **immigration** (one way movement into a population to increase that population) and **emigration** (a one way outward movement leading to a decrease in population). **Migration** refers to the periodic departure and return of members of the population. Other

characteristics of population are age structure, growth form and the regulation of population size. The age structure of population affects its natality and mortality because the potentials and actual reproductive capacity of organisms in that population is restricted to certain age bracket while mortality is also limited to certain ages. Generally, there are three different age categories of a given population: pre-reproductive, reproductive and post-reproductive. Each of this is characterized by known reproductive and non-reproductive capability. The number, ratio and changes in the ratio of organisms in these age-groups will be manifested in the natality and mortality which will eventually change the age characteristic of the population. A UNESCO (1986) publication states that a large proportion of the pre-reproductive individuals characterize a rapidly expanding population. A more even distribution of different age groups leads to a more stationary population. A large proportion of post-reproductive individuals indicate a declining population.

Fig 10

Post-reproductive
Reproductive
Pre reproductive

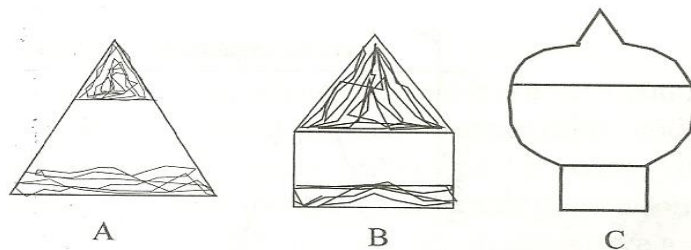


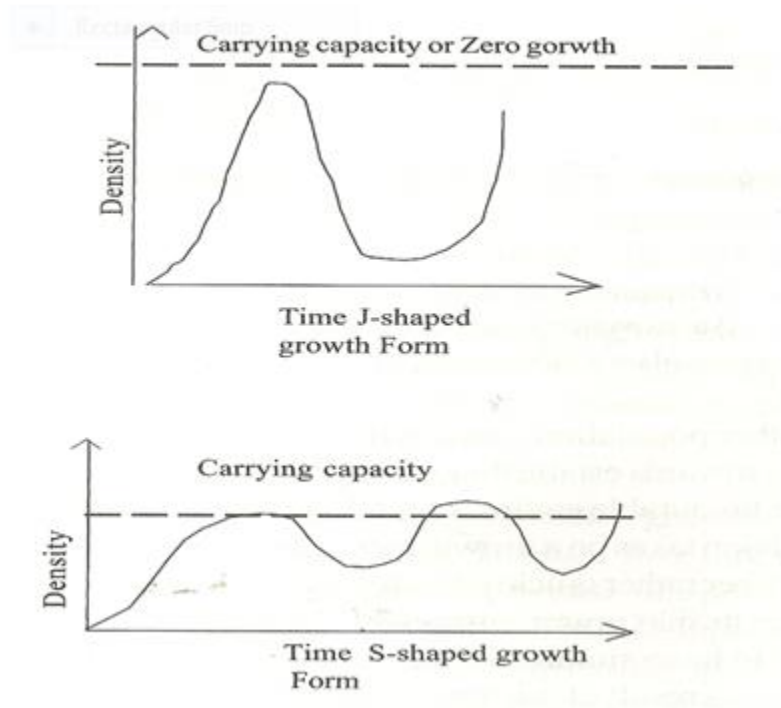
Fig 10: Different types of population as a result of different age group ratio; A: An expanding population. B: A stable population and C: A declining population (Kormondy 1976).

The other population characteristic is its growth pattern which is ideally towards establishing equilibrium with its environment. Under favorable environmental conditions, a newly established population takes on a growth pattern which is geometric-doubling s number rather quickly. Such a growth pattern continues until it reaches its maximum, sustainable by available resources when it s said to have attained its carrying capacity: After this, decline sets in as a result of the detrimental effects (e.g. unavailability of resources) of increased density on the carrying capacity.

Earlier in this Module, we saw forms of population growth curves as we graphed population number against time. We identified the arithmetic growth curve, the geometric growth curve the J-shaped growth curve which illustrates an exponential increase in density, then an abrupt stop followed by a plunge due to a sudden input of a limiting effect. The other type is the S-shaped or Sigmoid Growth Curve which shows a slow increase at first then becomes rapid and slows down

again with increase in environmental resistance. The equilibrium level may be maintained for sometimes before a gradual decrease.

Fig 11 & 12



Finally, all the above we know that a population is a group of organism, (plant or animal) of the specie occupying, a particular space at a particular point in time. The population, in addition, is an organizational unit (level) through which energy flows and nutrients are cycled. A population is a self-regulating system that helps to keep the ecosystem (or community) in equilibrium (dynamically stable over time.) Populations also have birth rates, death rates, age structures, densities, growth patterns, and dispersion in both time and space (both dispersion within the ecosystem and to different ecosystems).

SELF ASSESSMENT EXERCISE

What do you understand by population?

3.3 Nigerian Population

According to the 1991 national census, Nigeria has a very young population. About 34 percent of the populations are children under 10 years; and about 45 percent are under age 15 years. The distribution is identical for both the male and female populations. About half the populations (51.8 percent) are in the active age group of 15-64 years. There are more females in this age

group (23.7 million or 51.4 percent) than males (22.4 million or 48.6 percent). Aging has not become an important feature of the Nigerian population. Only 3.6 percent of males and 3.0 percent of females are aged i.e. above 64 years. The graph below (Fig. 6.7) shows that developing countries are experiencing greater increases in population than developed countries. Some of the causes of these disproportionate figures are summarized in a tabular form that follows.

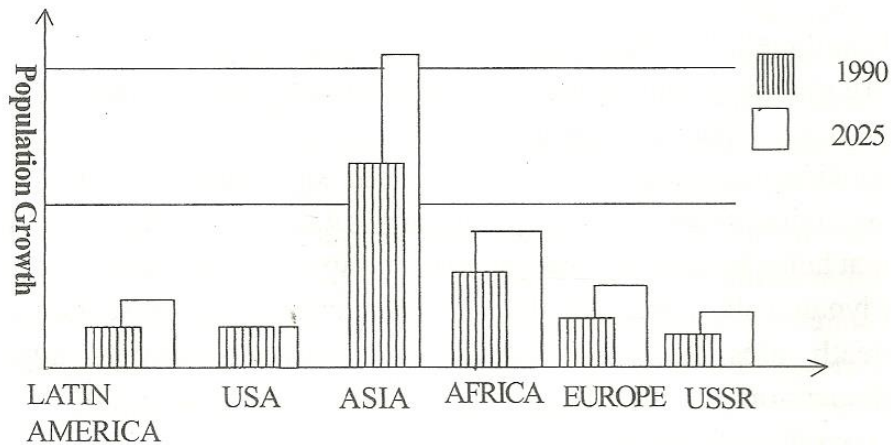


Fig 13

Continents

Comparable population Growth in Six Continents

variables related to population growth in developing countries	Variables related to population growth in developed countries
<ul style="list-style-type: none"> • A lower rate and level of education • A culture bound perception of children as being part of the family’s labour force and often times a concomitant desire to produce male. • A tendency to have more children in order to offset the high infant mortality rate. • A lower marrying age which increase number of child bearing years. • Limited access to birth control information and techniques. • Religious beliefs and cultural values, individualism and independent minds and norms which impinge upon reproductive behaviour. 	<ul style="list-style-type: none"> • Higher rate and level of education • Higher cost associated with child-bearing and education. • A lower level of mortality with better healthcare delivery system. • A tendency to delay marrying to a latter age thereby limiting the number of child bearing years. • Greater assess to birth control methods. • Individualisms and independent minds.

Table 1 Factors in Population Growth Developing and Developed countries.

(Source: Ehindero 2006 p.118)

Fig. 14

	Population (in Millions)				Annual Average Population Change (%)			Annual Average Increment to Population (Thousands)		
	1950	1990	1995	2025	1980-1985	1990-1995	2000-2005	1980-1985	1990-1995	2000-2005
World	251619	529530	575928	847245	1.75	1.68	1.43	81.54	92.80	91.961
Africa	222.50	642.58	744.00	1.60	2.91	2.93	2.70	15.03	20.27	24.734
Cameroon	4.5	11.52	13.28	29.26	2.83	2.83	2.84	263	350	467
Ghana	4.90	15.02	17.45	38.0	3.58	3.00	2.81	4.21	487	609
*Nigeria	32.94	108.54	126.93	285.82	3.20	3.13	2.95	2717	3677	4695
China	554.76	1153.47	1238.32	1539.76	1.44	1.42	0.78	14888	16970	10417
India	357.56	846.20	931.04	1393.87	2.14	1.91	1.65	15559	16991	17463
U.S.A.	152.27	250.55	263.14	322.00	0.92	1.03	0.76	2142	2633	2121
U.K.	50.62	57.41	58.09	60.29	0.10	0.24	0.19	58	136	111

**About 44.9%, 51.97% and 3.27% of the population of Nigeria are young: (00-14 yrs) workers (15-64 yrs.) and old (65+ yrs.) old respectively. (NPC 1991 Census*

The Population-Environment Link

In order to satisfy their basic needs for survival and growth, humans interact with their biophysical environment for resources. There is therefore an expected and ideal proportional relationship between population increase and the degree of human impact on the environment for resources from the biosphere for survival. The number of people in a particular region or country varies and it is an index of how human activities will have impact on the environment. Factors in this relationship are rate of population increase, geographical distribution of people and investment in social services such as health and education.

The idea of earth's carrying capacity comes into the relationship between human population growth and the degree of environmental impact. Carrying capacity as stated earlier in this unit refers to the long term capability of an ecosystem to sustain a given population without degrading its available resources and, in turn, affecting its own population. Carrying capacity is a function of human resource use and environmental factors.

The impact of human population growth on the environment depends on human ingenuity, government policies, existing legal system, access to capital and technology, the efficiency of industrial production, inequity in the distribution of land and other resources, poverty especially, in the South and conspicuous consumption in the North (WRI 1994-95). In general, the relationship between population and the environment is explicit. Observed growth in population will heighten demand for basic resources for food, energy, water, health care, sanitation and housing.

There are two major human-induced changes accompanying population growth: habitat alteration and pollution. Habitat alteration results from indiscriminate deforestation to make way for more farmland to grow food for the exploding population it has been estimated that between 1700 to 1980, forest and woodland declined globally from roughly 6.2 billion hectares to 5.1 billion hectares, or nearly 20 percent. Over the same period, cropland increased from about 270 million hectares to about 1.5 billion hectares or about 460 percent (WRI 1994-95). Deforestation and the expansion of cropland are usually accompanied by different agricultural activities (inputs efficient and sophisticated use of machines and technology, roads and canals' construction) the cumulative effect of which is soil degradation.

4.0 Conclusion

The impact of human population growth on the environment depends on human ingenuity, government policies, existing legal system, access to capital and technology, the efficiency of industrial production, inequity in the distribution of land and other resources, poverty especially, in the South and conspicuous consumption in the North

5.0 Summary

Globally, irrigated lands cover some 310 million hectares, an estimated 20 percent of it salt-affected (62 million hectares). The inflation-adjusted cost of salt-induced land degradation in 2013 was estimated at US\$441 per hectare, yielding an estimate of global economic losses at US\$27.3 billion per year. (<https://unu.edu/media-relations/releases/world-losing-2000-hectares-of-farm-soil-daily-to-salt-induced-degradation.html> visited on 16-09-2016 01:23)

6.0 Tutor-Marked Assignment

Establish the link between the environment and population

7.0 References/Further Readings

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UNIT 4 ENVIRONMENTAL CHALLENGES CONTENTS

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- 3.0 Main Content
 - 3.1 Environmental Degradation
 - 3.2 Marine Pollution
 - 3.3 Deforestation
- 4.0 Conclusion
- 5.0 Summary
- 6.0 Tutor-Marked Assignment
- 7.0 References/Further Readings

1.0 Introduction

In the previous unit we focused attention on Population and the Environment, Concepts in Population and the Nigeria Population. In this unit we shall discuss Environmental Degradation, Marine Pollution and Deforestation.

2.0 Objectives

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

- a. Define in your own words what you understand by environmental degradation
- b. State what constitutes Marine pollution
- c. Describe in detail what you understand by air pollution with special reference to acid rain, the greenhouse effect and ozone layer depletion
- d. Explain Desertification.

3.0 Main Content

3.1 Environmental Degradation

Many arguments against pollution, the use of gases harmful to the ozone layer, the burning of fossil fuels, and the destruction of forests, could be couched in terms of the harm to human health and welfare from the pollutants, or the changes to the climate that will occur as a result of the use of fossil fuels and the loss of forest. The greenhouse effect - to take just one danger to our environment - threatens to bring about a rise in sea level that will inundate low-lying coastal areas....

A rise in sea level could also wipe out entire island nations such as the Maldives, none of which is more than a meter or two above sea level. So it is obvious that even within a human-centred moral framework, the preservation of our environment is a value of the greatest possible importance (Singer, 1993:268).

Air pollution with special reference to acid rain, the greenhouse effect and ozone layer depletion

Air pollution is said to occur when the atmosphere is over-burdened with gases and chemicals that it can no longer function effectively. This phenomenon can be typified in relation to the stratospheric ozone layer. The earth's stratospheric ozone layer which is at an altitude of 15 to 50 kilometers serves to protect life from the dangerous effects of UV-B radiation. Its depletion leads to increases in the incidence of human skin cancers and eye cataracts and there is even evidence of risk of suppression of the immune system. Plants and aquatic life are not spared; malformations also occur on them (Bretherton and Ponton, 1996:195).

The prime source of Pollutant gases is from incinerator caused by ejection from volcanoes, fires of forest, bush and grassland the burning of fuel, mostly fossil fuel, for warmth and power and comfort. Other pollutant are the chlorofluorocarbons (CFCs) and polychlorinated biphenyls (PCBs) associated with the production of aerosol containers refrigerators and foam packaging. In addition the enormous increase in cattle rearing over 1,000 million worldwide (Mckibben 1990), and to a lesser extent, other livestock contribute to air pollution. The digestive system in animals which turns green fodder into food inside them produces methane gas. This is expelled into the air and, globally, is a most significant contribution to the increase of methane (CH₄) in the atmosphere. Paddy fields for growing rice provide a major source of methane Termites, through their digestive system similar to those in cattle, excrete methane (every termite mound exudes 5 liters of the gas every minute). Mckibben (1990) estimated that with about half-tone of termites for every person on Earth, termites make a considerable contribution to the release of methane into the atmosphere.

In addition to the sources of pollutant gases above, the interplay of natural forces which provides various ways of counteracting pollution has been jeopardized through human activities. Timber extraction and other destruction of forested lands are illustrative; they hinder this remedial action of the natural process. The process of photosynthesis is most important where vegetation replaces carbon dioxide with oxygen. This vital link in the carbon cycle is able to provide a counterforce to the excessive production of carbon dioxide (CO₂).

Among the main problems associated with air pollution is the contamination of the air we breathe. It causes sore throats and headaches lung disease and cancer, and lack of red blood corpuscles in children The Worldwatch Institute (1990) claims that a fifth of the world's population is breathing air contaminated above international safety limits. Savitt and Bottorf supported this view and expanded it by stating that:

...the deterioration of Europe's forests from air pollution causes losses of \$35 billion a year - but air pollution is especially acute in Southern regions. Mexico City produces 5.000 tons of air pollution a year. In Bangkok, more than 40 percent of the city's traffic police reportedly suffer from respiratory problems. Pollution causes numerous diseases, including cancer, neuropsychiatric disease, chronic respiratory problems, and musculoskeletal problems. These consequences tax the already' over-burdened health care systems of Southern nations and absorb vital productive, human and monetary energies Savitt and Bottorf. 1995:211).

Similarly, in the Czech Republic and in the city of Temlice, children have to wear filter masks to school so as to protect their growing lungs from the soot and sulphur pouring out of nearby coal plants'(WorldwatchInstitute.1996:468).

Another associated problem with air pollution is the creation of acid rain, a term that has become the popular expression for any of the weather phenomena with excessive acidity. A preferred term 'acid deposition' is more inclusive. It refers to snow, hail fog and dry deposition of acidic particles, which in contact with dampness take on an acid variation. Acidity is measured on the pH scale in relation to the concentration of hydrogen ions in the liquid. A pH of 7 is neutral, between 0 and 7 indicates an alkaline of basic state.

The three common acids of the atmosphere are carbonic, nitric and sulphuric acids resulting from the chemical reaction of carbon gas, nitrogen gas and sulphur gas with atmospheric water. About 50 percent of pollutant gases come from natural sources but the rest is created by human activities. By implication, this means that the major effects of acid rain are to be found in industrial concentrations where those gases are produced. Those areas are predominant in the north-east US, Western Europe and the Far East.

The three main effects of acid deposition are on rivers and lakes, trees, buildings and other stone constructions. High acidity in a river or lake will lead to the death of most living things. There are no fishes, no invertebrates and few plants. The acid rain leaks metals from the soil into the lake. Aluminum clogs the gills of fish where such still exist and the calcium in their skeletal structure is attacked and bones become brittle and unable to withstand the pull of muscle, resulting in deformity. The leaking of chemicals from the soil has its deleterious effect on trees. Mineral deficiency is indicated by the premature discoloration and drop of deciduous leaves or coniferous needles. Buildings are not spared of acid rain attack either. Diluted acids react with lime in natural stone and concrete structures. Flakes of materials are lifted from the surface and weakened features of decorative statuary crumble away. The ground below is littered with particles of eroded material. Stained glass is badly affected by acidity and many of the outstanding stained works of art are fading rapidly.

Global warming is another effect of air pollution. The atmosphere becomes warmer as various gases absorb the long-wave radiation of heat from the Earth, in a way similar to the heating of the air in a greenhouse. The 'greenhouse effect' prevents warmth being dissipated into space and keeps the overall temperature of the Earth higher than it would be without these gases. Carbondioxide, methane, ozone, nitrous oxide (laughing gas) and chlorofluorocarbons are the main greenhouse gases. But carbondioxide is the principal 'greenhouse gas' and is responsible for the increase in temperature of 0.5°C. In terms of concentrations, some of the gases are much lower than carbondioxide, but some of them have a greater greenhouse effect. Computer models have predicted a potential rise in temperature of between 1.5 and 4.5°C by 2050.

The resultant effect of global warming (Oyeshola, 1995:10) may be catastrophic; it will include a rise of the ocean waters. (When water is heated, it expands and occupies more space). The water from the increasing melting of the polar ice cap will add to this. Since many of the major towns of the world are located by the sea or a little above sea level, the effect may be devastating.

Already, the Alliance of Small Island States (AOSIS) (some 36 countries) has pleaded with international community in these words: 'If the greenhouse effect raises sea levels by one meter it will virtually do away with Kiribati ...in 50 or 60 years, my country will not be here (Worldwatch Institute, 1996:35). And since 1990, the world-wide insurance industry has paid out \$48 billion for weather-related losses, Compared with losses of \$14 billion for the entire decade of the eighties. If the trend should continue, some industry analysts believe that another 'bad year' or two, or even a single catastrophic storm, could force many major companies out of business (Worldwatch Institute, 1996:34).

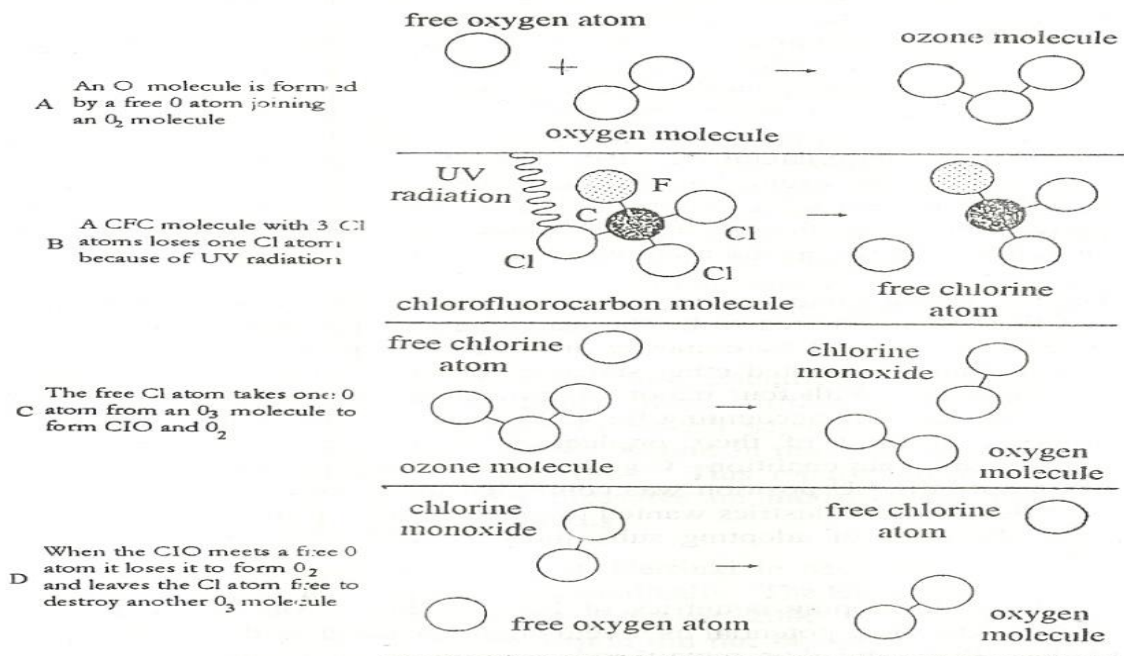
Depletion of the ozone layer becomes the fourth effect of air pollution. Ozone is said to protect the planet and its people from solar radiation containing ultraviolet rays and of these UV-B causes skin cancer, ageing and wrinkling and eye malfunctions in humans, slows plant growth. Destroys marine algae and fish larvae and breaks down the chemical structure of paints and plastics. UV-B damages animal and plant cell structures and harms DNA. Furthermore, it can increase the incidence of cataracts and immune deficiencies. It may also harm crops and aquatic ecosystems. By implication, it may be affirmed that the ozone layer - the area 6 to 30 miles above the earth's surface where 90 percent of atmospheric ozone is concentrated - is essential to life on earth (Sell, 1996:98). But how does the destruction of ozone happen? It takes place thus:

Ozone (O_3) is an unstable form of oxygen, readily giving up the third atom, particularly to atoms of chlorine. CFC gases are not destroyed by the usual chemical reactions in the lower atmosphere. Rather, they rise into the upper atmosphere where ultraviolet radiation causes free chlorine atoms to be released. These collect one of the oxygen atoms to form chlorine monoxide and oxygen. A further reaction releases the chlorine atom, thus again freeing it to destroy ozone

in a 'chain' sequence. Nitrous oxide also plays its part in the destruction of ozone. Its release from high-flying aircraft is a contributing factor.

Another issue often always neglected but nonetheless significant is the role of oceans as zinc to absorb carbon dioxide. It was reported in Nature of August 1995 that the oceans may be losing fixed nitrogen, an essential fertilizer that allows phytoplankton to grow, absorbing and fixing carbon that is then transferred to the deep ocean, If in fact the oceans are losing nitrogen as they warm, they will tend to absorb less carbon, thus increasing the rate of carbon-dioxide build-up in the atmosphere. Many nations have come to realize that depletion of the ozone layer constitutes a serious environmental problem. Consequently, efforts have been made, at least, to curtail its further depletion.

Fig 15. Figure on ozone depletion



How CFCs destroy ozone

Source: UN Environment Programme

In 1975 UNEP introduced the issue of ozone depletion to the international arena when it funded a study by the World Meteorological Society on the theory advanced by two US scientists that the depletion of the ozone layer was caused by CFCs. In 1977, the US, Canada, Finland, Norway and Sweden urged UNCED to consider the international regulation of ozone. Accordingly,

UNEP called a conference of experts from thirty-two countries and a World Plan of Action on the Ozone Layer was adopted. In order to move forward, UNEP established the Coordinating Committee on the Ozone Layer, consisting of representatives of governmental agencies and NGOs to determine the extent of the problem as a guide to international action. And by 1981, the stage had been set for multilateral negotiation on a framework convention for protection of the ozone layer through the Ad Hoc Working Group of Legal and Technical Experts for the Elaboration of a Global Framework Convention for the Protection of the Ozone Layer. The representatives of the group from twenty-four nations began meeting in January 1982.

The US, which alone accounted for 30 percent of world-wide production of CFCs, was prepared to be the lead state in large part because it had already been forced by domestic pressures to regulate CFCs at least in aerosol cans. It wanted other states to follow in order to have a level playing field. With four major EU producing states of Britain, France, Germany and Italy accounting for 45 percent of odd's CFCs output and exporting a third of their production to developing countries, they constituted a veto coalition. Germany was willing to support controls on CFCs but 'the EU position was controlled by the other three producing countries whose industries wanted to preserve their overseas markets and avoid the costs of adopting substitutes for CFCs' (Porter and Brown, 199 1:75).

The large developing countries of India, China, Indonesia, Brazil and Mexico had some potential as a veto coalition based at their capacity to produce them and thus remain independent of industrialised countries. Although they produced less than 5 percent of the world's CFCs, their production was rising at a rate of 7 to 10 percent annual. So they could reduce the impact of an ozone agreement in the future by as much as 50 percent by expanding their production without any limits. Unfortunately, none of the developing states played an active role in the negotiations and in fact, India remained outside altogether until after the Montreal Protocol was signed in 1987.

The Montreal Protocol pledged to reduce CFC production by 50 percent of the 1986 level by 1999 while the developing countries were permitted to increase their use of CFCs substantially for the first decade up to 0.3 kilograms per capital annually. Meanwhile, the Protocol permitted the continued production of ozone-depleting chemicals such as methyl chloroform and carbon tetrachloride. It failed to specify that alternatives to CFCs and halons must not be damaging to the ozone layer. Also its enforcement provisions failed to include provisions for monitoring production and consumption of ozone-destroying chemicals or trade in products containing them. There was no provision for a fund to be established in order to defray the costs of substitutes for CFCs in the developing countries because the US, Japan and EU countries would not support it. Due to this failure, three of the most important members of the potential developing country veto coalition, namely China, India and Brazil, refused to sign the Protocol. But Mexico, and a year later, Indonesia, chose to sign the agreement.

Almost immediately after the Protocol, new scientific evidence showed that ozone depletion had proceeded much further than had been previously thought. This was due to British scientists' report of the spring-time decreases of more than 40 percent in the atmospheric ozone over Antarctica between 1977 and 1984. This report and that of the Ozone Trends Panel created new pressures on industrialized states to agree to a phase-out of CFCs and halons.

At the first meeting of the parties in Helsinki in May 1989, the veto coalition began to shift its position dramatically. The EU members voted for a complete CFC phase-out by the year 2000 in a non-binding declaration. Japan and the Soviet Union did not favour the declaration. In London in June 1990 at the second meeting to amend the protocol, a new coalition of thirteen industrialized states pushed for a 1997 deadline for final elimination of CFCs. This time, the four leading CFC-producing states of the US, Britain, France and Italy, joined by the former Soviet Union, favored a phase-out by the year 2000. Halons and carbon tetrachloride were to be phased out by the year 2000 and the elimination of methyl chloroform was to occur five years later. Hydro fluorocarbons which were many times less damaging to the ozone layer than CFCs remained uncontrolled.

See the schedule for the phase-out

Date (Jan. 1)	CFCs	Halons	Carbon Tetrachloride	Methyl Chloroform	Methyl Bromide	Hydrobromo fluorocarbons
1994	75%	100%	50%	50%	0%	0%
1995	75%		85%	70%	0%	0%
1996	100%		100%	100%	0%	100%
1997					0%	
1998					0%	
1999					25%	
2000					25%	
2001					50%	
2002					50%	
2003					70%	
2004					70%	
2005					100%	

(Source: <https://www.epa.gov/ods-phaseout/phaseout-class-i-ozone-depleting-substances>. visited on 16-09-2016 01:56)

SELF ASSESSMENT EXERCISE

Describe in detail what you understand by air pollution with special reference to acid rain, the greenhouse effect and ozone layer depletion.

3.2 Marine Pollution

Marine environment has been polluted through a variety of wastes that have been dumped into the seas and rivers. These wastes are of two kinds, the radioactive and non-radioactive. The former (Oyeshola, 1995:16) can further be classified according to their level of radioactivity into high, intermediate and low. It is only intermediate and low-level wastes that have been purposely and openly dumped in the deep oceans. Radioactive wastes arise from many sources namely from the nuclear power and defense industries, hospitals, Universities, and other research laboratories. Sources of non-radioactive waste are sewage sludge, oil pollution, some industrial waste, rubbish, dredged material and ocean incineration. These originate from domestic - sewage, rubbish, silt and other debris from roads; industrial - sewage effluent, waste (biodegradable), waste (toxic), waste (persistent), rubbish from shipping, oil, dredged material, radioactive materials, inert solids, and thermal discharge, Agricultural - organic matter, fertilizers, biocides (fungicides, pesticides, herbicides). Others may include munitions, medical materials and lost cargo from ships (hazardous and non-hazardous).

As soon as these substances and materials enter the water they may undergo biological, physical or chemical change which may distribute any contaminants and the products of any interaction between the water sediments and the atmosphere. They may be transported throughout the oceans by the currents. The biological effects include the bioaccumulation of trace metals while chemical effects lead to the alteration of the acidity (pH) of the water. Certain materials, for instance, mercury and pesticides, can build up to levels which are toxic to organic matters. These can bioaccumulate within organisms and finally find themselves up the food chain.

SELF ASSESSMENT EXERCISE

What is marine pollution?

3.3 Deforestation

There is no doubt that the world population is increasing. The increasing population, the failure of traditional cropland due to desertification and socio-economic hardship experienced in developing countries in particular are leading to increasing areas of virgin lands being brought under cultivation. One of the most tragic consequences of this process is deforestation. Savitt and Bottort described the process of deforestation in terms of the following:

Some -10 million acres of forest land are lost each year on areas roughly the size of Austria. Global forest cover is 24 percent less today than in 1700: 3.4 billion hectares compared to 4.5 billion 300 years ago. Between 1980 and 1990 forest area was reduced by approximately 130 million hectares. Over the last decade, 154 million hectares of tropical forests, equivalent to almost three times the land area of France have been converted into other land uses, with the

most severe losses occurring in tropical nations with the most vital rain forest systems (Savitt and Bottorf 1995:210).

The implication of what is being destroyed is enormous. Among the utilitarian reasons for the concern of the international community include the maintenance of biological diversity, climatic stability, protection of food and medical supplies, conserving other forest products and resources, protection of soil and water and the survival of indigenous people. Norman Myers summarized the implication as he states that:

Biodiversity refers to the global composite of genes, species and ecosystems. Tropical rain forests are among the richest and most diverse ecosystems on earth, containing somewhere between 50- 90 percent of the world's species. Furthermore, tropical forests are vital to the global carbon cycle because they contain a larger stock of vegetation-stored carbon than all other ecological zones put together (Sell, citing Norman Myers, 1992:438).

John Vogler describes the phenomenon in another way by saying that:

The cutting down of forests alters the balance between sources and sinks and reduces the biodiversity of the planet, with implications for the development of new pharmaceutical and crop strains.

Increased mean temperatures and associated changes in rainfall patterns threaten to accelerate the process of desertification (Bretherton and Ponton, 1996:196).

Of no less a value is the aesthetic beauty revealed in a tableau of colours and restless harmony in the forests. Forest cover is built essentially on a thin layer of humus (decomposing leaf litter) covering the forest floor. This thin layer of topsoil creates a great vulnerability to erosion when the forest cover is removed. Cumming explains it as:

The root systems of a standing forest act to hold the soil in place. An intact forest may lose only 1 ton of soil hectare (ha)/year which is naturally replenished when the forest cover is removed. Grainger (1980) cites an increase in losses of 20-30 tons/year, conservative in comparison with Bunyard's (1985) average of 54 tons/year on cultivated soils (Cummings, 1990:21).

Forests that are under serious destruction come under the term tropical forests. They embrace a number of the world's forest areas such as the evergreen forests or rain forests, which receives some 400 centimeters rainfall annually. Their leaves and branches form a closed canopy allowing very thin sun light to reach the ground. The moist forests are less dense than the rain forests while the deciduous forests receive about six to eight months of rain yearly. The last forests are the open dry woodland which receives as little as less than 100 centimeter rainfall annually. It is the first two groups of forests that are generally referred to as the tropical rain forests and they form the current subject of discussion.

The major home of these forests is in South America, Africa, the islands of south-east Asia and areas of land which lie between the tropics of Cancer and Capricorn. Less extensive forest zones can be found in Australia, the Far East and the Indian subcontinent. Brazil, Indonesia and Zaire are home to almost 50 percent of total world tropical rain forests. World Commission on Environment and Development (WCED) 1987, with a conservative estimate, stated that some 900 million hectares of rain forests remain out of an original 1,500 million. And the forest destruction goes on with the rate of loss estimated at around 11 million hectares every year. One of the key issues associated with rain forest destruction particularly at the 'Earth Summit' is the threat to biological diversity. This is because:

The tropics are the richest areas for species. Tropical forests contain over half of the world's species in just 7% of the land area. Brazil, Indonesia and Madagascar have 55% of the world's mammal species. One hectare of Peruvian forest can yield 41,000 spp of insects. Tropical America has ca 85,000 flowering plant species (Colombia alone has 45,000, tropical and subtropical Africa has 35,000. By contrast, the whole of Europe has 11,300 vascular plants (ENFO, Fact Sheet 10).

Conservation of species diversity is vital to human survival, in part because wild plants and animals supply foods, medicines and essential raw materials for industry. Some of the raw materials may include timber, fruits, vegetables, spices, nuts, oils, rubber, and medicines. Some of the forests materials can be used to make a huge range of goods from golf balls, glue, nail varnish to toothpaste, deodorant, shampoos and furniture. They are vital for future improvement of crops and livestock and for the continued research into, and development of new medicines and products.

Animals and plants also provide invaluable services such as pest control, the natural decomposition and recycling of waste materials and soil preservation/food control mechanisms' (Cooper and Palmer, 1992:83). Tropical forests are said to contain more than two-thirds of the world's species and threats to the forests imply a potential extinction of all forms of life. The vegetation feeds and provides shelter for huge numbers of invertebrates and large animals. In respect of the plants, there is wonder and fascination in the quantity and variety of their species rather than the great numbers of any one type. A small portion of forest of about 6 kilometers may house about 40,000 species of insects and sustain 400 varieties of birds and colorful and rare mammals like gorillas and jaguars. A forest environment creates an ideal microclimate for a number of crops the limitation of solar radiation notwithstanding. Such environments also provide habitats for a variety of flora and fauna which add to the diversity and durability of local environment (Mannion and Boul, 1992:92).

The implication of forest destruction is beautifully captured in the report of the Brundtland Commission:

...the diversity of species is necessary for the normal functioning of ecosystems and the biosphere as a whole. The genetic material in wild species contributes billions of dollars yearly to the world economy in the form of improved crop species, new drugs and medicines, and raw materials for industry. But utility aside, there are also moral, ethical, cultural, aesthetic, and purely scientific reasons for conserving wild beings (WCED, 1987).

There is little variation in temperature from month to month and between the average highest temperatures and average lowest ones. This climatic characteristic of an undisturbed rain forest affects all animal and plant life. Species are adapted to a constant temperature and any significant change such as partial forest removal will have far-reaching results, including raised daytime temperatures, cooler nights and loss of moisture through evaporation.

Most rainfall in the tropical forests normally occurs during the afternoon and early evening, raising humidity levels significantly. The early- morning sun heats up the forest and the ground surface. As the rising warm air cools and condenses, torrential rain storms occur, dwindling into a dry night-time when clouds disperse and heat is lost into the atmosphere. Once again, there is a crucial relationship between the problems of rain forest destruction and climate.

The torrential downpours can be 'caught' and absorbed by the mass of dense vegetation. If any portion is removed, the results are dramatic. This is because rain hits the ground with tremendous force; soil is washed away, removing vital supplies of nutrients for the plants. There is the great likelihood of follow-up flooding. What has been washed away causes rivers to be blocked with silt.

Forests contribute significantly, therefore, to agriculture and climate patterns. When rainfall is regular, people and agriculture may depend on it. Destruction of forests means loss of irrigation and interference with rainfall cycles. Trees are vital to the maintenance of soil quality, providing organic matter through leaf fall, limiting soil erosion through the binding effects of root systems and protecting soil from the direct impact of rainfall. Together with the build-up of carbon dioxide in the Earth's atmosphere, which results from forest removal, this problem also contributes to the 'greenhouse effect or general warming of the global atmosphere. Deforestation is believed to contribute as much as 25 percent of the increased carbon dioxide in the earth's atmosphere. This occurs because heat-trapping gases particularly carbon dioxide is released by the burning of felled woodlands and because the absorption of carbon dioxide from the atmosphere through photosynthesis is reduced (Mannion and Boul, 1992:79, Porter and Brown, 1991:97).

Arguably, the major direct causes of deforestation are:

Conversion of forests for subsistence and commercial agriculture, logging and various other development projects, Commercial logging accounts directly for an estimated 20 to 25 percent of the annual loss of tropical forests world-wide; clearing and burning for subsistence agriculture is blamed for about 60 percent... Another 15 to 20 percent of the deforestation has been caused by cattle ranching (especially in Brazil and Central America) and the construction of dams, roads, mines and plantations for rubber, palm oil, and other export crops, including coca for the lucrative cocaine market (Porter and Brown, 1991:99).

In West Africa, the loss of African forests has mainly occurred in Ghana, Guinea, Ivory Coast, Liberia and Nigeria mainly due to the steady expansion of hardwood logging. Significant forest destruction has also occurred in Madagascar. The rates of forest destruction in these countries are about seven times the global average. World-wide each year, some 5 million hectares of tropical rain forests are cut for timber and related purposes, including paper pulp.

Another major intrinsic factor to the destruction of forest lands is the population growth. For instance, in order to accommodate the population growth and the resultant space crisis, settlement boundaries inevitably encroached deeper and deeper into the forest in Brazil and Indonesia. On a world-wide scale, population growth has led to vast tracts of virgin forests being cleared or disturbed.

For the United Nations Food and Agricultural Organisation (FAO) in its first 1985 proposal, the main cause of destruction of tropical forests is the poverty of people living in and around them and conversion of forest land to food production. Flowing from this was its policy orientation for the 'poor people living in the tropic forest' to produce more food, higher incomes and greater employment through increased commercial exploitation and processing of timber (FAO: FDT/85/3C April 1985:1-3).

A second report in 1985, this time by an international task force convened by the World Resources Institute (WRI), the World Bank, and the United Nations Development Programme (UNDP), noted the multiple causes of tropical deforestation and called for radical changes in policies in both the forestry sector and other sectors. They put emphasis on tree plantations for industrial wood and much greater investment by donor agencies in tropical forest projects (WRJ, 1985).

The above two understandings of the problem of deforestation by the institutions were amalgamated into a single approach culminating in the Tropical Forestry Action Plan (TFAP). The plan was sponsored by the FAO with three other organisations. Unfortunately, the TFAP is a mechanism for coordinating development assistance in the forest sector, with no binding legal document aimed at tropical forest conservation.

The funding of the plan oriented the projects toward conventional forestry that is, commercial exploitation projects. The external assistance doubled between 1985 and 1990 from about \$500 million to \$1 billion annually. Unfortunately, most of the non-governmental actors with a critical outlook particularly the NGOs in tropical forest states, were largely ignored in the drawing up and implementing of their national TFAP plans (World Rain Forest Movement and The Ecologist, 1990). The Plan advocated a co-ordinated effort by multilateral and bilateral donor agencies to increase financial flows, technical assistance, and policy advice to tropical forest countries to slow down deforestation, based on national plans drawn up by governments of the nation's tropical forests. That approach was adopted as the framework by international action by a meeting of donor countries in The Hague in November 1985; The FAO was given the lead role in coordinating the activities of the TFAP. By 1990, over eighty-eight countries with 85 percent of the earth's tropical rain forests were in some stage of participation in the plan (Porter and Brown, 1991:99).

Some environmental NGOs attribute the cause of the deforestation problem to commercial logging which they believe is Unsustainable not only because of state policies toward logging concessions but because of the logging technology and methods. The World Wildlife Fund and Friends of the Earth led these NGOs and note that current timber. Extraction systems use merchandised equipment that is too destructive to be compatible with maintaining the forest ecosystem. As a policy approach they favour a phase out of conventional methods of logging forests and their replacement by both alternative. Logging methods and increased extraction of non timber products.

In relation to deforestation the Brundtland Report recommended the establishment of large forest reserves to protect land and species, backed up by an international agreement Providing for the safeguarding of biological diversity And to slow down or reverse deforestation, it stated that there Should be improvement of forest management preventing large-scale developments that use resources in an Unsustainable way, restoring deforested land, Slowing Population growth, improving agricultural practices and slowing down the demand for forest products.

The International Tropical Timber Organisation (ITTO) which administers the 1984 International Tropical Timber Agreement (ITTA) is the world's only commodity agreement on tropical timber. The ITTO includes twenty-two producing states and twenty-four consuming states accounting for over 95 percent of the international trade in tropical timber. Its ethics is primarily based on the principle of unrestricted trade and is unlikely to change on the basis of environmental appeals alone. This is made clear when Porter Stated:

Although the ITT is officially committed to sustainable use of tropical forests and their genetic resources, both consuming and producing countries have interest that rule out any change in its free trade mandate The organisatio¹¹ is dominated by Japan... and its main interest is to maintain

its timber exports at their present level. Most EC (Eli) states are also interested in maintaining a flow of hardwoods to produce and export furniture. The United States, which is the world's largest importer of finished tropical hardwood products (and incidentally, the world's largest exporter of softwood products, which compete with tropical timber products), has been unwilling to put itself at odds with producing states, such as Malaysia and Indonesia, with whom it has close political and military ties (Porter and Brown, 1991: 101).

In spite of many efforts, there is yet to be an international forest regime. Even after UNCED: Malaysia, with the support of the Group of 77, also repeated the point made at the first official negotiations on climate change in February 1991 that tropical forest countries would oppose negotiation of a forest agreement until developed countries - including the United States - have committed themselves to reduce energy consumption and to provide funding and technology transfer for developing countries to control their emissions.

Finally, the group called for much more information to be provided by the UNCED Secretariat that would provide more balance between the importance and rate of loss of tropical forests, on the one hand, and of temperate and boreal forests, on the other (Porter and Brown, 1991:101).

4.0 Conclusion

Biodiversity refers to the global composite of genes, species and ecosystems. Tropical rain forests are among the richest and most diverse ecosystems on earth, containing somewhere between 50- 90 percent of the world's species. Furthermore, tropical forests are vital to the global carbon cycle because they contain a larger stock of vegetation-stored carbon than all other ecological zones put together (Sell, citing Norman Myers, 1992:438).

5.0 Summary

The implication of what is being destroyed is enormous. Among the utilitarian reasons for the concern of the international community include the maintenance of biological diversity, climatic stability, protection of food and medical supplies, conserving other forest products and resources, protection of soil and water and the survival of indigenous people.

6.0 Tutor-Marked Assignment

What is Desertification?

Appraise the contributions of either three NGOs or two initiatives or three treaties to solving the problems of pollution, deforestation, global warming and waste (industrial, toxic, solid, domestic etc.).

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MODULE 3 MAJOR INTERNATIONAL INSTRUMENTS FOR COMBATING ENVIRONMENTAL DEGRADATION

INTRODUCTION

Concerted global effort to protect the environment against degradation began in the industrialized world because it has become clear to the North that much of the industrial activities going on were found to be harmful to the common future of humanity (Woodby and Cotton, 1991: 189). Thus, individuals, groups, organisations and governments of these countries became more willing in addressing the problem of environmental degradation in particular (McCormick, 1995: 51-81). The effort began with the scientific world. Report from scientific findings revealed that pollutant gases (sulphur dioxide, methane, carbon dioxide, Nitrous oxide etc) have damaged the earth's ozone layer (Oyeshola, 98: 34-37) and are producing a 'green house effect'. A prediction on the dramatic changes across the globe was equally made (Saturday Punch, February 24, 2007: 9). Consequences of this include rise in the sea level, displacement of coastal dwellers, damage agriculture and subsequently famine. All this could be too disastrous to humans if they are not prevented from happening (Oyeshola, 1998: 30ff.). The effort of the scientific world and environmental nongovernmental organisations was instrumental in gingering many industrialized states to take action.

Pollutant states in the North wanted to find solution to the problem unilaterally but their efforts proved inadequate owing to the trans-boundary nature of environmental degradation especially air pollution. Subsequently, the people and government of these states considered it a matter of necessity to approach multilateral forum for proper and urgent attention. As a consequence of the move, treaties were signed, conventions were conveyed, and agreements were reached by participant states leading to many initiatives undertaken globally and nationally too. Nation states, International institutions, NGOs and individuals in the international system have contributed in no small measure to these instruments. In this chapter and for the purpose of easy identification six major areas of the Initiatives/instruments could be established namely, Conferences, Treaties and Protocols, International Institutions, International Environmental Law and Environmental Impact Assessment and United Nations Principles and Treaties on Outer Space(UN,2002).

UNIT 1 The Stockholm Conference

UNIT 2 The Rio Conference

UNIT 3 The United Nations Framework Conventions on Climate Change

UNIT 4 International Environmental Institutions

UNIT 1 THE STOCKHOLM CONFERENCE 1972

CONTENTS

- 1.0 Introduction
- 2.0 Objectives
- 3.0 Main Content
 - 3.1 The Stockholm Conference
- 4.0 Conclusion
- 5.0 Summary
- 6.0 Tutor-Marked Assignment
- 7.0 References/Further Readings

1.0 Introduction

In this unit we shall focus attention on the Stockholm Conference, the rationale behind it and its achievement.

2.0 Objectives

At the end of this unit, the student should be able to

- a. State what the Stockholm Conference is all about
- b. Identify the key issues discussed in the Conference
- c. Explain in detail why this particular conference is so important.

3.0 Main Content

3.1 The Stockholm Conference

The 1939 Trail Smelter Arbitration between United States and Canada (United States v. Canada (1938) 3 UNRIA 1905) charted the course for eventual international regulation of the environment and established the principle of International Obligations arising from trans-boundary air pollution incidents. Subsequent elements of environment diplomacy included the international convention on North West Fisheries, the Declaration of Stockholm Conference, 1972, The Economic Commission for Europe Convention on Trans-boundary Pollution, 1978, The UN Convention on the Law of the Sea, 1982 and the Vienna Convention, Montreal Protocol and London Agreement on the Protection of the Ozone Layer. Often many of the conventions and treaties evolved within the platform of International Conferences.

Stockholm Conference 1972 apart from many environmental related multilateral agreements signed before 1972, and the environmental revolution of the decades of 1960 and 1970 (McCormick, 1995) the Stockholm Conference was recognized as the first step jointly taken by

states in the international system to effectively curb the menace of international environmental degradation. The uniqueness of this conference was in its approach that sought to cover all areas of environmental problems that commonly faced the global village rather than the former which was only based on specific aspect of pollution, or just on a region.

In order to address the environmental degradation comprehensively and clean up polluted environment, governments of the industrialized and wealthy nations wanted all nations and industries to agree to act together. The rationale is if one or two parties or countries begin serious clean-up operations, those few would be at a disadvantage because their industries would have to carry an additional and unfair cost in respect of the clean-up or any other expenses expended on the environment. Their services or products might become more expensive. Therefore, it was in the interest of both industries and governments to go to Stockholm to create a level playing field where all would agree to clean up and on any strategy to be employed. The developing countries that were later invited did not see Stockholm in that way. They (developing countries) wanted the status quo of their industries to remain, even with its inherent pollution problems. For them the problem of degradation was and still primarily that of poverty. In order to tackle poverty, they were prepared to adopt western ways to development and accept the environmental problems as part of the package. Only a few in the northern sector of the globe took notice of the problems of the South from the Southern perspective (Oyeshola, 1995: 1). It was in response to this general indifference from the North that Indira Ghandi of India insisted that 'of all the pollutants we face, the worst is poverty. We want more development'. At last the conference was held.

The Conference, tagged the United Nations Conference on Human Environment (UNCHE) was held in Stockholm, Sweden from 5 - 16 June, 1972, with the view to finding a 'common outlook and common principle to inspire and guide the people of the world in the preservation and enhancement of the human environment (Osmanczyk, 1990: 874). It took the conveners of the conference about two years of preparation before the conference eventually started in June 1972. It addressed all environmental related matters like uncontrolled rise in the world population, unsustainable development plans, depletion and destruction of irreparable resources and gross deficiencies harmful to the physical, mental and social health of humans.

In order to tackle the problems effectively, the conference demanded the acceptance of responsibility for their major causes and commitment to finding solutions to them from citizens and communities, multinational enterprises and institutions at every level. The conference was also interested in establishing an international framework to promote a more coordinated approach to pollution and other environmental problems. At the end, the Stockholm Conference adopted the Action Plan for the Human Environment, which eventually gave birth to the United Nations Environmental Programme (UNEP) in 1973.

The Conference marked a turning point in the development of international environmental politics. It represented the first formal sign of increasing international concern for environmental degradation on a global scale. Previous to this time, there had been bilateral, regional and even global instruments agreed between and among states addressing specific environmental problems, but none of them had highlighted both the universal as opposed to specific nature of environmental degradation and the global as opposed to localized effects of such degradation.

The Conference adopted some non-binding instruments namely, a Declaration of 26 principles concerning the environment and development, an Action Plan containing 109 recommendations spanning six broad areas. These were human settlements, natural resource management, and pollution, educational and social aspects of environment, development and the environment and international organisations. The Conference affirmed the rights of the sovereignty of states over their national resources and their rights to development, that is, it established a close connection between environment and development and a Resolution on institutional and financial arrangements. The 26 principles in the Stockholm Declaration reflected a compromise. This is between those states that indicated their recognition and concern over the mounting problems affecting the global environment and those that wanted the adoption of the Declaration to act as a catalyst for specific international and domestic action, along the lines set down by the principles within it (Sands, 1995:36). The Declaration was not in itself a legalistic document nor could its provisions be held to be binding upon states. However, it did represent a formalization in UN practice which is used only when principles of special importance are being laid down and the general tone is one of a strong sense of dedication to the idea of trying to establish the basic rules of international environmental law.

Some of the principles that were agreed and the institutions and programmes that were established had an enduring effect. The debates at the conference established themes and practices that would remain central to international environmental politics for the next thirty years and beyond. The conference attracted wide publicity and many of the participants and observers no doubt learned a lot from the discussions of a wide range of specific environmental issues.

The most important contribution of the Conference could be referred to as the Stockholm Declaration's Principles particularly from the point of international environmental law as enunciated by Principle 21 namely States have, in accordance with the charter of the United Nations and the principle of the international law, the sovereign right to exploit their own resources pursuant to their own environmental policies, and the responsibility to ensure that activities within their jurisdiction or control do not cause damage to the environment of other states or of areas beyond the limit of national jurisdiction.

This is in many respects the 'golden' Nile of international law for the protection of the environment and may be described as the starting point for the sub-discipline of international

environmental law. It has been called the fundamental principle of state responsibility for trans-boundary environmental harm, enshrining as it does the principle of national sovereignty while imposing limits on a state's activities where these inflict environmental damage to other states and to areas beyond national jurisdiction.

Other contributions of the conference may include the following: It is true that some of the principles did not immediately command universal acceptance because the Soviet Union boycotted the conference for broader foreign policy reasons. Nonetheless, the agreed principles significantly strengthened the framework for the future environmental cooperation.

Attention was called to the international community to determine limits on the use and abuse of 'global commons'. Global commons are resources identified as the 'common heritage of human kind' such as the outer-space, Arctic and Antarctic circles and the deep-sea that should be collectively managed, preserved or used to common benefit and that measures are to be taken to prevent pollution and protection of the natural environment.

The Conference led to the establishment of global and regional environmental monitoring networks which have improved monitoring of environmental problems such as marine pollution and ozone depletion and have indirectly stimulated action to tackle them. It also led to the creation of the UN agencies and the promotion of the integration of environmental considerations into their work.

After the Stockholm Conference, attention shifted from environmental issues per se to its inter-relationships with human activities especially the relationship between human natural environment and poverty and environmental degradation (The Nigerian Environment, Vol.4, No.1 March 1992: 4). This period led to a proliferation of international environmental organisations and greater efforts by existing institutions to address environmental issues. Other areas were the development of new sources of international environmental obligations from acts of such organisations; new environmental norms established by treaty; the development of new techniques for implementing environmental standards including environmental impact assessment and access to information and the formal integration of environment and development, particularly in relation to international trade and development assistance. Many governments subsequently created ministries for the environment and national agencies for environmental monitoring or regulation. It is also of importance to note the rise and spread of environmental non-governmental organisations (NGOs) such as Greenpeace, Friends of the Earth and the World Wide Fund for Nature (WWF) and the consequent part they have played in raising public consciousness over environmental issues at the international, national and local levels. All those activities and programmes paved way for the major subsequent UN Conference on Environment and Development (UNCED), the so-called 'Earth Summit' in Rio de Janeiro of 1992.

4.0 Conclusion

The Conference led to the establishment of global and regional environmental monitoring networks which have improved monitoring of environmental problems such as marine pollution and ozone depletion and have indirectly stimulated action to tackle them. It also led to the creation of the UN agencies and the promotion of the integration of environmental considerations into their work.

5.0 Summary

The Conference marked a turning point in the development of international environmental politics. It represented the first formal sign of increasing international concern for environmental degradation on a global scale. Prior to this time, there had been bilateral, regional and even global instruments agreed between and among states addressing specific environmental problems, but none of them had highlighted both the universal as opposed to specific nature of environmental degradation and the global as opposed to localized effects of such degradation.

6.0 Tutor Marked Assignment

In which country of the world did the Stockholm Conference take place and what was it about?

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UNIT 2 RIO CONFERENCE OF 1992 AND UN EARTH SUMMIT II 2002

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1.0 Introduction

In the previous unit, we discussed the Stockholm Conference but in this unit, attention will be focused on the Rio Conference, the Outer Space and Treaty on the Non-Proliferation of Nuclear Weapons (NPT) 1968

2.0 Objectives

At the end of this unit the student should be able to

- a. Discuss the Rio Conference fluently
- b. State its principles
- c. Outline major issues tabled at the Conference

3.0 Main Content

3.1 Rio Conference of 1992

The United Nations Conference on Environment and Development (UNCED) began on 3rd of June, 1992 in Rio de Janeiro, Brazil. Government officials from 178 countries and between 20,000 and 30,000 individuals from governments, NGOs and the media participated in this event to discuss solutions for global problems such as poverty, the growing gap between industrialized and developing countries and how to relieve the global environmental system through the introduction of the paradigm of sustainable development. This global forum was necessary because twenty years after the first Earth Summit, some emerging issues have come to the fore, while others remain poignant. The 1972 Summit took place in the shadow of the Cold War rivalry between the East and West blocs and their obsessed nuclear arms race. However, after 1972, the world political arena had altered dramatically. The Cold War tensions had relaxed and the increase in awareness of the growing ecological crises such as famine and oil spills, and

environmental accidents like the Bhopal and Chernobyl (Oyeshola, 1995: 2) offered an opportunity to persuade nations, both rich and poor, to look beyond national interest and come to some kind of agreement over the management of the degrading state of the world's environment. It is true that countries went to Rio with different perceptions and goals. However, it must be affirmed that the rich, industrialized countries of the North had become used to a share of the world's resources at a rate that was causing an increasing concern about the ecology of the planet and a threat to sustainable development

The Rio Conference is not an isolated conference. In fact, it is a continuation of previous dialogue of The Brundtland Report of the World Commission on Environment and Development which was produced under the title of Our Common Future, 1987. The central concern of the report was the increasing globalization of various crises like environment, development and energy and their interrelationships. The report is a landmark in respect of modern thinking about environmental problems and gives prominence to the language of sustainable development that must provide for future generations. However, the report provided little solid guidance on the exact components of what such a duty to future generations might entail. Rather, it called attention to the linkages between economic and environmental considerations and advocated greater use of international financing of environmentally beneficial projects and arrangements under which the debts of developing countries might be traded for commitments to conserve their biodiversity.

The primary goals of the summit were to come to an understanding of 'development' that would support socio-economic development and prevent the continued deterioration of the environment and to lay a foundation for a global partnership between the developing and the more industrialized countries based on mutual needs and common interests that would ensure a healthy future for the planet.

The UN summit focused on three broad areas captured by the concept and idea of Earth Charter' covering a number of principles (Appendix 11) aiming at development and the protection of the environment. 'Agenda 21' is intended to be a global action plan for sustainable development and demand of the developing countries from the industrialized countries for a substantial increase in new funding to sustainable development of the South.

The Conference approved a set of five agreements namely, Agenda 21, The Rio declaration on Environment and Development, The statement of principles on forests, The United Nations Framework Convention on Climate Change (UNFCCC) and The Convention on Biological Diversity. Agenda 21 is particularly significant.

Agenda 21 included plans for a Desertification Treaty, a Forestry Convention and the establishment of a United Nations Sustainable Development Commission (UNSDC) to supervise

its implementation. Agenda 21 provided for action at sub-national (local), national and international levels. It created two mechanisms for monitoring compliance of state, which was later implemented in 'follow-up' process. One of such mechanism is the standard UN provision for a follow up Conference in 1997. The other is for national reporting procedures to be implemented and subjected to further examination in a new UN forum on an annual basis through to 1997. Another institution established to promote the implementation of Agenda 21 is the Global Environment Facility (GEF) working in close association with UNEP, UNDP and several UN bodies. Although it was not expected that these institutions could directly implement Agenda 21 neither can it force others to do so. But it was expected to help shape broader international as well as domestic processes in a useful way.

The Earth Summit in Rio was inspired and guided by a remarkable document published in 1982 by the Brandtland Commission which tried to balance the arguments concerning North/South responsibility and suggests ways forward. Intended as a progress report on achievements since the Stockholm conference ten years earlier, the impetus for the report came from progressive nations and organizations. The commission noticed that the problems of environment and the insistence that something be done about them cannot be ignored. In order to arrest these problems, the Commission came out with the term sustainable development. This is described as economic progress which meets all our needs without leaving future generations with fewer resources than the present generation enjoys. It is a way of living from nature's income rather than its capital account.

For wealthy nations, sustainable development means policies concerning issues such as recycling, energy efficiency, conservation, rehabilitation of damaged landscapes. Whereas, for the poor countries, it means policies for equity, fairness, respect for the rule of law, redistribution of wealth and wealth creation (Richard, 1992:16). The central question at the Earth Summit was how to protect the environment and still maintain development. This quest pitted development against developing countries with respect to financial aid and transfers of technology. Industrialized states feared that issues of aid and debt relief would simply take on an environmental label which would make it more difficult for them to negotiate foreign aid agreements because domestic environmental groups also want their concerns accounted for. Developing states argued that although they supported protection of the environment, they would be unable to implement programmes without financial and technical assistance (Stevenson, 2001: 536-537)

In spite of its shortcomings, the Conference was still a productive one in terms of the various contributions it made. On forests situation, the conference was able to take action on over 100 action proposals for sustainable forest management based on the forest principles adopted in Rio on intergovernmental panel on forests. In relation to the issue of fresh water, the summit made recommendations which it implemented to combat water shortages. As regards climate situation,

the summit took action to combat the problem by signing the UN convention on climate change which was ratified by 166 countries after reaching negotiations to strengthen the commitment.

The meeting in Rio de Janeiro symbolized the concerns with the environment and the political issues surrounding sustainable development. The conduct of the summit illustrated the politics of environmental protection. As in Stockholm, preliminary negotiations made it clear that environmental issues can be very political (Rouke, 1999: 546). In particular, the North and the South were at odds on many issues. The industrialized world objected to and were able to defeat efforts by the developing countries to force the North to set binding time tables to cut down on the use of fossil fuels and to reduce emissions of carbon dioxide and other gases that contribute to global warming. For its part, the South resisted and was able to defeat destructions on the use of forest resources proposed by the North. 'Forests are clearly a sovereign resources not like atmosphere and oceans which are a global commons', said We Lian Ting, Malaysia's Chief negotiator. He continued, 'We cannot allow forests to be taken up in global forums' (New York Times, June 12, 1992: P.A9).

In the end, 153 countries signed both the Biodiversity and the global warming conventions and other countries signed one or the other. President George Bush attached a reservation to his signature of the Global Warming Convention saying that the United States would not be bound by the timetables for reducing greenhouse gas emissions. He also refused to sign the Biodiversity Convention on the grounds that it did not protect intellectual property rights in biotechnology. However, President Bill Clinton marked the annual Earth Day, April 21, by signing the biodiversity pact and rescinding the US reservation to the time tables in the Global Warming Convention.

In retrospect, the Stockholm and Rio Conferences highlighted the concern of the North vis-à-vis environmental degradation. Stockholm prepared the road to Rio. The Earth Summit laid out a hopeful path. The North that signed the Global Warming Convention agrees to a voluntary programme to stabilize emission at their 1999s levels by the year 2000. It also resolved that in 1997 they would reconvene in Japan to review their progress in restraining the emissions of carbon dioxide (CO₂) and other gases that most scientists agree are causing the mean global temperature to rise slowly but potentially disastrous (Rouke, 1995: 556).

There are two observations that stand out as to what happened in Rio. Firstly, it was not a conference about the environment at all. Rather, it was a conference that was concerned about the world's economy and how the environment affected it. Secondly, this was the first meeting of world leaders since the end of the cold war. The old East/West agenda was dead, attention was then focused on North/South relations. Rio did not only mark the beginning of a new era but a triumph for that small band of campaigners who set out at Stockholm about twenty years earlier (Richard, 1992: 16).

A number of international environment instruments were agreed upon from Stockholm to Rio. These agreements covered a wide range of issues, of both a general and specific nature, as well as being global, regional and bilateral in their application. Examples of these agreements are the 1979 Geneva Convention on Long-Range Trans-boundary Air Pollution, the 1973 Convention for the Prevention of Pollution from Ships as modified by the 1978 Protocol (MARPOL 73/78), the 1973 Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), the 1989 Basel Convention on the Control of Trans-boundary Movements of Hazardous Wastes and their Disposal and the 1991 Espoo Convention on Environmental Impact Assessment in a Trans-boundary Context.

The politics of Earth Summit demonstrated that the North and South are not able to reach a workable compromise in respect of environmental degradation. Stockholm testified to this position and Kyoto Conference (1997) had established it. The combined 'effect of poverty and an unequal trading system, perpetuates unsustainable development, environmental degradation and poverty (Oyeshola, 1995: 29). The world cannot afford any non-collaborative and concerted campaign in effectively controlling and halting environmental degradation in its sustainable development effort. Any delay may result in the destruction of the earth resource base and human lives and indeed jeopardize the future of generations yet to be born (Oyeshola, 1995: 29).

Kyoto Protocol Conference 1997 The Kyoto Protocol was adopted at the Third Conference of Parties (COP3) to the Framework Convention on Climate Change. COP3 was able to agree a programme of measures aimed at reducing the concentration of 'greenhouse' gases in the atmosphere in order to address the problem of global warming and consequential adverse climate changes. These measures are notable in moving away from a focus upon setting strict emissions targets as the preferred method for securing reductions in overall greenhouse gas concentrations. A legally binding reduction target for carbon dioxide (the main greenhouse gas) of at least 5 percent (below 1990 levels) between 2008 and 2012 has been imposed on most industrialized countries in the Kyoto Protocol (Art 3(1)). However, a system of differentiated targets within the rolling time scale has also been agreed between the main industrialized actors namely the EU, the US and Japan. Their targets are 8, 7 and 6 percent respectively. Provision was also made for the achievement of these targets not merely by emissions reductions but also through the implementation of forestry projects as 'sink' to remove these gases from the atmosphere.

3.2 Outer Space Treaty

The treaty prohibits the installation of any object carrying nuclear weapons or any other kind of weapons of mass destruction in orbit around the earth or celestial bodies or on outer space. The establishment of military bases, installations and fortifications, the testing of any type of weapons and the conduct of military maneuvers on celestial bodies are also forbidden. The treaty was signed in 1967.

Treaty of Tiatelolco:

This 14 February 1967 treaty which came into force on 22 April 1968 prohibits the testing, use, manufacture, production or acquisition by any means as well as the receipt, storage, installation, deployment and any form of possession of any nuclear weapons by Latin American nations. In addition but under Additional Protocol 1, all intra continental or continental states which have jurisdictions within the limits of the geographical zone established by the treaty undertake to apply the statute of military de nuclearnization as defined in the treaty, to such territories. The countries in question are France, the Netherlands, the UK and the US. Also but under Additional Protocol 11, annexed to the treaty ‘the nuclear weapon states undertake to respect the statute of military denuclearization of Latin America, as defined and limited in the treaty or to use or threaten to use nuclear weapons against the parties to the treaty’

3.3 The United Nations Earth Summit II 2002

The conference took place in Johannesburg, South Africa. It reaffirmed agenda 21 of the Rio Declaration of 1992. In welcoming delegates to the conference, President Thabo Mbeki urged world leaders to return from the summit with a conviction to ‘undo the damage we have caused’. It was acknowledged that a false link does exist between the wealthy states of the North and the poor states of the South. One of the consequences of the linkage is a source of poverty and underdevelopment that threatens prosperity for all peoples. The Conference therefore, called for broad measures to alleviate poverty and protect the environment. Leaders at the Conference then committed themselves to

- Build a humane, equitable and caring global society.
- A collective responsibility to advance and strengthen the interdependent and mutually reinforcing pillars of sustainable development-economics, social development and environmental protection at the local, national, regional and global levels. Common resolve to produce a practical and visible plan that should bring about poverty eradication and human development.

In concrete terms, United States pledged to invest \$970 million over the next three years on water sanitation projects and \$43 million on sustainable energy projects in developing countries in 2003; and \$2.3 billion through 2003 on health programmes. It pledged \$90 million for sustainable agricultural programme in 2003 and a further commitment to spend \$53million on forests in 2003-2005. The European Union made similar financial commitments on water, sanitation, energy and health projects in the states of the South. However, will this commitment be fulfilled since similar commitments were made before?

SELF ASSESSMENT EXERCISE

Outline the major Issues tabled at the Rio Conference.

4.0 Conclusion

The Conferences marked a turning point in the development of international environmental politics. They represented the formal sign of increasing international concern for environmental degradation on a global scale. Previous to this time, there had been bilateral, regional and even global instruments agreed between and among states addressing specific environmental problems, but none highlighted both the universal as opposed to specific nature of environmental degradation and the global as opposed to localized effects of such degradation.

3.0 Summary

The politics of Earth Summit demonstrated that the North and South are not able to reach a workable compromise in respect of environmental degradation. Stockholm testified to this position and Kyoto Conference (1997) had established it. The combined 'effect of poverty and an unequal trading system, perpetuates unsustainable development, environmental degradation and poverty (Oyeshola, 1995: 29). The world cannot afford any non-collaborative and concerted campaign in effectively controlling and halting environmental degradation in its sustainable development effort. Any delay may result in the destruction of the earth resource base and human lives and indeed jeopardize the future of generations yet to be born (Oyeshola, 1995: 29).

4.0 Tutor-Marked Assignment

In just five sentences describe what you understand by International Environmental politics.

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UNIT 3 INTERNATIONAL CONVENTIONS AND TREATIES

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- 3.0 Main Content
 - 3.1 The United Nations Conference on Law of the Sea
 - 3.2 The Basel Convention 1989
 - 3.3 The Bamako Convention 1991
- 4.0 Conclusion
- 5.0 Summary
- 6.0 Tutor-Marked Assignment
- 7.0 References/Further Readings

1.0 Introduction

In the previous unit, attention was focused on the Rio Conference, the Outer Space and Earth Summit II 2002 in this unit we shall deal with the United Nations Conventions.

2.0 Objectives

At the end of this unit the students should be able to

- a. Discuss in detail the underlying principles of the Laws of the Seas
- b. Explain the major issues that were discussed in the Basel convention of 1989
- c. State the Vienna Convention for the Protection of the Ozone Layer 1985 and its Montreal Protocol 1987
- d. Elucidate on the Bamako Convention on the Ban on the Import into Africa and the Control of Trans-boundary and Management of Hazardous Wastes within Africa.

3.0 Main Content

3.1 United Nations Convention on Law of the Sea

The 1982 UN Convention on the Law of the Sea entered into force on 16 November 1994. The Convention is the only global agreement that provides comprehensive coverage of all aspects of the various uses, abuses and resources of the world's oceans (Broadus and Vartanov 1994: 223). Its entry into force 'represents an important step forward in international environmental law, for it raises to binding treaty status the ideals of Principle 21 of the Stockholm Declaration and strives to balance environmental protection and resource management with the requirements of free navigation' (Nanda, 1995: 657).

The Convention thus attempts for the first time to provide a global framework for the rational exploitation and conservation of the sea's resources and the protection of the environment which

'can be seen as a system for sustainable development and a model for the evolution of international environmental law' (Birnie and Boyle 1992:252). The global framework includes the allocation of sovereign rights and jurisdiction over natural resource exploitation activities, the regulation of the offshore installations utilized to extract the hydrocarbon resources in the continental shelf and the legal regime for the maritime transportation of the crude products of such extraction. Others are items of international trade and the exploitation by fishing vessels of the marine living resources of the oceans and marine scientific research activities. This Convention was the first intergovernmental negotiating conference in which many newly-independent, developing countries actively participated. Their participation was significant in two ways namely: their arrival on the international stage further upset the already uneasy balance that had hitherto obtained between the two superpowers and their allies in the immediate aftermath of the Second World War and the institutions of the United Nations system. The Group of 77 — a group of developing states which now number more than 120 — constituted a majority whenever a one-state-one-vote system was utilized to resolve stalemates during the negotiation process. Secondly, these states were generally united under a shared ideological aim in demanding a New International Economic Order (NIEO). The new economic order basically called for an end to the perceived exploitative practices of the rich, industrialized countries of the North to the disadvantage of the poor, developing countries; the restructuring of global economic and trade relations to reflect the above goal and the redistribution of wealth through transfer of technology and resources.

The 1982 Convention represents the first major undertaking among states to protect the world's oceans in their entirety against all potentially polluting maritime activities as opposed to the largely piecemeal, regional and specific activity-related international lawmaking processes which had previously characterized developments in this field of international environmental law. The marine environment includes rare and fragile ecosystems as well as the habitat of depleted, threatened or endangered species and other forms of marine life (Article 194.5) and is thus not confined to the protection of economic interests, private property or the human use of the sea.

Convention on Long-Range Trans-boundary Air Pollution (LRTAP) and related protocols 1979

The 1979 Geneva Convention for the Control of Long-range Trans-boundary Air Pollution (LRTAP) which entered into force in 1983 was the outcome of protracted East-West negotiations in the wake of the environmental chapter of the Final Act of the 1975 Helsinki Conference on Security and Co-operation in Europe (CSCE). It was one of the first treaties to recognize the adverse effects of air pollution over the short and long term and is still the only treaty example of major regional co-operation in the prevention and control of trans-boundary air pollution that results in acid rain precipitation. This Convention was concluded within the regional framework of the UN Economic Commission for Europe (UNECE) which covers the whole of the European region from the Atlantic coast of the former Soviet Union, the Balkan States and Turkey. UNECE has 54 Member States, including the US and Canada.

The first Protocol to the Conference is the Monitoring and Evaluation Protocol, 1984. It seeks to ensure the availability of adequate financial resources to implement the co-operative programme on monitoring and evaluation of trans-boundary air pollution in Europe (EMEP). It provides for financing the costs of the international centres co-operating within the set-up on the basis of mandatory contributions covering the annual costs of the EMEP work programme, supplemented by voluntary contributions.

Sulphur Protocols 1985 and 1994 is the second Protocol to the LRTAP Convention was adopted in response to evidenced widespread damage in parts of Europe and North America to natural resources, and historical monuments and human health caused by acidification of the environment from sulphur dioxides, nitrogen oxides and other pollutants from the combustion of fossil fuels. The 1985 Protocol established a 'Thirty Per Cent Club' by committing all Parties to a 30 percent reduction in their national annual sulphur emissions by 1993 at the latest, using 1980 levels as a basis.

The 1985 Protocol requires parties to report annually to the Executive Body of the Convention on their national annual sulphur emissions (Articles 4 and 6). The Protocol also provides for the use of the institutional organs established under the Convention.

Nitrogen Oxides Protocol 1988 becomes the third Protocol. It is more comprehensive and flexible than the 1985 Protocol. It requires the reduction of 'total annual emissions', it introduces into international law the concepts of 'national emission standards and 'critical loads'. The 1988 Protocol specifically requires parties to stabilize their nitrogen oxides emissions at least by 31 December 1994, using 1987 as the basis (Article 2.1). All parties must apply national emissions standards to both major stationary sources, such as power plants and mobile sources, such as vehicle emissions (Article 2.2(a), (b) and (c)).

The fourth Protocol, Volatile Organic Compounds Protocol 1991, addresses the problem of volatile organic compounds (VOCs) which are mainly emitted through incomplete combustion of fossil fuels in the engines on-road motor vehicles. In keeping with the developing complexity and sophistication of the earlier protocols the 1991 VOC Protocol establishes specific targets and timetables committing Parties to control and reduce their emissions to VOCs.

Within six months of the entry into force of the Protocol, the parties are required to begin negotiations on further steps to reduce national annual emissions of VOCs. They must also cooperate to develop and control strategies; ensure cost-effectiveness possibly through the use of economic instruments; and adopt measures and a timetable for achieving such further reductions, commencing no later than 1 January 2000 (Articles 2.6 and 2.7). As in the previous protocols, parties are free to take more stringent measures (Article 3.1). The Protocol also provides for exchange of technology, research and monitoring, regular reviews of its implementation in national programmes, policies and strategies (Articles 4-7).

Vienna Convention for the Protection of the Ozone Layer 1985 and its Montreal Protocol 1987

The 1985 Vienna Convention for the Protection of the Ozone Layer and its 1987 Montreal Protocol are a response to the increasing concern over the threat posed to the ozone layer due to emission of certain chlorofluorocarbons used in aerosols and refrigeration. It is recognized that failure to protect the ozone layer posed a threat both to human health and the environment in general. The Convention confirms that the global environment has its intrinsic value independent of its utility to humans. It also admits as an early example of the precautionary approach in so far as it was adopted in advance of firm scientific proof of actual harm to the ozone layer. The Montreal Protocol sets out specific provisions for the control of ozone damaging chemicals while recognizing the legitimate needs of developing States.

The International Trade in Endangered Species of Wild Flora and Fauna There are 180 parties to the adoption of this convention in 1973. It is aimed to protect endangered species by restricting their import and export and trade in products made from them. It prohibits entirely trade in species threatened with extinction, as in the ban on the ivory trade imposed in 1990.

3.2 The Basel Convention 1989

The Basel Convention on the Control of Trans-boundary Movements of Hazardous Wastes and their Disposal is intended to establish a global regime for the control of international trade in hazardous wastes and other wastes. The Convention is very specific in respect of toxic wastes disposal. The Convention contains general obligations requiring all parties to ensure that the trans-boundary movements of hazardous wastes are reduced to the minimum consistent with environmentally sound and efficient management. It also reflects an approach premised upon the view that wastes should, as far as possible, be disposed of in the state where they were generated (Known as the 'proximity principle'). What has been achieved by the Convention is a compromise which places three important and far-reaching restrictions on international trade in hazardous wastes. First, the Convention confirms the sovereign right to ban imports either on an individual, bilateral or regional basis, provided the exercise of this right to prohibit trade in waste is communicated to other parties through the secretariat (Preamble and Article 4(1) (a). Secondly, the Convention adopts the principle of minimizing the generation of hazardous waste and promoting disposal at source. Indeed, the primary obligation is to manage the trans-boundary movement of waste in an environmentally sound manner. Thus, trans-boundary movement is permitted between parties to the Basel Convention but only in circumstances where the state of export does not have the capacity or facilities to dispose of the wastes in an environmentally sound manner itself (Article 4(9) (a), or where the wastes are intended for recycling (Article 4(9)(b). Furthermore, recognizing the importing states' responsibility under international law for the protection of their own environments, the Basel Convention places on importing states' parties an obligation of environmentally sound management (Article 4(8) and (3). However, the exporting state cannot escape its obligation to manage the wastes in an environmentally sound manner and must permit re-import if necessary (Article 4(10). Thirdly, the Convention requires

the prior, informed and written consent of both transit and import states, in the conduct of international trade in hazardous wastes (Articles 4 & 6).

SELF ASSESSMENT EXERCISE

What are the core issues discussed at the Basel Convention?

3.3 The Bamako Convention 1991

The full title of the convention is Bamako Convention on the Ban on the Import into Africa and the Control of Trans-boundary and Management of Hazardous Wastes within Africa. It is a treaty of African nations prohibiting the Import of any hazardous (including radioactive) waste. The rationale for the convention is that millions of tons of hazardous wastes are produced every year and these wastes pose direct threat to the environment and human beings due to its toxic, eco-toxic, flammable, corrosive and / or infectious properties. Therefore, the continent must be protected from the waste. Similarly the objectives of the Convention include the protection of human health and the environment from dangers posed by hazardous wastes by reducing their generation to a minimum in terms of quantity and/or hazard potential. It also aims at adoption of precautionary measures and ensuing proper disposal of hazardous waste and prevention of 'dumping' of hazardous wastes in Africa. Lastly, African leaders believe that health and biophysical impacts of hazardous wastes will reduce welfare and economic growth, will negatively hamper the environment and impair the ability of future economic growth and wellbeing of the people. Furthermore, they affirm that the waste will negatively affect sustainable development of the continent.

Impetus for the Bamako Convention arose from the failure of the Base! Convention to prohibit trade of hazardous waste to less developed countries, and from the realization that many developed nations were exporting toxic waste to Africa. This impression was strengthened by several prominent cases. One important case which occurred in 1987 concerned the importation into Nigeria of 8,000 barrels of hazardous waste from the Italian companies Ecomor and Jelly Wax which had agreed to pay local farmer Sunday Nana \$100 per month from storage. The barrels, found in storage in the port of Lagos contained toxic waste including polychlorinated biphenyls and their eventual shipment back to Italy led to protests closing three Italian ports. The Bamako Convention though broader than that of the Basel Convention uses a similar format and language only that it is stronger in prohibiting all imports of hazardous waste. The Convention prohibits the dumping at sea, of marine incineration and radioactive wastes.

The Convention was seen by African leaders as a strong message to the West that African continent is not a dumping ground of toxic wastes. Twelve nations of the Organisation of African Unity (AU) negotiated the Convention at Bamako, Mali in January 1991. It came into force in April 1998 and only members of the African Union can become party to the Convention.

3.0 Conclusion

The Conventions contains general obligations requiring all parties to ensure that the trans-boundary movements of hazardous wastes are reduced to the minimum consistent with environmentally sound and efficient management. It also reflects an approach premised upon the view that wastes should, as far as possible, be disposed of in the state where they were generated (Known as the ‘proximity principle’).

4.0 Summary

World leaders generally believe that health and biophysical impacts of hazardous wastes will reduce welfare and economic growth, will negatively hamper the environment and impair the ability of future economic growth and wellbeing of the people.

6.0 Tutor-Marked Assignment

Establish the correlation among the following concepts development, poverty and environment.

7.0 References/Further Readings

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UNIT 4 INTERNATIONAL ENVIRONMENTAL INSTITUTIONS

CONTENTS

- 1.0 Introduction
- 2.0 Objectives
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 - 3.2 The United Nation Environmental Programme (UNEP)
 - 3.3 Instrument of International Environmental Law
- 4.0 Conclusion
- 5.0 Summary
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- 7.0 References/Further Readings

1.0 Introduction

In the last unit, our concern was, The Basel Convention 1989, The Bamako Convention 1991 but in this unit we shall treat the International Environmental Institution/UNDP, The United Nation Environmental Programme (UNEP) and Instrument of International Environmental Law.

2.0 Objectives

At the end of this unit the students should be able to

- a. Mention and state the functions of at least three International Environmental organizations and NGOs.
- b. List at least five responsibilities of UNEP
- c. Examine the Instrument of International Environmental Law

3.0 Main Content

3.1 International environmental Institution and Social Movements

In the area of the environment, international organizations and institutions, especially 'environmental organizations' are not wanting. Ken Conca affirmed this as he stated that, The conservation of natural resources was made part of the constitutional mandate of the Food and Agriculture Organization (FAO), although its emphasis on natural resource production and extraction severely curtailed its environmental focus. The UN Educational, Social and Cultural Organization (UNESCO) played an important role in the 1948 formation of the International Union for the Conservation of Nature (IUCN), a body with governmental and NGO affiliates. IUCN in turn spun off an important environmental NGO, the World Wildlife Fund (WWF), as an independent fundraising body in 1961 (Conca, 1996: 104).

He went on further to state that environmental organisations shape the positions of member states through domestic pressure and increasingly, transnational efforts. NGOs also provide information, analysis and value-based interpretations that shape how problems, interests and solutions are defined. Finally, environmental organizations are playing a growing role in delivering services at the local, regional and even national level, receiving and administering UN funds in the process (Conca, 1996: 105).

Environmental think tanks, international NGO networks and informational clearing houses are significant in the contribution of environmental organisations. Some of the most influential think tanks are the Washington-based World Resources Institute (WRI); World-Watch Institute and the London-based International Institute for Environment and Development. Important networks include the Earth Council, a network of eminent persons formed by UNCED Secretary General, Maurice Strong; the Centre for Our Common Future, a Geneva-based organisation emerging in the wake of the Brundtland Commission report, Our Common Future. Others are the Third World Network, a coalition of organizations and individuals engaged in research, information dissemination, organizing and advocacy on issues related to development, the environment, the Third World and North-South relations. International scientific groups also weigh in with substantial influence, derived in part from the technical complexity of environmental problems but also from the relatively good access to governments that such groups often enjoy (Conca, 1996: 106).

Specifically the following are typical of such environmental organisations and agencies.

The United Nations Development Programme (UNDP)

This is one of the agencies of the United Nations Organization (UNO). Its overriding objective is to help developing countries design and pursue developmental projects that are people and environment — friendly (sustainable development). The UNDP is entirely funded by voluntary contributions from member states. In 2005, UNDP's entire budget was approximately \$4.44 billion. Of that total, the core and unrestricted financing reached approximately \$921 million. Non-core and earmarked contributions grew to over \$2.5 billion, and resources to support countries' own development programmes totaled \$1.02 billion. The largest single donor was the United Kingdom, contributing \$254 million in regular and other resources, followed by the United States, which contributed \$245 million to UNDP. Japan, the Netherlands, Norway, Sweden, Canada, and Germany each contributed more than \$100 million.

Origin and scope of the United Nations Development Programmers: UNDP is the United Nations global development network and the largest multilateral source of development assistance in the world. The UNDP is an executive board within the United Nations Economic and Social Council (UNESCO). It has its headquarters in New York, USA. The UNDP Administrator has the diplomatic rank of an Under-Secretary-General and is often referred to as the third highest-ranking official in the UN (after the UN Secretary General and the UN Deputy Secretary

General. This has never been formally codified). The UNDP was founded in 1965 to combine the Expanded Programme of Technical Assistance (EPTA) and the United Nations Special Fund (UNSF). In 1971, the two organizations were fully integrated to become the UNDP.

In the past seven years the organisation worked internationally to help countries achieve the Millennium Development Goals (MDGs) and their development challenges and develop local capacity. In addition, the UNDP helped developing countries, and countries moving from centrally planned market economies to build capacities for ‘Sustainable human development’ - development that is people centred. UNDP links and coordinates global and national efforts to achieve the goals and national development priorities laid out by host countries. It focuses primarily on five developmental challenges namely, Democratic governance, Poverty reduction, Crisis prevention and recovery, Energy and Environment. UNDP And Nigeria Collaborative Activities. UNDP has been in Nigeria since 1960 when the country became independent. As in other parts of the world, it has been a force for change, helping the government and the people of Nigeria to create and share solutions to emerging challenges of development. It has also offered policy advice, advocated for change and mobilized resources to facilitate sustainable human development in Africa’s most populous country. In the 6th Country Programme. Running from 2003 to 2007, UNDP/Nigeria is focusing on five major programmes areas in response to prevailing global challenges and identified national priorities. The five programmes areas are

- Democratic Governance.
- Poverty Reduction.
- Crises Prevention and Recovery.
- Energy and Environment.
- HIV & AIDS

SELF ASSESSMENT EXERCISE

Mention areas in which UNDP and Nigeria collaborate?

3.2 The United Nations Environmental Programme (UNEP)

This is one of the agencies of the United Nations Organisation (UNO), an international organisation whose stated aims are to facilitate co-operation in international law, international security, economic development and social equity. It was founded in 1945 to replace the League of Nations of 1919 at the signing of the UN Charter by 51 countries. UNEP is concerned with environmental issues and natural resources globally. Its mission is to provide leadership and encourage partnership in caring for the environment by inspiring, informing and enabling nations and peoples to improve their quality of life without compromising that of future generations (sustainable development). It works in collaboration with The United Nations Development Programme (UNDP).

Specifically and in line with the requirements of Agenda 21 of the Rio Conference in 1992, UNEP responsibilities include

- Strengthening its catalytic role in stimulating and promoting environmental activities and considerations throughout the United Nations system;
- Promoting international cooperation in the field of environment and recommending as appropriate policies to this end;
- Developing and promoting the use of techniques such as natural resources accounting and environmental economics;
- Dissemination of environmental information and data to governments and to organs, programmes and organizations of the United Nations system;
- Raising general awareness and action in the area of environmental protection through collaboration with the general public, non-governmental entities and intergovernmental institutions;
- Facilitation of information exchange on environmentally sound technologies, including legal aspects, and provision of training;
- Providing technical, legal and institutional advice to governments upon request in co-operation with UNDP capacity-building efforts and
- Supporting Governments, upon request and development agencies and organs in the integration of environmental aspects into their development policies and programmes in particular through provision of environmental, technical and policy during programmes formulation and implementation.

Intergovernmental Panel on Climate Change (IPCC)

The work of the IPCC is guided by the mandate given to it by its parent organizations, the World Meteorological Organizations (WMO) and the United Nations Environment Programme (UNEP). At its 14th session, the panel approved principles governing its work. These principles describe roles and organization of the panel, participating in its activities and general procedures. IPCC activities, in particular the participation of developing country's experts in the IPCC work, and publication and translation of IPCC material are supported by the IPCC Trust Fund to which governments provide contributions. In addition to cash contributions to the IPCC Trust Fund, Governments and Participating Organizations provide substantial, in kind, support for activities of the IPCC, in particular through hosting Technical Support Units, supporting the participation of experts in IPCC activities, translation and publication and through organizing meetings.

Recognizing the problem of potential global climate change, the World Meteorological Organization (WMO) and the United Nations Environment Programme (UNEP) established the Intergovernmental Panel on Climate (IPCC) in 1988. It is open to all members of the UN and WMO.

The role of the IPCC is to assess on a comprehensive, objective, open and transparent basis the scientific, technical and socio-economic information relevant to understanding the scientific

basis of risk of human induced climate change, its potential impacts and options for adaptation and mitigation. The IPCC does not carry out research nor does it monitor climate related data or other relevant parameters. It bases its assessment mainly on peer reviewed and publicized scientific/technical literature. Its role, organization, participation and general procedures are laid down in the 'Principles Governing IPCC work'. The IPCC is regarded as the international authority for conducting assessments of the current state of knowledge about climate change. Its working groups address major aspects of the climate change issues, including the latest scientific findings, potential impacts of climate change and possible response strategies. The IPCC's Task Force, on National Greenhouse Gas Inventories, is playing an important role in assisting countries to develop internationally consistent ways of accounting for their greenhouse gas emissions.

Contribution of IPCC is particularly felt in respect of climatic warning trends which are observed in many ways. For example, Global snow cover has decreased by about 10% over the past 45 years: global average sea level has risen 10 to 20cm over the past 100 years and precipitation has increased by 0.5 to 1 % per decade in the past 100 years, at high latitudes in the northern hemisphere and has decreased by about 0.3% per decade at sub-tropical latitudes. The panel's group of about two thousand climate scientists released a Fourth Assessment Report in February, 2007. In the Report, it was clear that apart from the rising surface temperatures the world over, greenhouse gases are also said to have resulted in significant increases in ocean temperatures, rises in sea levels and the dramatic melting of Arctic sea ice over the past three decades. That is not all. The prediction is that a continuous rise in global temperatures cannot be ruled out. In particular it affirmed that average temperature in the UK for instance, is raising and the 2006 winter was considered about the warmest in history. Also the climate scientists described nights in January, 2007 with an average temperature of 12.60 warmer than any other in Britain's history since 1659 (*Saturday Punch*. February 24, 2007: 9).

SELF ASSESSMENT EXERCISE

What are the responsibilities of UNEP

3.3 Instrument of international environmental law

International environmental law is very recent in origin; it is a branch of international law. Therefore, before a meaningful discourse on international environmental law can take place there is a need to make some statements concerning international law.

The development of international law has been governed by one abiding principle namely that all states recognized under international law are regarded as both sovereign and equal in their relations with each other. International law is a body of rules which these sovereign and equal states have explicitly or implicitly consented to. For example, with respect to treaties or conventions that are especially important part of international environmental law, such consent is formally acquired through the signature and ratification process. In terms of general or

customary international legal obligations, however, it has been argued that the requirement of consent need not be expressed or provided for in order to hold that a state is bound by such obligations. Indeed, from the increasing amount of state practices, in the form of domestic legislation and national institutions for environmental protection in similar issue areas to those that have received international attention would appear to support the notion that most states are bound by certain general rules of customary international law regarding the environment without the need for formal evidence of their consent. Nevertheless, it is imperative to note that the consent of states is an essential element to the operation of international law and international environmental law in particular.

At the international level and until about three decades ago, the primary actors recognized by public international law are states. Now it is widely accepted that international law governs the activities of international or inter-governmental organizations, non-governmental organizations (NGOs), multinational or transnational enterprises and individuals. Despite this expansion in the number and types of subjects of international law, international legal rules are generally framed in terms of obligations entered into by states and the international legal framework regulating, for example, pollution and nature conservation is in practice based on State-to-State relations, either at the bilateral or multilateral levels. It is important to stress that in principle, states incur obligations under international law, including international environmental law, only when they have consented to such obligations.

General principles of international law It has been argued that international law includes principles which have been recognized by the states themselves as governing relations between them, either generally or specifically. Such substantive principles include the prohibition against use of force, basic principles of human rights, the freedom of the seas, and the prevention of harm to another state's territory. The recognition of these substantive principles of international law, in addition to the more commonly accepted procedural one, enhances the general body of applicable international law, especially international environmental law. These principles however, are often enunciated in the form of inter-governmental declarations which are codified but without the usual signature and ratification process to conform the consent of states as in a treaty. There exist an increasing number of the so-called 'soft' law instruments, such as the Rio and Stockholm Declarations. There is considerable uncertainty as to the validity of such declarations as a source of international law. One argument is that the general principles laid down in these declarations are secondary sources of international law, which will only become sources of law when applied or enunciated by the ICJ or other international adjudicatory bodies (Birnie and Boyle, 1992:22).

4.0 Conclusion

It has been argued that even if 'soft' law rules are not binding per se, they play an important role in the field of international environmental law. They do so in at least three ways namely by pointing to the likely future direction of formally binding obligations; by informally establishing acceptable norms of behaviour; and by codifying or possibly reflecting rules of customary international law (Sands 1995:103).

5.0 Summary

Judicial decisions and the writings of eminent publicists are explicitly stated in the Statute of the ICJ to be subsidiary or secondary means for the determination of international law. There have been very few international law cases concerning the environment. At least one of the major commentaries on international environmental law has suggested that the impact of cases on the progressive development of the law has been over-emphasised (Birnie and Boyle 1992: 24-25 and 145- 46).

6.0 Tutor-Marked Assignment

Write on any three of the following

- a. Urban Environmental Management
- b. Poverty and Nigeria Environment
- c. The need for public enlightenment on the ill effect of improper waste disposal and management
- d. Forest conservation
- e. Environmental education
- f. The structure of International Environmental Law from the point of view of enforcement, compliance and dispute settlement in Nigeria.

7.0 References/Further Readings

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MODULE 4 SUSTAINABLE DEVELOPMENT

INTRODUCTION

The concept of sustainable development is a notion around which legally significant expectations regarding environment conduct have begun to crystallize. The Rio de Janeiro Conference of 1992 and the Johannesburg 2002, 'Earth Summit' promote strategies to fully integrate the relationship between the environment and development. The initiative is a testimony to the currency of sustainable development in global polity. The issue of sustainable development is now seen as the problem that is confronting humanity. It is necessary therefore to firstly, understand what sustainable development stands for. In this module the following units are discussed.

UNIT 1 What is Sustainable Development

UNIT 2 Dilemma of Policy and Politics of Sustainable Development

UNIT 3 Challenges of the Principle of Sustainable Development

UNIT 4 Sustainability in Nigeria

UNIT 1 WHAT IS SUSTAINABLE DEVELOPMENT?

CONTENTS

- 1.0 Introduction
- 2.0 Objectives
- 3.0 Main Content
 - 3.1 What is Sustainable Development?
 - 3.2 Environmental Consequences of Educational Activities
 - 3.3 Environmental Consequences of Oil Spillage
 - 3.4 Environmental consequences of Gas Flaring
- 4.0 Conclusion
- 5.0 Summary
- 6.0 Tutor-Marked Assignment
- 7.0 References/Further Readings

1.0 Introduction

The last module of this entire course will dwell on Sustainable Development, its definition and meaning, and then we shall move on to the Environmental Consequences of developmental Activities, Oil Spillage and Gas Flaring.

2.0 Objectives

At the end of this unit, the students should be able to

- a. Define Sustainable development
- b. Enumerate the environmental consequences of developmental activities
- c. State the environmental effects of Oil spillage
- d. Explain the impact of Gas flaring on the environment

3.0 Main Content

3.1 What is sustainable development?

Sharachandra Lele describes sustainable development as: A new way of life and approach to social and economic activities for all societies, rich and poor which is compatible with the preservation of the environment (Lele, 1991: 607-621). While Pearce and Watford capture the irreplaceable environmental dimension in sustainable development in the following definition Sustainable development describes a process in which the natural resource base is not allowed to deteriorate. It emphasizes the hitherto unappreciated role of the environmental quality and environmental inputs in the process of raising real income and quality of life (Pearce and Watford, 1993: 8).

World Commission on Environment and Development (WCED) defines sustainable development as 'development that meets the needs of the present without compromising the ability of future generations to meet their own needs' (WCED, 1987: 43). The definition contains within it two key concepts namely the concept of 'needs', in particular the essential needs of the world poor, to which overriding priority should be given and the idea of limitations imposed by the state of technology and social organisation on the environment's ability to meet present and future needs. WCED's thesis of sustainable development posits that the present generation has been reckless and wasteful both in its exploitation and use of natural resources by pursuing a series of socio-economic and industrial policies which endanger global environmental security. It urged governments to pursue a new developmental strategy that can both ensure continued economic growth and ecological stability with less exploitation and use of natural resources. It condemned the inequalities with and among nations and called for a restructuring of contemporary economic relations to guarantee an equitable distribution of national and international wealth (Natufe, 2001: 2; WCED, 1987: 45-54, 62-65). The position of WCED was informed on the basis, among others, that the attempt in the 1970s to create a New International Economic Order (NIEO) based on a Charter of Economic Rights and Duties of the UN did not make reference to and took little account of the impact of development activities on the environment. However, the 1980s strategies, primarily aimed at environmental protection took account of the need for development while recognizing that the environment could not in all cases sustain unlimited development.

Sustainable development implies three primary factors of economic, social and environment. An economically sustainable system must be able to produce goods and services on a continuing basis and maintain manageable economy without jeopardizing sectoral balances of economic activities of the country. Environmentally sustainable system must maintain a stable resource base, avoiding over-exploitation of renewable resource systems or environmental sink functions and depleting non-renewable resources only to the extent that investment is made in adequate substitutes. This includes maintenance of biodiversity, atmospheric stability and other ecosystem functions not ordinarily classified as economic resources. The last factor must achieve distributional equity, adequate provision of social services including health and education, gender equity and political accountability, transparency and participation. This must be with dynamic understanding of human rights that is developing very rapidly. For instance, the rights to life and liberty have been recognized and they include a healthy environment and development. Both have developed to a stage of recognition and enforceability under both national and international legal regimes (Ako, 2005: 70). Bearing in mind the social and human-centred development (Stockholm Conference 1972, Principle 1), the definitions of the concept of sustainable development have broken the hitherto 'limited, instrumental view of conservation and development. Now it encompasses some of the positive moral dimensions of the new social paradigm expressed in 'authentic integral development', 'ecological/holistic world view',

‘reverential development’, ‘ecosophical development’, ‘just, participatory ecodevelopment’, ‘communalism’ and ‘desirable society’ (Engel, 1990: 10).

At the end of the day, any development that will be sustaining especially in the developing countries will include the following

- ❖ Increases in real income especially for the ‘wretched of the earth’. This implies poverty eradication on the long run;
- ❖ Improvement in health and nutritional status especially children and young mothers who are vulnerable to most preventable diseases;
- ❖ Education achievement;
- ❖ Access to resources;
- ❖ A fairer equitable distribution of income. The basic salary of the least paid worker should be adequate to maintain his nuclear family;
- ❖ Increases in basic freedoms and guaranteed security of all citizens; respect and responsible relationship with ecosystem.

Many of the factors in respect of development above were also captured and reflected in the formal Administration of the country. Obasanjo’s Administration (Ad’Obe Obe 2001: 187 and 188) rightly observed especially on the social and economic front that provision of basic social services which the Human Development Reports have persistently canvassed as the safest and quickest means to poverty alleviation and human development. Accordingly the Administration embarked upon programmes on Universal Basic Education, Primary Health Care. The National Programme on Immunization and the poverty Alleviation Programme to make concrete and measurable impact on poverty reduction and progress in human development. Its economic policy was then designed around the principal objectives of meeting the global commitment of halving poverty by the year 2015. In the immediate form, the policy objectives and targets were set with the belief that the basic needs of all can and must be met, now, as a matter of people’s fundamental rights. Correctly, it affirmed that every Nigerian has a right to basic social services of basic education, access to functional health care, immunization for children, employment for youth, living wages for workers, clean water for all, and security of lives and property. In essence, it proclaimed that development cannot be anything but the ‘fundamental responsibility of government and the basic rights of citizens’

In inviting every development partner, the private sector, the civil society and the international community among others to join hands with the government to develop Nigeria it enumerated some challenges in priority areas to include

- Provision of basic social and essential services - education, health, clean water, food security, etc.
- Rehabilitation of dilapidated social and economic infrastructure.

- Creating new employment and income opportunities especially for youth, school-leavers and rural folks
- Strengthening institutions of governance at all levels including adequate attention to human rights, conflict prevention and consensus building.

3.2 Environmental consequences of developmental activities

Nigeria covers a total surface area of 923,768 square kilometres with the coastline of about 900 kilometres long. It has a population of 140,003,542 with the breakdown of 71,709,859 males and 68,293,683 females and 3.2 per cent annual population growth rate which makes it the largest population in Africa. Nigeria harbours more than 250 ethnic groups. By the 1993 estimate, Nigeria has the land use of 44% permanent pastures, 3% permanent crops while forest and woodland cover 12% arid others 8%. About 75% of Nigeria's land is suitable for agriculture but only 14% is actually under cultivation. 3.2% of arable land is irrigated and between 1990/1995 deforestation was running at the rate of 0.9 per annum (Adeleke 2003:2 and 3). Apart from petroleum, oil and gas Nigeria is rich in limestone, coal, tin, columbite, gold, silver, lead, zinc, gypsum, glass sands, clays, asbestos, graphite, iron ore stone and zircon. It imports machinery, chemicals, transportation equipment, manufactured goods and food while exporting petroleum and petroleum products, Cocoa, palm oil, groundnuts, cotton, timber and rubber.

As soon as Nigeria became independent in October 1960, it embarked upon the road to development as mapped out by the West without any serious ideological reflection on the appropriateness or otherwise of the type of development it wanted to embrace. It ultimately embraced capitalist developmental paradigm as the necessary instrument to realize its developmental objectives. In its current neo-liberal form this type of development is broken down into economic, social and political aspects. One aspect is discussed below, as Ibeanu rightly identified and explained economic development in the paradigm

...consists of economic growth measured principally in terms of gross domestic product, industrialization, capital formation, infrastructure (for example roads, telephones and electricity), strong balance of payments as well as economic efficiency. Economic development is to be achieved among others through economic policies that support the free market, reduces state participation in the economy and expands the private economy enhances liberalization of foreign trade and enunciates a domestic price structure, especially of capital and foreign exchange that support all these (Ibeanu, 2004: 2).

The implicit assumption in this notion of economic development is that there is only one possible way to development namely the universal Western type of economic development by which every country must go through. It must follow a process starting from a primitive, traditional, agricultural, low productivity economy to a developed capitalist economy of the West. By implication, the gap and lenses of western behavioral patterns and norms must be worn in order

to arrive at the desired economic development. Furthermore, the implication includes the abandonment of traditional values and cosmology, and structures of extended family, empathy and primordial solidarity which must be sacrificed at the altar of economic growth, efficiency and mobility of labour and capital.

Specifically National Economic and Empowerment Development Strategy (NEEDS) calls for attention. The strategy was a response to the development challenges of Nigeria. It was planned for seriously pursued with the assistance of the World Bank having in view the laying of 'a solid foundation for sustainable poverty reduction, employment generation, wealth creation, and value reorientation' (National Planning Commission, 2004: 3) and believing that 'Nigeria has all it takes (human and material resources) to become the strongest economy in Africa — and one of the leading economies in the world in the longer term' (National Planning Commission, 2004: 3). NEEDS has its goal the mobilisation of the 'resources of Nigeria to make a fundamental break with the failures of the past and bequeath a united and prosperous nation to the generations to come' (National Planning Commission, 2004: 3). And in its evaluation of the past decades development programmes and activities, NEEDS identified some problems and proffered solutions in its objectives and goals. Some of the problems are poverty and inequality, weak and inappropriate public sector, poor economic management and hostile environment for private sector growth.

Nigeria is a member of international and global community and therefore is not immune from the positive and negative effects of globalization from the point of view of industrialization and technology. Nigeria's benefit from globalization, Science and Technology includes education, telecommunication, medicine, transportation and trade among others. However, in the process of 'development' in the past four decades from Independence 1960 to the 1990s and despite the existence of NEEDS in 2004-2008, Nigeria polluted its seas and rivers, destroying habitats and killing marine life. Air is polluted and inhaling poisonous gases like carbon monoxide can lead to fatigue, high blood pressure and insomnia. Acid rain is being experienced and erosion is common. Water, soil and air pollution are also making it difficult for local farmers, hunters and pastoralists to make a decent living. Poverty drives people to cut down trees for firewood and over-farm fragile soils for their immediate survival (Egunjobi, 2005: 272).

Both developmental and environmental problems are formidable and the country has to face them squarely or face greater impoverishment and degradation. Environmental management is particularly necessary and its major aim is to avoid stressing a valued ecosystem beyond the limits of its resilience, stability and carrying capacity (Oyeshola, 1995: 8 and 80).

In addition to a few of the major national environmental difficulties catalogued above and despite the reality of NEEDS on ground, Nigeria also has to contend with global environmental problems such as climate change, global warming, ozone layer depletion and trans-boundary movement of hazardous wastes and toxic chemicals.

Some of the manifestations of environmental degradation (Oyeshola, 1998: 5 1-60) threaten the well being of people in many parts of Nigeria and is a prominent factor in the agitation and violent conflicts in the oil producing Niger Delta (Adeleke, 2003: 2-3). Because of the centrality and economic importance of the region to the overall development of the nation, an overview of the environmental degradation of the region is necessary here.

The Niger Delta region of Nigeria is Africa's largest delta covering some 7,000 square kilometres. It contains the largest mangrove forest in the world (5,400 — 6,000 square kilometres) and about one third of this area is made-up of wetlands. It is the homeland of the people now so constituted together, politically in nine states of the South (Delta, Anambra, Bayelsa, Edo, Rivers, Ondo, Abia, Cross River, and Akwa-lbom) which forms the basis of the economic life of the Nigerian Federation. It is a common knowledge that the Niger Delta environment has been so degraded that it is already endangering the livelihood and health of the people in several communities. Given the dominant mono-cultural character of the economy of the nation, the Niger Delta region bears the brunt of being the goose that lay the golden eggs.

Ever since the discovery of oil in Nigeria in the 1950's the country has been suffering the negative environmental consequences of oil development. The growth of the country's oil industry combined with the lack of environmental regulations led to the substantial damage of Nigeria's environment especially in the Niger Delta region, the nerve of the country's industry. The Niger Delta's main environmental challenges result majorly from (i) oil spills and (ii) gas flaring

SELF ASSESSMENT EXERCISE

1. Critically discuss the major initiatives put in place by the different administrations in addressing the development problems of Niger Delta?
2. How successful is Niger Delta Development Commission (NDDC) set up on December 21,200 to 'offer a lasting solution to the socio-economic difficulties of the Niger Delta Region' and to facilitate the rapid, even and sustainable development of the Niger Delta into 'a region that is economically prosperous, socially stable, ecologically regenerative and politically peaceful'?

3.3 Environmental consequences Oil spillage

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. The magnitude of crude oil pollution is incredible because of its devastating consequences on both aerial and terrestrial environs, which

is undoubtedly tantamount to an irreversible chain effects on both the bio-diversity and human safety.

Crude oil or petroleum became a richly available commodity about a century ago and now the efficient use of this black gold cannot be over emphasized. It (oil) was discovered in commercial quantity in 1956 and, in fact, that first shipment of oil for export was made in 1958 with nearly 5,000 barrel per day (*The Guardian on Sunday*, July 29, 1990: 2). Much attention was not given to the environmental implications of the oil industry until the late 1980s when oil alone accounted for almost 75% of the nation's annual revenue.

The danger posed by the oil industry to the environment is so enormous that the oil producing areas in the country suffer more problems of environmental pollution than any other part of the country. The crude oil contains hydrocarbon component while some contain, in addition, chemicals containing oxygen, nitrogen, sulphur and trace metals. Oil slicks occasioned by oil spillage could either directly destroy the aquatic organism (plant, fishes, shellfish) or deprive the area of free oxygen.

When crude oil spills on water or touches the ground, (or perhaps the leaf of a yam and cassava) spreading immediately takes place and the trees begin to dry up simultaneously. The gaseous and liquid component of the oil evaporates. Some dissolve in water and even oxidize and yet some undergo bacterial changes and eventually sink to the bottom by gravitational pull. Thus, the soil is contaminated -with a gross effect on the terrestrial life. As the evaporation of the lower molecular weight components affects aerial life, so the dissolution of the less volatile components with the resulting emulsified water and affects aquatic life.

Crude oil spills resulting into petrol/photo chemical oxidation and bacterial degradation are all hazardous and significantly long lasting on the environment. When petroleum or crude oil floats on water surface, it is invariably exposed to attack by atmospheric oxygen and solar radiation, the result of which is degradation to molecular weight component that subsequently degenerates into water soluble ones. The weight of this attack depends on the weight of oil slick because petroleum as well as its refined products is a complex mixture of a wide range of hydrocarbon fractions with sulphur, oxygen, and nitrogen compounds. These fractions which include straight or short — branched alkanes, cyclo-alkanes, aromatic hydrocarbons and heterocyclic compounds form a potential carbon and energy sources for microbial activities and hence biodegradable.

Besides, oil drilling disturbs the habitants of marine organism, limiting mating and energy cycling/recycling within the ecosystem. This, in turn, reduces the overall marine food production. It is often been argued that the noise that is produced in the process of oil drilling drives aquatic organism away from the area of drilling.

The above scenario of the Niger Delta is just the general picture of the hazards which oil exploration could cause in any community. A specific or peculiar implication to the oil producing areas in Nigeria would be appreciated, if a critical attention is given to Kola Kusemiju's observation about oil production in Nigeria. He stated that 'Oil is one of the most widely contaminants of our aquatic environment' (*The Guardian*, June 18, 1993: 7).

The crude oil finds its way into the ocean through sources like transportation and production accident. This includes oil spillage, well blowouts and pipeline leakages. Indeed, oil has not only affected the aquatic environment alone, it equally affects the soil, the atmosphere, the vegetation as well as the human habitats of that vicinity. These areas have equally suffered massive pollution of water and land, destruction of artisanal fishery due to various cases of oil spills. Some of the areas include Obagi, Omola and Forema (Soremekun and Obadare, 1998: 44)

The most pathetic thing about oil spillage however, is that it does not affect the area where the incidents occurred alone, it goes further through the coast and exposes the lives of other coastal communities to danger. For instance, about ten years ago, some coastal communities in Ondo State shared from the devastation caused by the light crude oil spill from Mobil burst pipe in Akwa- Ibom. This resulted in the pollution of their drinking water and mass killing of the seafood, which forms the means of livelihood of the residents (*Tell*, September 21, 1998: 30) making life unbearable for them.

SELF ASSESSMENT EXERCISE

What lessons can the Government agricultural functionaries learn from the subtle but complex soil degradation as experienced in gas and oil spillage scenarios of the Delta as they pursue food security project for the country especially from health perspective?

3.4 Environmental consequences Gas flaring

There is more flaring of gas in Nigeria's Niger Delta region than anywhere in the world. Although estimates are not reliable, but roughly 2.5 billion cubic feet of gas associated with crude oil is wasted in this way on a daily basis. Niger Delta is followed by Russia, Iran, Algeria, Mexico, Venezuela, Indonesia and Unites States (*Saturday Punch*, February 24, 2007: 9). Thus, Nigeria's gas flaring is equal to 40 percent of all Africa's natural gas consumption in the year 2001 alone. The flares contributed more greenhouse gases than those of sub-Saharan Africa combined. It contains toxins that not only affect the life and health of the local communities, but also exposes Niger Delta residents to an increased risk of premature death, child respiratory illness, asthma and cancer.

Routine gas flaring began at the start of the industry in the Delta at the very end of British rule. Chevron Texaco, Agip, Shell, Exxon Mobil, Total Fina Elf in joint ventures with the state —

owned Nigeria National Petroleum Corporations has carried this flaring of associated gas to world record heights.

Currently, there is no comprehensive study that has been carried out in respect of the health impacts of gas flaring communities in the Delta, including the level of pollutants in the food chain. However, communities firmly believe that the flaring is damaging their health, reducing crop production and damaging their homes. Gas flaring releases additional pollutants, such as sulfur dioxide, dioxins, nitrogen, oxides, toluene, xylene and hydrogen sulfide. The composition of the rain that falls as a result of flaring are the primary causes of acid rain which include emissions of sulfur dioxide (SO₂) and nitrogen oxides (NO), which combine with atmospheric moisture to form sulfuric acid and nitric acid respectively. Acid rain acidifies lakes and streams and damages vegetations. In addition, acid rain accelerates the decay of building materials and paints. Before falling to the earth SO₂ and NO gases contribute to visibility degradation and in Niger Delta only dew is often seen on collected rainwater.

All the above stated manifestations of environmental degradation are real and essentially unsustainable socio-economic activities of human beings are responsible. In the same vein, solutions to them must be found by human beings. Therefore, Science and Technology that have helped bring solutions to some previous human problems must also be part of the efforts that must be sought in order to bring about solutions to current environmental and developmental problems. However, it must be established categorically that Science and Technology, instrument of development, are not necessarily neutral because their choices are political, ideological and religiously made. If Nigeria is to 'make a fundamental break with the failures of the past and bequeath a united and prosperous nation to the generations to come' (National Planning Commission, 2004: 3), 'value reorientation' is called for as well as good governance especially in the developmental projects like Ajaokuta Steel Project (*The Nation*, April 7th, 2008: 6 and 7) characterized by minimizing corruption to its lowest acceptable level in Nigeria, transparency and accountability. Nigeria with all its endowments of human and natural resources is a gift to the citizens and in this connection all stakeholders must be involved in the struggle to develop, preserve and protect the environment. Degraded environment cannot guarantee sustainable development.

4.0 Conclusion

All the above stated manifestations of environmental degradation are real and essentially unsustainable socio-economic activities of human beings are responsible. In the same vein, solutions to them must be found by human beings. Therefore, Science and Technology that have helped bring solutions to some previous human problems must also be part of the efforts that must be sought in order to bring about solutions to current environmental and developmental problems.

5.0 Summary

Nigeria is a member of international and global community and therefore is not immune from the positive and negative effects of globalization from the point of view of industrialization and technology. Nigeria's benefit from globalization, Science and Technology includes education, telecommunication, medicine, transportation and trade among others. However, in the process of 'development' in the past four decades from Independence 1960 to the 1990s and despite the existence of NEEDS in 2004-2008, Nigeria polluted its seas and rivers, destroying habitats and killing marine life.

6.0 Tutor-Marked Assignment

Critically discuss the major initiatives put in place by the different administrations in addressing the development problems of Niger Delta?

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UNIT 2 DILEMMA OF POLICY AND POLITICS OF SUSTAINABLE DEVELOPMENT

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- 1.0 Introduction
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- 5.0 Summary
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1.0 Introduction

In the last unit, we defined and gave the meaning of Sustainable Development, discussed in detail the Environmental Consequences of Developmental Activities, Oil Spillage and Gas Flaring. In this unit, the type of Sustainable Development in Practice in Nigeria, The Need for Reorientation, and Challenges of Sustainable Development for Nigeria shall be our focus.

2.0 Objectives

At the end of this unit, the students should be able to

- a. Explain the type of Sustainable Development in Practice in Nigeria
- b. State the reasons why we Need Reorientation in Nigeria
- c. Elucidate on the Challenges of Sustainable Development for Nigeria

3.0 Main Content

3.1 A type of sustainable development in practice in Nigeria

At its inception and throughout his eight year Administration, President Obasanjo never depended solely on its yearly budget benchmark based on oil export because international oil prices often rose higher, far higher than the estimated baseline. In addition, billions of naira in revenue came to the Federal Government via the Nigeria Customs Service (NCS), remittances from the Diaspora, exports, Investments and Value Added Tax (VAT) and a multiplicity of taxes (The *Nation*, Tuesday, May 15, 2007: 15 and 16).

With the huge resources at his disposal, Obasanjo pledged that he would redress the situation of National Electric Power Authority (NEPA), Nigerian Telecommunications (NITEL), roads, railways, education, housing and other social services that were neglected to decay and collapse during the previous regimes. In an attempt to do this within sustainable development principles,

the Federal Government anchored its economic strategy on deregulation and a market-based economy and moved swiftly to liberalize the domestic economy through the privatization of some key public enterprises. Its objective was to prime the economy for sustainable growth by freeing it from the shackles of public controls.

It set an economic growth rate target of 7 percent, and embraced such internationally sponsored programmes as NEPAD, National Economic Empowerment and Development Strategy (NEEDS) and the African Peer Review Mechanism (APRM) that set growth target and were supposed to underline its commitment to change. Obasanjo spent an estimated N7.167 trillion on infrastructural development between June 1999 and December 2006. The GDP growth rate has averaged only 4 percent instead of the 7 percent target.

In the telecommunications sector the Nigerian Communications Commission (NCC) granted Digital Mobile Licences (DMLs) initially to four mobile operators at the cost of \$280 million each. Some of these are MTN, Econet (now Celtel), Globacom, SNO and NITEL. Massive investment for instance by the GSM telephony service providers led to a quantum leap and growth of the Nigerian telecommunications industry. Between 1960 and 2000 there were 10,000 connected lines but between 2001 and 2005 the average growth rate in the industry jumped astronomically to five million per annum. The exponential growth experienced in the sector led to the creation of thousand direct and indirect employments in the form of networks of dealers, vendors, GSM accessory sellers and the ubiquitous umbrella pay-phone operators scattered across the country. As *The News* observed the growth impacted on the other sectors of the Nigerian economy as well, for instance

Companies engaged in all areas of marketing communication have reaped bountifully from activities of the telecommunications firm... Some banks and companies have also designed products that employ the use of mobile phones (*The News*, June 4, 2007:64)

While private participation was encouraged in telecommunication sector, the paradox of wealth and abject poverty was apparent in the fact that the country's mobile telecommunications market is simultaneously one of the fast growing and one of the most expensive in the world (Ibid.) and so many 'wretched of the earth' cannot maintain one.

At the onset of Obasanjo's administration in 1999, he laid emphasis on sectoral diversification to nurture new revenue bases in agro-industrial revolution. With different initiatives, the administration focused on creating awareness on the potentials of Nigerian products for source of export. Cassava initiative is an example. It was no longer seen as a major food source but also as an export goldmine. The initiative created an opportunity for Nigerians to discover more ways in which the product could be utilized. In that respect, a presidential directive stipulated that, at least, a mandatory 10 percent of baked products, especially bread, must be cassava. The initiative

was bringing in an annual export turnover that was in excess of N635 billion besides creating more job opportunities to the rural citizenry. Cocoa production was another initiative.

In the health sector, National Agency for Food and Drug Administration and Control (NAFDAC) between 2001 and 2006 destroyed over N14.5 billion worth of counterfeit and substandard drugs and by so doing 'promoting the health of the nation'. The problem of importation and production of counterfeit drugs has since gone down to 16.7 percent just as that of unregistered drugs has fallen to 19 percent. Significantly, production capacity for local manufacturers increased to 150 percent within the same period. The Obasanjo Administration also introduced the Ward Health System as a strategy for revitalizing the country's primary health care system and more than a total of 154 ward health centres were completed, fully equipped and stocked with drugs. Over 12 teaching hospitals in tertiary institutions were upgraded. On 5 June 2005, the government began the implementation of the National Health Insurance Scheme with the mainstream of the Federal Civil Service in the 36 states and the Federal Capital Territory.

Despite the huge resources plunged into developmental programmes of the nation and under the economic and financial reforms no fewer than 15,000 bank employees lost their jobs to the banking consolidation policy of the Nigerian government. Other areas of endeavour were also affected. The then Accountant-General of the Federation, Mallam Ibrahim Dankwambo, confirmed as he stated that

Current economic and financial reforms would lead to the retrenchment of a total of 33,000 workers from the core civil service (about 20 percent of the 160,000) workers in the federal civil service (The News, June 4, 2007: 63).

In general mass poverty persisted and Nigeria was listed as one of the twenty-six poorest nations on earth. At over 20 percent, interest rate was a disincentive to investment. The inflation rate remained in the double digits despite official claims to the contrary. In industry, capacity utilization was under 40 percent. The once vibrant textile industry, the largest employer of labour was almost closed down completely (The *Nation*, May 16: 16, 2007). Only 10 of 170 textile industries in Nigeria were currently operating (The News, June 4 2007: 67).

Water and electricity supply were notoriously erratic, if not non-existent in many places, many of the country's roads and highways were in deplorable condition, none of the oil refineries is operating at installed capacity. many public buildings and facilities are decrepit, particularly those situated in the country's urban centres (The *Nation*, Wednesday, May 16:15, 2007). The inability of the Administration to tackle key infrastructural challenges continued to make the cost of production in Nigeria one of the highest in the world and by so doing putting operators in the sector at a disadvantage compared to their counterparts in other countries. For instance, most of the industrial areas around the country suffered an average of 14.5 hours of power outage per

day as against 9.5 hours of supply. The reality of frequent power outage especially after government made known its intentions to fully privatize NEPA, led to manufacturing capacity to become less than 40 percent

There has been a critical loss of jobs in both the public and private sectors and very few new jobs were created to absorb graduates of Nigerian tertiary institutions. Privatization of public enterprises has led to mass retrenchment and assets stripping. Many of the states' enterprises were sold off cheaply to the rich at the detriment of the poor. The economic reform programme of the Administration has been painful for the poor of the society who had to bear the brunt of the negative effect of the programme. Spending on education and health which has direct bearing on the poor averaged 7 percent, less than half of South Africa's expenditure on the two sectors. At the level of environment degradation, a lot is yet to be accomplished.

It may be argued that security is the greatest shortcoming of the Obasanjo Administration. Corruption and glaring ineptitude of both the leadership and ranks and file of the Nigerian Police Force have seen crime rate spiraling to unprecedented levels. Armed robberies, political assassinations and brazen thugery have characterized the eight years of the Administration. Specifically, the problem of poverty which is the bane of development in Nigeria was not adequately addressed in spite of National Policy on Poverty Eradication (2000) programme. The policy defines poverty as

Condition of not having enough to eat, poor drinking water, poor nutrition, unfit housing, high rate of infant mortality, a low life expectancy, low educational opportunities, inadequate health care, lack of productive assets, lack of economic infrastructure and inability to actively participate in decision making process (Ighuzor, 2004: 45).

Unfortunately, the definition fails to include political, social and ideological aspects of poverty. This is a serious omission. In respect of political aspect, political poverty occurs when 'people are denied basic rights and excluded from participating in the decisions concerning the generation, distribution and utilization of the resources in their communities/nations as well as being excluded from how they are governed'. Social poverty occurs in a situation of societal stratification where 'certain individuals are discriminated against, stigmatized and dehumanized. Ideological poverty is a condition where 'people are bereft of or forced to abandon indigenous, genuine, people centred and practical ideas on how to organize society and distribute resources of communities and nations in a just and equitable manner' (Ighuzor, 2004: 45).

In spite of the presence of some institutions, projects, reforms and infrastructure during the Administration of Obasanjo, 'faces' of poverty are too many in the country. This is because of high interest rates, inappropriate policies, bad governance, corruption and low productivity often caused by lack of electricity, unemployment, high population growth and human resources

development. Others are illiteracy, unemployment, ignorance, insecurity of life and property, high incidence of diseases, environmental degradation, large family sizes, lack of adequate access to employment, land and capital opportunities. Nigeria that was one of the richest 50 countries in the early 1970s has retrogressed to become one of the 25 poorest countries. It is ironic that Nigeria is the sixth largest exporter of oil and at the same time host to the third largest number of poor people after China and India (Ighuzor, 2004: 51). Some of the serious consequences of this reflect on the crime rate, corruption and a dramatic change in rural-urban lifestyle resulting in child marriages, child labour and multiple modes of survival.

Economic and Empowerment Development Strategy (NEEDS) ((Ighuzor. 2004: 55).

Without a commitment to poverty eradication all efforts to address the issue will be futile. The commitment has its basis in the United Nations Declaration of Human Rights which include among others decent environment, housing, education, development and so on. To allow its poor citizens to be living under conditions of extreme poverty would tantamount to violation of internationally recognized human rights and Nigeria would be guilty. Serious approach to poverty eradication in Nigeria must abandon dishing out of 'handouts' and market led growth with the hope of trickledown effect. Rather, the strategies to combat poverty will require mitigating the negative sides of the market for instance the cost of petroleum products that affect the lives of the poor fundamentally. Another area of the strategy will embrace regulating transnational corporations to respect international standard in the execution of their business activities and be more responsible in carrying out their social responsibility to the communities where they are operating: The strategy must also include provision of a clean, healthy and decent environment and promotion of development. For the strategy to be successful, it must be carried out in the climate of fair and just administration of justice, prudent economic management, pro-poor policies that will benefit the poor and political stability. For instance, in the area of agricultural transformation and rural development that will not only serve in its unique role as a source of food (food security) and shelter but also as a foreign exchange earner. It will provide employment and raw materials for the industries.

A lot of government sponsored programmes in the agricultural domain have been initiated in the past for instance, National Accelerated Food Production Programme (NAFPP) Operation Feed the Nation (OFN), Green Revolution, Better Life for Rural Dwellers, Family Economic Advancement Programme and most recently Youth Empowerment Scheme (YES), Poverty Alleviation Programme (PAP) and National Poverty Eradication Programme (NAPEP). All these programmes have not achieved the desired results because they did not focus on raising agricultural incomes, productivity and investment as well as the production of high quality semi-finished (and exportable) products. Some form of protectionism and subsidy are needed and as such the Government cannot always listen to the voices of the World Bank and International Monetary Fund.

The industrialized countries that are the proponents of liberalization and market economy recognize this and therefore still subsidize agricultural sector heavily. Owolabi affirms that the annual value of agricultural subsidies in the EU countries is put at US 50 billion dollars (which is ten times the volume of aid given to Africa annually, put at US 5 billion dollars). Germany still provides over 20 types of subsidies to farmers. He went on to give reasons for the subsidies.

Price subsidies on inputs are largely used to promote and stimulate agricultural production. Specifically they are used to: i) encourage farmers to adopt new technology; ii) ensure that farmers earn reasonable margins by lowering costs of inputs and services; iii) encourage production of essential crops with a view to attaining self-sufficiency; iv) as a major incentive for inducing new entrants into farming and ensuring massive participation in agriculture. Based on the above, government should still continue to provide subsidy on all inputs particularly now that we need to re-orient more people to take agriculture as a profession (Owolabi, 2004: 70).

America is industrialised and the European countries too. It is the same with Japan axis and the Asian Tiger countries. They all want developing countries and African continent in particular to be so developed. Consequently, all of them as well as their institutions and organisations are clamoring that developing countries should embrace the part of development that has led them to the proverbial promised land of prosperity and technological advancement. Unfortunately, they seem not to take cognizance of the consequences of their socio-economic and political system on the rest of the world on the one hand and policy recommendation they consistently offer and often impose on the others. Internally, as Alexander rightly observed (and this is just one of many other areas like aid for agriculture and aid for industry) Europe and the US have the world's largest aid programmes, redistributing resources between citizens through social security, public services agricultural subsidies and industrial support. Minute amounts of discretionary aid are allocated for the Majority World, mostly on the basis of Western political interests rather than need. He went on to affirm that:

The replacement of charity and discretionary aid with entitlement programmes is central to the Western Economic System. Social security and services such as education, health, child protection and public safety are provided as a right to citizens by redistributing income through the state. Inadequate as it may be in particular areas, this massive intervention in the market is essential for social stability and cohesion. The West spends, on average, over 30 per cent of its combined Gross Domestic Product (GDP) on internal aid, about \$4,900 per head in 1990, ranging from under 20 per cent of GDP in Japan to almost 50 per cent of GDP in Sweden. This compares with an average of 0.33 per cent of Western GDP spent on aid for the Majority World. Even then, most aid is not spent on the world's poorest people, but on projects which support Western interests (Alexander, 1996: 78).

While the West can give aid and subsidies to ameliorate the consequences of harsh economic reality on its poor it opposes similar policy for the developing countries. Structural Adjustment Programme where subsidies from the government to its poor citizens were completely absent, as a panacea for economic recovery in Africa and as recommended in the 1990s by the West comes to mind. Such a recommendation and similar ones must be opposed and rejected. They cannot lead to sustainable development of any one has African experience demonstrated. Statistically and in order to maintain high standard of life style, America consumes disproportionately calories of fuel and so on far too high than the rest of the world. Other industrialized nations are not too far from the Americans in this respect. The countries of the West practice and support democracy in its various forms, give subsidies to stabilize their social cohesion and they promote economic liberalization in world polity.

In the process of development within the industrialised developmental paradigm, environmental degradation has occurred and the whole ecosystem is threatened leading to global warming. Other manifestations of degradation include the melting of ice cap not only in the Arctic and Antarctic regions but also the Himalayan Mountains. Coastal and oceanic waters are increasing and natural disasters like earth quake, hurricane and fires are of frequent and intense occurrence. Some of these manifestations of environmental degradation have made some scientists, though arguably, that the planet has exceeded its carrying capacity and that urgent action is called for in order to reserve the trend of degradation. Within the scenario of degradation, the population of the world has increased to about seven billion, and the American life style and rootless and vicious capitalism are being dangled before developing countries as models and viable options for all to pursue. It is within this philosophical orientation that the politics of sustainable development is being played. A salient query may now be rife. Can the current policy of development process centred predominantly on national interest and profit at all cost of economic enterprises ideology and sustainable development principles as enunciated especially by the Rio Conference be reconcilable? Can every African, for instance, live like his American counterpart in terms of consumption of natural resources and life style? Can every Nigerian live like the former President, Olusegun Obasanjo with the massive wealth he acquired after his tenure? What becomes of the limited natural resources since the planet earth is incapable of replenishing the already used resources and those that are being used at the rate of depletion? A symbiotic relationship of population, resources and sustainable development presents a dilemma because every country wants to develop with the same living standard like the Americans and industrialized countries, provides for the wellbeing of all its citizens in the same common market of limited global resources. The type of the project of development envisaged and promoted in practice by the West may not be accommodated by the principle of sustainable development as envisaged by the Rio Principle; they are not compatible.

SELF ASSESSMENT EXERCISE

1. What is sustainable development?
2. Discuss some of the government's strategies to alleviate poverty in Nigeria.

3.2 The need for reorientation

However, with the philosophical principle of 'lesser evil' that is, making a choice between two 'evils', the principle of sustainable development may be embraced in the face of global warming. The beauty and sustainability of the earth planet can be reclaimed but this will require among others, an active commitment to peace and sustainable development by all. This in turn must involve not only measures directed to preventing war but also those needed to build peace. This will include public as well as private commitment to invest heavily in environmental protection and restoration as well as poverty eradication of the poor. Such investments require time, effort and money and radical change of extravagant life style of the very rich citizens of the planet be in the industrialized or developing countries. Accordingly, there is need for moral value reorientation (ethics) too. The orientation needs to be human-centred but open to more tolerant and diversity of other beings in their own rights. As Holgate affirms,

All life on earth is part of one great interdependent system, which influences and depends on the non-living components of the planet - rocks, soils, waters and air. Disturbing one part of this biosphere can affect the whole... It is a matter of ethics as well as practicality to manage development so that it does not threaten the survival of other species or eliminate their habitats (Holgate. 1996: 120ff).

If human beings see themselves as part of the life process rather than its most celebrated rulers, the result may well be a kinder, more tolerant and gentler way of living not only with the planet but also with each other. After all, human beings are only stewards of the creator (Oyeshola, 1995: 71). Secondly, humanity must begin to reconsider basic questions about common benefit versus individual rights. Individuals may be able to afford two cars or more, for example, or a large family as many as possible but can the planet afford such a life style and 'wastage'? Currently, there is the dynamics of global development that is in confrontation with the rigidities of the prevailing system and the danger of global warming. This poses the political quarry that has been raised again and again namely the question of societal transformation. Such a transformation will embrace all human groups and persons and lead to a situation where no one will be in need of the basic necessities of life and decent environment will be embraced. Unfortunately there is no developmental paradigm so far that takes care of the wellbeing of all citizens of the planet both born and of future generations as well as non human beings.

In the absence of a credible developmental paradigm that has the wellbeing of all in mind, it is therefore necessary that the precautionary principle of Rio Conference (Earth Summit of 1992) and its challenges are the alternative as a guide to the future direction of policy and politics of

sustainable development. It may be true that there is no categorical scientific proof that the earth has surpassed its carrying capacity nonetheless the fact remains that the population of the world is increasing rapidly without expansion of corresponding resources to maintain its basic need without the risk of further degradation for instance, genetic engineering in respect of food security. It is therefore, fundamental to rethink the context and philosophy of international politics within the framework of humane international cooperation and sharing equitably of the earth resources if the earth will not become a dead planet sooner than later. This reorientation will necessarily mean that both the industrialized and developing countries must change their life style radically. Global warming and the catastrophic nature of its consequences (The possibility of the collapse of the eco-system could not be ruled out) marked it out among the contemporary global problems. Unlike other problems like arms race, citizenship and identity, ethnic cleansing, refugees and poverty which are often localized and whose answers may be delayed, global warming is a problem that involves every nation and searching for an answer to it cannot be delayed. To do otherwise may imply signing death warrant of the earth!

The history of the world with its science and technological revolution has shown that reality can change radically for good if the determination and commitment are present. Governments, organisation civil society, religious bodies and individuals can make the difference; they can promote new ethics of collaboration, mental reorientation and conversion of heart and mind that allows the world to be seen as belonging to all in concept and in fact in need of conservation and protection.

SELF ASSESSMENT EXERCISE

Questions for understanding and further reflection

1. How do the Western industrialized lifestyles and their politics endanger the planet?
2. What is the role of good governance and accountability in the pursuit of decent environment in Nigeria?
3. In the light of the consequences of climate change and principle of social justice, how feasible is it for Nigerian Government to establish a limit to which an individual may possess by way of property in the country?

3.3 Challenges of Sustainable Development for Nigeria

A new beginning is necessary at the international level given the further deterioration in the state of the global environment since the 1992 United Nations Conference on Environment and Development (UNCED) in Rio de Janeiro. New problems have arisen and the most critical remain unsolved. The World Summit on Sustainable Development (WSSD) held in September 2002 in Johannesburg provided the international community with yet another opportunity to set the future direction of international environment and development policy that could help to

eliminate critical shortcomings in current environment and development policy (German Advisory Council on Global Change (WBGU, 2001 'b')).

Globally, a great deal has been achieved in the field of global environmental policymaking since 1992 and in particular the international conventions and treaties dealing with a range of global environmental problems such as climate change, loss of biodiversity, desertification, and the impacts of persistent organic pollutants on the environment. However, new ideas and inspiration are needed to close gaps and loopholes of the conventions and treaties so that they can be taken to a further stage rather than paying undue attention to detailed negotiations on the previous conventions as important as they are.

In this respect, it is necessary to identify those global trends that the international community has addressed inadequately or not at all. For instance, the 'new ozone holes' which need to be classified as potentially very critical, 'early warning' which can be managed at least to a certain extent by means of timely adjustment and or 'early breaking' preventive measures. It may be affirmed that global climate change is one of the main challenges to global community, responsibility for which must be primarily attributed to the world's energy systems. Similarly, climate protection policies are doomed to failure unless countries rethink and restructure their energy production and consumption systems, including transport among others. Consequently, there is a need to develop energy strategy aimed at restructuring global energy systems; a global strategy of this kind has been sorely absent until now. In addition, the mutual interaction of climate change, on the one hand, and the scarcity and pollution of freshwater resources, on the other, will lead to critical and foreseeable impacts on health that the international community has failed to address in any adequate form. There are grounds for concern that climate change will foster the spread of infectious diseases in many regions, thus weakening the economic basis of the affected economies. Complex problems of this kind can only be combated with appropriately networked policymaking structures. Existing institutions are too fragmented and under-funded to meet these challenges effectively. Appeal and recommendations of WBGU in this context must be given primary consideration. These recommendations are

1. Organisational reform of the international environmental policy system,
2. mechanisms for adequate and reliable funding of international environmental policy,
3. developing a global energy strategy aimed at intensifying climate protection efforts,
4. strengthening the Biodiversity Convention, e.g. by establishing a world-wide operating system of protected areas and advancing the development of a Protocol on Forests,
5. adopting a global freshwater strategy, and
6. Convening a world summit to address the implications of global environmental changes for infectious diseases.

The industrialized countries bear a special responsibility to support the adoption and implementation of international treaties in these fields. The non-sustainable patterns of production and consumption in the industrialized countries have direct impacts on developing countries, in particular. In the long term, efficient global sustainability policies are also in the self-interest of the industrialized countries as the impact of their actions is not restrained by other countries. The indirect consequences of global change, such as increasing numbers of environmental refugees or environmental conflicts, have implications for the national interests of industrialized countries. For instance, they must contribute to peacemaking and peace building of conflict regions of the world since the conflict situations are a threat to global peace. In the light of the above in general and sustainable development in particular, what challenges are before Nigeria? Response to this question is sectorally treated for the purpose of clarity and systematization. Six areas come under challenges of sustainable development namely environmental law regimes, declaration of and principles of environmental conferences, industrial and technological development, socio-economic (World Trade Organization), effective disaster management mechanism and space science technology and weakness of the existing institutional architecture.

SELF ASSESSMENT EXERCISE

1. What are the major characteristics of the Master plan of NDDC?
2. In what ways could the Minister of Environment be empowered so that his/her statutory power is exercised in order to create a significant and desirable effect of a clean environment particularly in the extractive industry?

4.0 Conclusion

All life on earth is part of one great interdependent system, which influences and depends on the non-living components of the planet - rocks, soils, waters and air. Disturbing one part of this biosphere can affect the whole... It is a matter of ethics as well as practicality to manage development so that it does not threaten the survival of other species or eliminate their habitats (Holgate. 1996: 120ff).

5.0 Summary

Globally, a great deal has been achieved in the field of global environmental policymaking since 1992 and in particular the international conventions and treaties dealing with a range of global environmental problems such as climate change, loss of biodiversity, desertification, and the impacts of persistent organic pollutants on the environment. However, new ideas and inspiration are needed to close gaps and loopholes of the conventions and treaties so that they can be taken to a further stage rather than paying undue attention to detailed negotiations on the previous conventions as important as they are.

6.0 Tutor Marked Assignment

1. What are the major characteristics of the Master plan of NDDC?
2. In what ways could the Minister of Environment be empowered so that his/her statutory power is exercised in order to create a significant and desirable effect of a clean environment particularly in the extractive industry?

7.0 References/Further Readings

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UNIT 3 CHALLENGES OF THE PRINCIPLES OF SUSTAINABLE DEVELOPMENT

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- 1.0 Introduction
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- 3.0 Main Content
 - 3.1 Challenges of the Principles of Sustainable Development
 - 3.2 The Practice
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- 5.0 Summary
- 6.0 Tutor-Marked Assignment
- 7.0 References/Further Readings

1.0 Introduction

Attention was focused on the type of Sustainable Development in Practice in Nigeria in the last unit. We also examined the reasons why we need Reorientation and the Challenges of Sustainable Development for Nigeria.

2.0 Objectives

At the end of the unit the student should be able to

- a. Examine challenges of the Principles of Sustainable Development
- b. State exactly what the current Practice of Sustainable Development is.
- c. Energy

3.0 Main Content

3.1 Challenges of the principles of sustainable development

Nigeria was classified by the World Bank (World Bank, 2001) as a low-income country and placed among the 20 poorest countries in the world with a Gross Domestic Product (GDP) of US\$41.2 billion and a Gross national Product (GNP) per capital of about US\$260 (Adeleke, 2003: 3). That notwithstanding, Nigeria is signatory to many international environmental agreements such as Biodiversity, Climate change, Hazardous wastes, Law of the Sea, Marine Dumping, Marine Life Conservation, Nuclear Test Ban, Ozone Layer Protection and Wetlands Conservation. These treaties and agreements are integral parts of sustainable development. Accordingly, Nigeria is equally challenged like any other major player in international system.

Nigeria wants to develop like the rest of developed world. It wants to be one of the twentieth economies of the world by the year 2020. Accordingly, it adopted the Vision 2010 Report in 1998. In the report, Nigeria set itself a vision that by the year 2010 it should become the leading

nation in Africa exerting great influence on the world economy. The Vision 2010 projects an annual Gross Domestic Product (GDP) growth of 7 percent between 1997 and 2000, accelerating to 9 percent 2001-2005, and then 10 percent in 2006-2010. Manufacturing sector is projected to grow at 29 percent in the late 1990s slowing to 14.8 percent a year between 2001 and 2010. Furthermore, in an attempt to move Nigeria forward the government embarked on some policies. One of such policies is the Nigerian National Policy on Science and Technology. It has a life span of twenty five years but reviewable every five years: The basic philosophy of the policy is that Nigeria is committed to creating an independent, integrated and self-sustaining economy and the National Policy on Science and Technology must therefore be geared towards achieving the goal. The Policy is anchored on the basic philosophy already stated and the general guidelines that are expressed as follows

- a) Science and Technology shall form the basis for national development as well as a tool for influencing Nigerians' thinking and working processes.
- b) The policies for Science and Technology shall take due cognizance of the economic situation and the cultural milieu in the country.
- c) Provision shall be made for adequate development and scientific and technological manpower so as to ensure the development of the national capacity in Science and Technology, and provide the basis for efficient utilization of Nigeria's abundant natural resources.
- d) The socio-political system within the country shall reflect the prime position of Science and Technology with regard to national development.

Science is defined as objective knowledge about the nature, properties and behaviour of physical world (Research) while Technology is knowledge plus skill necessary to develop principles, procedures and processes that can be used to modify, manipulate and otherwise produce changes in specific features, and in the behaviour of the physical world to serve human social needs. It is technology which is applied to development. Accordingly, and in the context of Nigeria, National Policy on Science and Technology covers amongst others the principles, methods and measures taken to stimulate, create, organize and use scientific and technological potentials for the purpose of achieving economic, social and cultural development.

Sectoral utilization of the National Policy on Science and Technology covers the following areas namely, Agriculture, Health, Industry and Commerce, Energy, Information and technology, Environment, Defence and Security, Minerals and Mining, Water Resources, Transportation, Population and Demography, Land, Housing, Urban and Regional Development, Communications, Space Science and Technology.

From the above, the idea of development and sustainable development for that matter is assumedly socio-economic, political, science and technology biased. Arguably, the concept of development is a complex one. Its difficulty is not only in terms of definition/description but also

in terms of measurement. Is development to be measured by Gross National Product per capita (GNP), by the GDP or the Physical Quality of Life Index (PQLI)? If GDP were to be the measurement as a mean average, it does not say anything about the distribution of total income of its country. Thus, some countries with very unequal income distribution may have the higher GNPs per head in the world. And neither does it capture the totality of the development situation of the country. GDP states the value of the economic output of a country by calculating monetary value of resources mainly of labour, land and capital earned by national members of a society. The profit made by Multinational Enterprises (MNEs) as well as the remittances of immigrants in the country where they operate and live respectively are not generally included in the calculation of GDP. Similarly, the conditions for an effective PQLI may be difficult to establish. Do the usual three indicators of life expectancy, infant mortality at age one and adult literacy disclose everything about development? Even if the yardstick of democracy, level of corruption and technological advancement is used, the concept of development may not be fully explained.

The truth is that people are both the means and the end of economic development as rightly affirmed by the International community as it states that ‘Human beings are at the center of concerns for sustainable development. They are entitled to a healthy and productive life in harmony with nature (Principle 1 of Stockholm Conference of 1972). Development and more importantly sustainable development cannot be merely economic development or GNP as important as that may be. Development must necessarily include the conditions of reality that allow every person to take his or her destiny into their own hands. This will include economic, social, political, psychological, environmental, cultural, religious and international dimensions. Development includes the conditions of reality that allow people to take their destiny into their own hands individually and collectively (Oyeshola, 1989:18). Better still, development can be defined in terms of the ability and capability of a people

To procure sufficient natural resources to meet the basic needs of all in a self reliant manner; adjust to adverse environmental changes with minimal disastrous consequences; have a stable, democratic and independent system of government: and maintain harmony within the human community and between human and the rest of the environment (WCC, 2001: 2).

Understanding development holistically is not unconnected with the move to integrate the discussion on population, sharing of human resources and women concern during the conferences on population. For instance, population control initiatives admit that the world today is facing crisis of ‘carrying capacity’ and that there is a treat to the delicate balance between the earth’s ability to adequately sustain its population and also absorb its waste. According to the United Nations Population Fund (UNPF), the world population crossed the 6 billion mark in 1999 where as it took all of human history before 1804 to reach a world population of 1 billion people. It is estimated that the world population is increasing by 1 billion people every 13 years.

UNPF forecasts that the world population will reach the 10 billion mark by 2017 and that the Least Developing Countries record the fastest population increase (Rourke and Boyer, 2004:399)

If development strategy is people centred, then community participation must be evident. A project that People/community cannot identify with will eventually collapse. Many of the abandoned 'elephant' projects like Federal Housing Project during the decades of 1970 and 1990 in Nigeria are testimonies. Also, development plans must have an inbuilt human framework for analyzing and evaluating their performance. A comprehensive set of social and human indicators needs to be developed to monitor plan progress that must necessarily yield to development understood as a dynamism that leads people to self-fulfillment and creative partnership in the use of a nation's productive forces and its full human potential. It is an authentic development that must be sustained even though sustainable development is the concept that is in vogue.

3.2 The Practice: In Nigerian context, what is sustainable development in practice? Here are some symbolic indications. As a demonstration of government's sensitivity to women's rights and the recognition of gender inequality, the National Commission for Women was up-graded to the Ministry of Women's Affairs. The new ministry organized a Post - Beijing National Workshop held in April 1996 in Maiduguri. Similarly, technical as well as financial assistance were given by the Ministry of Environment to demonstrate its support for Women's efforts in raising the level of environmental awareness in Nigeria. In order to tap women's knowledge on issue related to the environment, the ministry was responsible for strengthening the Women Environment Desk within its structure. The Agency, by then FEPA was very active in the National Preparatory Committee that was set-up by the National Commission for Women to prepare the National position for the Fourth World conference on Women held in Beijing, China in 1995.

In the context of integration of environment and other development needs, Nigeria is making some appreciable progress but the goal in view is still in the future. Some of the pockets of the manifestation of integration of environment and other development needs include the following

- Mangrove restoration by the Chevron Texaco Initiative in the Niger Delta, environmentally friendly alternative technologies of the Friends of the Earth initiative where alternative renewable energy source is the focus,
- Hadejia-Nguru wetlands (Nigeria's famous RAMSAR site) of Jigawa and Yobe states on the plains of Jama're and Hadejia rivers and the sustainable environmental practices of the Nestle (standard packaging with minimum impact on the environment),
- corporate social responsibility by donating to the Red Cross in respect of HIV/AIDS) are in place (Adeleke, 2003).

Any person who vitiates the atmosphere in any place so as to make it noxious to the health of persons in general dwelling or carrying out business in the neighbourhood, or passing along a public way or does any act which is, and which he knows or has reason to believe to be likely to spread the infection of any disease dangerous to life, whether human or animal; is guilty of a misdemeanor, and is liable to imprisonment for six months.

Definitely, gas flaring is not exempted but ironically there is no compliance and the effectiveness of the enforcement of the criminal law. The Government has not demonstrated the political will to promulgate an unequivocal and outright ban on gas flaring for obvious reasons. There has remained the categorical imperative that gives primacy to maximum technical and economic recovery of crude oil. As a result all gas flaring can continue without any interruption (Okorodudu-Fubara, 1998: 407). It is an open secret that were Nigerian authorities sufficiently committed to save the environment, the multinational oil companies would have been compelled to cease gas flaring as they have done in their home countries and some other petroleum yielding countries where they operate (Chukwuemerie, 2005: 196). In specific terms but in the context of petroleum industry in Nigeria, neither the Petroleum Act nor the Petroleum (Drilling and Production) Regulations provides any penalties for the breach of the Regulations (Eke, 2006: 176). This was the case before the end of November 2007.

From January 1, 2008, government will impose fines on operators that still flare gas from December 31, 2008, the oilfields of defaulting operators will be *shut*. (*The Nation*, Tuesday, December 4, 2007:1) At the public hearing about gas flaring at the National Assembly where the above policy statement was declared, the oil industry executives present said that they doubted whether the Department of Petroleum Resources (DPR) would be able to enforce the measures, especially as shutting down over 100 oil-fields would be a disaster for Nigeria's public finances (*The Nation*, Tuesday, December 4, 2007:2)

However, it may be argued that the Minister of Petroleum after all is vested with the power of suspension of operations or withdrawal of licence in appropriate cases. The fact remains that these powers of the Minister are hardly ever exercised or even (exercisable) in practical circumstances. The former Nigerian National Petroleum Corporation (NNPC), acting on behalf of the Federal Government, was either the owner or substantial part-owner of most of the oil and gas operations in the country. Exercise of such powers by the Minister in the circumstances would be tantamount to the Minister sanctioning himself or herself. Besides, he has to contend with the huge investment that usually goes into upstream activities of the oil company operations vis-à-vis the national economic interests and the key foreign investment that are involved. It may also be stated that Regulation 25 of the Petroleum (Drilling and Production) Regulations for instance enjoins the licensee or lessee to 'adopt all practical precautions' to prevent pollution, and where nevertheless such pollution occurs, to 'take prompt steps to control and if possible, end it'. Apart from the regulation being merely suggestive and not compulsive, it does not define

what such licensee or lessee ought in fact to do either to prevent or control such pollution (Eke, 2006: 176).

If Nigeria is very serious about environmental pollution it has to rethink the establishment and developmental consolidation of industry like iron and steel which has been identified as the backbone of modern industrial economy. These industries and economic programmes need regular and stable energy supply which is not adequate now. At the moment, Nigeria may not be advised to jettison the conventional source of industrial energy which is mainly fossil fuel but it must begin to enforce drastic reduction of gas flaring and look for alternative sources of energy which could be in the long run adopted in industrialization process and also not having negative effects on environmental integrity. The UNEP Executive Director, Achim Steiner has counseled Africa that investment on huge hydropower dams and fossil fuel plants were simply 'more of the same'. He recommended the examples of Brazil and Germany who plan an energy future around renewable and alternative sources (*The Nation*, Friday, March 23, 2007: 39). Already, the process of using sugarcane and cassava for fuel in Nigeria is almost complete. This is on the right direction. Similarly, WBGU has raised the same concern in respect of alternative sources of energy and added an element of urgency and caution as it stated that

3.3 Energy is a key theme for future world development. Worldwide energy demand is mounting rapidly, particularly in the developing and newly industrializing countries, which seek to catch up with the level of economic development attained by industrialized countries. The great challenge now is to meet this energy demand in a sustainable manner. However, sustainable development will be inconceivable without a deep-seated *reconfiguration* of worldwide energy systems. One goal in this context must be to protect natural life-support systems and, in particular, to prevent dangerous anthropogenic perturbation of the climate system. If the present path continues and rising energy demand is met mainly from fossil sources, this would trigger intolerable global climate change with high consequential costs, and would thus also jeopardize economic development. A second necessary goal is to eradicate energy poverty in developing countries in order that these countries can make use of development opportunities. It is essential that 2.4 billion people gain access to modern forms of energy so that they can shake off the yoke of energy poverty.

To attain these two goals, energy systems need to be turned towards sustainability. To that end, efficiency must be improved at all levels of the energy system, and fossil energy sources must be substituted by renewable ones. The potential of renewable energies, above all solar energy, is almost unlimited and can be harnessed sustainably. Energy system transformation towards sustainability is thus the first step into the solar age. However, without rapid and resolute international policy support, the expansion of renewable energy sources will not be able to develop the necessary dynamics in time (WBGU, 2004).

However, it is unfortunate that Nigeria has signed and committed to nuclear power electricity generation (*The Nation*). Thursday February 8, 2007: 1). Arguably, on the long run the nuclear power electricity generation will be cheaper and more reliable. However, a question may be raised. Has Nigeria got the necessary technological know-how to handle nuclear disaster like Chernobyl's of 1986 in Russia that would eventually occur in the country due to human error or 'Nigerian factor'? Can Nigeria guarantee constant availability of the critical ingredient of nuclear power generation uranium? Even if it is possible, is uranium not a finite resource?

In Nigeria's situation, industrial waste includes residues of power stations, burning coal, oil, gas, domestic waste and unwanted by-products of industries in urban centres. Especially in Lagos, electronic waste (e-waste) is, usually burnt. In the process, the wastes release toxic chemicals into the environment and when it rains those metals and chemicals are washed into surface water, rivers, streams and ground waters. Some of this find themselves in cultivable lands and 'People who cultivate crops on the refuse dumps as well as livestock which roam about would be taking dangerous chemicals (*The News*, February 12, 2007: 51). Disposing of industrial waste is leading to, in some cases, nightmare menacing on the country's physical environment. Some of the industrial wastes are often dumped on the ground, thrown into the stream/lakes or disposed in a deep hole underground (*The News*, February 12, 2007: 51). The ultimate sufferer of these methods of dealing with industrial waste is the physical environment that becomes the home of 'radioactivity properties like flammability, explosively, corrosively, toxicity, mutagenicity and antimetabolistic properties like allergicity and infectivity' (*Tell* 1 October, 2007:25). Apart from the contamination of soil and agricultural land by many of these wastes, the poisoning effect of lead is particularly significant. *Tell* rightly observed that Environmentalists say the toxicity of lead could lead to encephalopathy, renal and hematological problems.

4.0 Conclusion

If Nigeria is very serious about environmental pollution it has to rethink the establishment and developmental consolidation of industry like iron and steel which has been identified as the backbone of modern industrial economy. These industries and economic programmes need regular and stable energy supply which is not adequate now. At the moment, Nigeria may not be advised to jettison the conventional source of industrial energy which is mainly fossil fuel but it must begin to enforce drastic reduction of gas flaring and look for alternative sources of energy which could be in the long run adopted in industrialization process and also not having negative effects on environmental integrity.

5.0 Summary

The World Health Organization had confirmed the effects of lead intake to include abortion, infant mortality, malformation of fetus, genetic mutilation, retarded growth, intoxication, depression of respiration and chromosomal aberrations. Improperly managed solid waste emits

offensive odor, thus polluting the air and favour the breeding of rodents, mosquitoes and other harmful reptiles (*Tell*, 1 October, 2007: 25)

6.0 Tutor Marked Assinghment

1. What are the major characteristics of the Master plan of NDDC?
2. In what ways could the Minister of Environment be empowered so that his/her statutory power is exercised in order to create a significant and desirable effect of a clean environment particularly in the extractive industry?

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UNIT4 SUSTAINABILITY IN NIGERIA

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 - 3.2 National Emergency Management Agency (NEMA)
 - 3.3 National Space Research and Development Agency (NSRDA)
- 4.0 Conclusion
- 5.0 Summary
- 6.0 Tutor-Marked Assignment
- 7.0 References/Further Readings

1.0 Introduction

In the last unit, we treated the challenges of the Principles of Sustainable Development and examined what the actual Practice is in Nigeria. We finally went into details of what Energy is to sustainable development. In this unit, we shall critically analyse Industrialization, National Emergency Management Agency (NEMA) and National Space Research and Development Agency (NSRDA)

2.0 Objectives

At the end of this unit, the students should be able to

- a. Establish a correlation between Industrialization and sustainable development especially in Nigeria
- b. To critically analyse the role of National Emergency Management Agency (NEMA)
- c. Explain in detail what you understand by National Space Research and Development Agency (NSRDA)

3.0 Main Content

3.1 Industrialisation: In the context of industrialization, some of the concerns of the Principles and Declaration of Rio Conference, the Montreal and Kyoto Protocols (Climate Change Convention), an offshoot of the Conference and the Basel Convention of 1989 that came into force in 1992 are yet to be met. To combat the global electronic-waste (e-waste) problem, the Basel Convention was established in 1998. It has its aims at preventing the transportation and dumping of hazardous waste from developed countries of the North to developing ones of the South. This it does through capacity building and training of personnel, scientists and government officials in the art of environmentally sound management of hazardous waste. Though a substantial amount of the trade in e-waste is illegal under the Basel Convention some

countries including the US still export the waste to the developing countries including Nigeria. Unfortunately, Nigeria falls easy victim because of poverty, ignorance and lack of strict environmental laws. There is the need now for concerned citizens of the country to alert the nation and the government that while it is good to buy computers, the country should make sure that only serviceable ones come in. Promotion of the construction of treatment facilities for industrial effluents and development of appropriate technologies taking into account sound traditional and indigenous practices is still at its infancy. Similarly, introduction of the precautionary approach in industrial management with a focus on pollution minimization and prevention through the use of improved technologies, product and process change, pollution reduction at source, effluent reuse and recycling and recovery, treatment and environmentally safe disposal is yet to be the order of the day. The use of risk assessment and risk management in reaching decisions and ensuring compliance with those decisions (especially in the extractive industries) and the promotion of the application of the best environmental practices at reasonable cost to avoid diffuse pollution (e.g. the use of ISO standards) are yet to be universally used and promoted in the country.

The importance of industry cannot be overemphasized. The key to economic recovery and transformation lies in manufacturing. Solid minerals are exhaustible resources and Nigeria can only begin to gain from World Trade Organization (WTO), an international trade system when it has something to offer to the world market in form of its manufacture goods. Textile industry is an important sector of Nigeria's economy. It used to employ many Nigerians before the advent of global economic liberation introduced especially through the instrumentality of WTO to which Nigeria is a member. Although the textile industry had its many problems like poor equipment, bad pricing, high cost of production and so on before Nigeria became a member of WTO but its membership has led to killing' of the industry. That notwithstanding, it is not advisable for Nigeria to withdraw its membership. Rather it should use the situation as a window of opportunity to challenge the inadequacies of the regime of WTO that make the developing countries in general and Nigeria in particular a dumping ground for the textile products of the North, China and the Asian axis that can be produced locally with ease. The resultant effect of the present WTO's policy on Nigeria textile industry is the closure of many textile industries leading to loss of jobs and creating more poverty (Udoji, 2006: 138).

International trade system has not received a critical examination that it deserves in Nigeria especially in relation to environment degradation. It is not sufficient to invite investors into the country as Nigeria does without adequate knowledge of the impact the activities of such investors will have on the environment. This is necessary because trade can be responsible for damage to the environment in a number of ways, for example, through the transport of hazardous wastes, trade in endangered species, the international exchange of pesticides, fake and expired drugs, and deforestation. Trade's impact cannot be restricted to the point of transmission. It is also directly related to a system of accumulation, production, distribution and exchange.

Movements of production from one location to another, coupled with changing consumption patterns affect the management of natural resources and the environment. Traded products may themselves increase pollution and environmental costs. The trade in pesticides, fertilizers and chemicals for example, can lead to environmental deterioration in the importing country. If different environmental standards are applied in production and use of same products, for example motor vehicles, trade could result in deteriorating standards in importing countries.

Trade policy can be a vehicle through which threats to the natural environment can be curbed. Solutions to environmental problems may require international agreement covering trade in certain goods. Moreover, the need to harmonise national regulations ensures that a potential role exists for trade policies in respect of global environmental problems such as ozone layer depletion and greenhouse gas abatement. The threat of the imposition of trade sanctions could be used to try to ensure compliance with an international treaty. There is no international environmental treaty that includes provisions for the imposition of economic sanctions in the event of non-compliance by any signatory. This exclusion is not too surprising given the problem of organizing sanctions in a decentralized international legal system.

Similarly, in Nigeria tourism is being promoted without spelling out its implication on the environment. Succinctly, the former Governor of Cross River State at the Special 25th Anniversary Lecture of the Institute of Ecology and Environmental Studies, Obafemi Awolowo University, Ile-Ife put it as

Essentially, tourism is mainly a natural resource- based industry and when not well managed from an environmental perspective, affects air, land and water and can damage natural systems. Negative impacts from tourism occur when the level of visitor use is greater than the environment's ability to cope with this use within the acceptable limits of change. Undoubtedly, uncontrolled conventional tourism poses potential threats to many natural areas around the world. It can put enormous pressure on an area and lead to impacts such as soil erosion, increased pollution, discharges into the sea, natural habitat loss, increased pressure on endangered species and even heightened vulnerability to forest fires.

He went on to state that ...take, for instance, the problem of water resources. Fresh water is one of the world's most critical natural resources. The tourism industry generally overuses water resources for hotels, swimming pools, golf courses and personal use, a factor which leads to water shortages, degradation and the generation of greater volume of waste water. In many dryer parts of the tropics, for instance, the issue of water scarcity is of particular concern. Because of the hot climate and the tendency of tourists to consume more water when on holidays than they do at homes, the amount used can be a problem. The problem has been further exacerbated with the increased popularity of golf tourism' in recent years. It is estimated that an average golf course in the tropics needs about 1500kg of chemical fertilizers, pesticides and herbicides per

year and uses as much water as 60,000 rural villages'! That can be a huge strain on any developing society.

Furthermore he went on to state that ...the situation can be just as bad with sewage and solid waste pollution. It is estimated that tourism can cause the same forms of pollution as other industries: air emissions, noise, solid waste and littering, releases of sewage, oil and chemicals and even visual pollution. Consider, for instance, the pollution brought about by air transport alone. It is believed, as indicated earlier, that the number of international air passengers worldwide, rose from 88 million in 1972 to 344 million in 1994. One consequence of this increase in air transport is that tourism now accounts for more than 60 percent of air travel and is therefore responsible for an important share of air emissions. One study estimates that a single trans-Atlantic return flight emits half the carbon- dioxide emissions produced by all other sources (lighting, heating, car use, etc) consumed by an averages person yearly! And as current studies are showing, transport emission and emissions from energy production are believed to be linked to acid rain, global warming and photochemical pollution (Duke, 2007: 5).

Finally, there is a provision of mandatory environmental impact assessment before any major industrial projects are carried out. Also there is delineation of appropriate remedial measures and a strengthened control of new industrial installations. However, precautionary and polluter pay principles are yet to be evidently operative in the country's developmental objectives and programmes. In addition, Strategic Environmental Assessment (SEA) as dominating principle over all developmental policies is yet to be in place.

Furthermore, the role of education as a strategy for sustainable development cannot be overemphasized. Firstly, education must be within reach of all. Secondly, the type of education envisaged here must be characterized by morality if it is the sense of right and wrong in human behaviour. Morality is the consciousness that certain ways of behavior and certain kinds of actions are wrong and should be avoided while some other ways of behaviour and other kinds of actions are right and should be encouraged (Omoregbe 1993: 104-105). In other words, it may be stated that it is the awareness that good should be done and encouraged while evil should be avoided. This awareness is natural to human persons because it is the part of rationality that distinguishes them from other created beings on the planet Earth. Consequently, they are moral by nature and a subject to moral law. Furthermore, human beings are not only by nature rational, they are also by nature social. They cannot but live responsibly in society and morality is the foundation of the society which expresses itself in moral principles for instance, a social contract to observe these moral principles. By inference, international community is equally moral and subject to moral law. In the context, intercourse within and outside the country without morality in the contemporary world will be incomplete. Morality implies education therefore education ought to be an integral part of the subject matter of International Relations.

Education here will mean going to its Latin root ‘educare’ which means ‘to bring up’, to ear’. This implies molding, forming, reforming or improving the person’s personality. It presupposes that something worthwhile (something good) is being imparted to somebody in a morally accepted manner. This distinguishes it from indoctrination, manipulation or propaganda. Education has, as its primary aim not just to prepare a person for a particular kind of job or professions but the development of personality which involves the development of both the intellect and the will. There is a distinction between education and training. To train a person is to impart to him a certain skill or expertise through a process of instruction. A person can be trained as a medical doctor, as an engineer, or as a lawyer. This has to do with the intellect not with the will. Whereas education has to do with both the intellect and the will. In other words, It Involves both intellect as well as moral formation. It has to do with the whole person, his personality and not just his intellect (Omorogbe 2003:384). Any formation of a person which does not include moral formation is no education. Such a person has, at best, gone through a process of training aimed at acquiring a specific skill or expertise but he has not been educated. Such a process does not qualify as education. This is why a person may be an intellectual giant but a moral dwarf. Individuals who go through a process of training and acquire certain skills are not educated in the true sense of the word. Such uneducated ‘intellectual giants’ are not very useful to society. ‘Naked greed, dishonesty, stealing government or public money, ability to become a millionaire within the shortest possible time when in government’ make up the characteristics of uneducated intellectual giants (Omorogbe,2003: 380). Therefore, all forms of developmental programmes in and for Nigeria must necessarily qualify as education.

3.2 National Emergency Management Agency (NEMA)

From the Amended Act 50 of 1999 Constitution, NEMA was saddled with ‘formulation of Policy’ on all activities relating to disaster management in Nigeria and ‘coordination’ of the plans and programmes for efficient and effective response to disaster at national level’ (*Vanguard*, October 30, 2005).

NEMA has come up with the follow provisions in respect of policy formulation and practice. These are the establishment of National Disaster Response Plan (NDRP), Guidelines for the Call of the Armed Forces in Aid to Civil Authority, National Policy on Disaster Management (This came as a resolution to the committee set up by NEMA to take care of the gaps existing between the Agency and the three tiers of government as against the Act that established the Agency) and National Space and Meteorological Policy. Activities of NEMA include the establishment of State Emergency Management (SEMA and NEMA zonal offices). They were established to enable the Agency coordinate operational activities effectively (*The Tide* online 3). In conjunction with other agencies NEMA organized a workshop on the need to sensitize users on satellites aided search and rescue system. The workshop invited all stakeholders including all airlines operating in the country (*Vanguard*, October 30, 2005: 2).

3.3 National Space Research and Development Agency (NASRDA)

NASRDA is not left out in the disaster management process. This Agency was established on 5th of May, 1999. Its mandate includes the following;

- Coordinating all research projects on space science and technology;
- Developing indigenous competence in the design and building of appropriate hardware and software in space technology as an essential tool for its socio-economic development and the enhancement of the quality of life of the people of its country;
- Coordination of disaster early warning system.
- Capacity building

In order to carry out its mandate, NASRDA has established centres to develop the relevant fields and coordinate various programmes which include

- Centre for Basic Space Science, Nsuka
- National Centre for Remote Sensing, Jos
- Centre for Satellite Technology Development. Abuja
- Centre for Geodesy and Geodynamics, Toro
- Centre for Space Transport and Propulsion, Epe
- Centre for Space Science and Technology Education (CEOS News Letter No. 24: 7).

Will Nigeria maintain and develop the institutions already in place by making available the required funds? What about the proactive measures needed to be put in place, establishment of early warning systems in all areas prone to hazards, pre-positioning telecom- equipment in strategic locations or areas known to be at risk, training and education on telecommunications technology for disaster management, legislation permitting effective use of telecom equipment including transborder use in the event of an emergency? How will Nigeria sustain the fight against corruption and effectively address national character in its national political life that often promotes mediocrity of some of its functionaries in public life? How will the shortcomings be contained if not eliminated? Will there be a continuation of policy with subsequent administrations judging by the political experience of the country where every new government discards the policies of the previous administration? It was reported (even though there was an element of exaggeration. It was 15 Engineers that were involved in SSTL, UK Nigeria Sat- 1 and 50 involved in NIGCOMSAT) that of 25 (15) engineers recruited in Nigeria and trained by the National Space Research and Development Agency (NASDRA) at Surrey in United Kingdom, only one remains at the agency right now. The engineers who were recruited and trained as part of capacity-building towards the local fabrication of Nigeria's subsequent satellites were said to have all gone back to England for lack of conducive environment and facility to work (*The Nation* Thursday, July 5, 2007: 34).

Those issues raised above are part of the serious challenges that are facing the country in the area of space, science, technology and environmental degradation in the country.

In the past, international politics of dominant national interest was tolerated when the issues of military security and economic growth were considered the problem of the time. With technological advancement, consequences of globalization and the threat of climate change the contemporary scenario has changed. Therefore, a new paradigm incorporating a collaborative approach must be fashioned if the International Community is truly committed to sustainable development and the preservation and nurturing of the planet. Otherwise, commitment to sustainable development both for the present and future generations will be a mirage.

Furthermore but arguably, the world today is facing crisis of 'carrying capacity'. There is a threat to the delicate balance between the earth's ability to adequately sustain its population and absorb its waste. According to the United Nations Population Fund (UNPF), the world population crossed the 6 billion mark in 1999 whereas it took all of human history before 1804 to reach a world population of 1 billion people. It is estimated that the world population is increasing by 1 billion people every 13 years. UNPF forecasts that the world population will reach the 10 billion mark by 2017 and that the Least Developing Countries record the fastest population increase (Rourke and Boyer, 2004: 399)

The realization of the possibility of a 'dead' planet, dramatic population increase in a world of limited resources, unsustainable economic practices in many places and aggressive market competition geared towards profit at all cost at the expense of common good should be compelling enough for the international community to change its politics that is essentially nation state national interest centred. Politics of collaboration must be promoted and urgently too, if sustainable development will be maintained. Many of the international proposals of the past, for a fairer global economy of all countries, from the New International Economic Order, Brandt Report, Brundtland Report through South Commission, Human Development Report and Agenda 21 of Rio Conference to the Commission on Global Governance that were glossed over or largely ignored by Western leaders (Alexander, 1996: 175) must be revisited with the aim of responsibly answering the issues they raise. This will imply creating a commitment to equality and diversity that recognizes the intrinsic value of each human being wherever he or she is born (Article 1 of UN Charter of Human Rights) as well as the intrinsic value of non living beings (Oyeshola, 1995: 69). William (1993) rightly counseled when he stated that

Policies to promote economic growth and a rational exploitation of the world's resources consistent with future as well as present needs will be unsuccessful unless the gains from trade are equitably distributed. In the contemporary global economy, this necessitates a reversal in the terms of trade of countries exporting primary commodities, the cessations of protectionist policies by developed countries against the exports of developing countries, and the promotion of successful export diversification strategies by Third World governments. The combined effect of poverty and an unequal trading system perpetuates unsustainable development, environmental degradation and poverty (William, 1993: 93).

Nigeria as a stakeholder in the preservation and promotion of clean environment for all, and upholding the principle of sustainable development has an indispensable challenge in this enterprise of collaborative environmental diplomacy if its vision to become one of the twentieth economies in the world by the year 2020 will be realizable. In its praxis, Africa centred foreign policy objective needs to be upheld and rigorously pursued. This is because since its independence in 1960, it has as its objective the broad aim of which is to pursue an independent course in Nigeria's external relations by avoiding entering a defence pact with any foreign power. It must keep its independence and upholds and insists on social justice in nation-state politics. Furthermore, promotion of cooperative diplomacy is indispensable. As the saying goes, charity begins at home. In general Nigeria's domestic politics must be collaborative, transparent and sustainable development compatible. War against illegal drugs and corruption especially in government must be sustained, rule of law upheld, security improved considerably and food security guaranteed. Provision of infrastructure is an ingredient for the development of welfare of responsible citizenry. Morality and education as discussed under 'Challenges of the Principles of Sustainable Development' above must be within reach of all. This type of education is capable of changing perceptions and molding character for sustainable society.

3.4 Sustainable Development Goals

On 25 September 2015, the 193 countries of the UN General Assembly adopted the 2030 Development Agenda titled *Transforming our world: the 2030 Agenda for Sustainable Development*. Following the adoption, UN agencies, under the umbrella of the United Nations Development Group, decided to support a campaign by several independent entities, among them corporate institutions and International Organizations. The Campaign, known as Project Everyone, introduced the term *Global Goals* and is intended to help communicate the agreed Sustainable Development Goals to a wider constituency. However the decision to support what is an independent campaign, without the approval of the member states, has met resistance from several sections of civil society and governments, who accuse the UNDG of ignoring the most important communication aspect of the agreement: Sustainability. There are also concerns that Global Goals is a term used to refer to several other processes that are not related to the United Nations.

The Official Agenda for Sustainable Development adopted on 25 September 2015 has 92 paragraphs, with the main paragraph (51) outlining the 17 Sustainable Development Goals and its associated 169 targets. This included the following goals:

1. **No Poverty** - End poverty in all its forms everywhere Targets.
 - Extreme poverty has been cut by more than half since 1990- however, more than 1 in 5 people live on less than \$1.25 a day
 - Poverty is more than lack of income or resources- it includes lack of basic services, such as education, hunger, social discrimination and exclusion, and lack of participation in decision making.

- Gender inequality plays a large role in the perpetuation of poverty and its risks; They then face potentially life-threatening risks from early pregnancy, and often lost hopes for an education and a better income
2. **Zero Hunger** - End hunger, achieve food security and improved nutrition and promote sustainable agriculture Targets.
 - Globally, 1 in 9 people are undernourished, the vast majority of these people live in developing countries
 - Agriculture is the single largest employer in the world, providing livelihoods for 40 per cent of today's global population. It is the largest source of income and jobs for poor rural households. Women comprise on average 43 per cent of the agricultural labor force in developing countries, and over 50 per cent in parts of Asia and Africa, yet they only own 20% of the land
 - Poor nutrition causes nearly half (45 per cent) of deaths in children under five – 3.1 million children each year.
 3. **Good Health and Well-being** - Ensure healthy lives and promote well-being for all at all ages Targets.
 - Significant strides have been made in increasing life expectancy and reducing some of the common killers associated with child and maternal mortality, and major progress has been made on increasing access to clean water and sanitation, reducing malaria, tuberculosis, polio and the spread of HIV/AIDS.
 - However, only half of women in developing countries have received the health care they need, and the need for family planning is increasing exponentially, while the need met is growing slowly- more than 225 million women have an unmet need for contraception
 - An important target is to substantially reduce the number of deaths and illnesses from pollution-related diseases.
 4. **Quality Education** - Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all Targets.
 - Major progress has been made for education access, specifically at the primary school level, for both boys and girls. However, access does not always mean quality of education, or completion of primary school. Currently, 103 million youth worldwide still lack basic literacy skills, and more than 60 per cent of them are women
 - Target 1 "By 2030, ensure that all girls and boys complete free, equitable and quality primary and secondary education leading to relevant and Goal-4 effective learning outcomes"- shows the commitment to nondiscriminatory education outcomes

5. **Gender Equality** - Achieve gender equality and empower all women and girls Targets.
 - Providing women and girls with equal access to education, health care, decent work, and representation in political and economic decision-making processes will fuel sustainable economies and benefit societies and humanity at large
 - While a record 143 countries guaranteed equality between men and women in their Constitutions by 2014, another 52 had not taken this step. In many nations, gender discrimination is still woven through legal and social norms
 - Though goal 5 is the gender equality stand-alone goal- the SDG's can only be successful if women are completely integrated into each and every goal
6. **Clean Water and Sanitation** - Ensure availability and sustainable management of water and sanitation for all Targets.
7. **Affordable and Clean Energy** - Ensure access to affordable, reliable, sustainable and clean energy for all Targets.
8. **Decent Work and Economic Growth** - Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all Targets.
9. **Industry, Innovation and Infrastructure** - Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation Targets.
10. **Reduced Inequalities** - Reduce income inequality within and among countries Targets
11. **Sustainable Cities and Communities** - Make cities and human settlements inclusive, safe, resilient and sustainable Targets.
12. **Responsible Consumption and Production** - Ensure sustainable consumption and production patterns Targets.
13. **Climate Action** - Take urgent action to combat climate change and its impacts by regulating emissions and promoting developments in renewable energy Targets.
14. **Life Below Water** - Conserve and sustainably use the oceans, seas and marine resources for sustainable development Targets.
15. **Life on Land** - Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss Targets.
16. **Peace, Justice and Strong Institutions** - Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels Targets.
17. **Partnerships for the Goals** - Strengthen the means of implementation and revitalize the global partnership for sustainable development Targets.

As of August 2015, there were 169 proposed targets for these goals and 304 proposed indicators to show compliance.

(Source: https://en.wikipedia.org/wiki/Sustainable_Development_Goals visited 16-09-2016 03:45)

4.0 Conclusion

International trade system has not received a critical examination that it deserves in Nigeria especially in relation to environment degradation. It is not sufficient to invite investors into the country as Nigeria does without adequate knowledge of the impact the activities of such investors will have on the environment. This is necessary because trade can be responsible for damage to the environment in a number of ways, for example, through the transport of hazardous wastes, trade in endangered species, the international exchange of pesticides, fake and expired drugs, and deforestation. Trade's impact cannot be restricted to the point of transmission. It is also directly related to a system of accumulation, production, distribution and exchange.

The planet is a common heritage for all and whatever happens to it correspondingly affects all. Hence, climate change and environmental degradation now constitute a serious threat not only to humanity but also to the entire ecosystem. In the context of the North/South dialogue developing countries alleged that the West was primarily responsible for global warming and environmental degradation while the developed countries would pass the blame on the developing countries (Stockholm and Rio Conferences). The truth of the matter is that there is no particular sector of the global community that has not contributed to the problems of environmental abuse because all contribute to the emission of greenhouse gases that are responsible for global warming. Besides, flamboyant life style and unsustainable socio-economic practices of all particularly of the US contribute to environmental degradation. Unsustainable socio-economic practices of China are treading closely behind that of the US (*The Nation*, December 20, 2007:48: December 19, 2007: 48 and December 19, 2007: 13).

5.0 Summary

In the past, international politics of dominant national interest was tolerated when the issues of military security and economic growth were considered the problem of the time. With technological advancement, consequences of globalization and the threat of climate change the contemporary scenario has changed. Therefore, a new paradigm incorporating a collaborative approach must be fashioned if the International Community is truly committed to sustainable development and the preservation and nurturing of the planet. Otherwise, commitment to sustainable development both for the present and future generations will be a mirage.

6.0 Tutor-Marked Assignment

Questions for understanding and further reflection

1. As the local government chairperson of your state or the new Dean of Environment on your campus outline succinctly your programme of action to keep your local government area and campus respectively clean and environmentally friendly.
2. How and why are the UNEP and UNDP established? Can they justify their relevance to Nigeria's concern for sustainable development?

3. Evaluate the National Science and Technology Policy in the light of sustainable development programme of the country.
4. Even though space exploration is a very expensive project Nigeria has successfully launched SAT 1 and by the year 2008 SAT 11 would be in orbit. Can this space programme be justified in the light of poverty of many citizens of the country and globalization?
5. Nigeria may not be developed sustainably without moral regeneration of its citizens especially the politicians. Discuss.
6. A healthy environment is essential to the health and well-being of the planet and its inhabitants. Discuss.
7. Is it valid to state that the politics of national interest affected the outcome of the “Earth Summit 1” (Rio de Janeiro Conference of 1992)?
8. How do the entire Western industrialized lifestyle and the pursuit of ‘development’ by the developing countries endanger our planet in the context of climate change?
9. At the Millennium Summit in September 2002, world leaders adopted a set of Millennium Development Goals aimed at eradicating extreme poverty and hunger; achieving universal primary education; promoting gender equality and empowering women etc. through a set of measurable targets to be achieved by the year 2015. Critically discuss the journey so far.
10. UN is promoting democratic principles world-wide through its Human Rights Charter provisions. But in its organizational set-up, the use of veto is still allowed. For how long should the practice continue if the UN will be credible as an international organ for promoting common good of all?
11. What is the relevance of ‘Public Access to Information Act’ to the monitoring and enforcement of environmental rules in the land?
12. With emphasis on human factor and ‘Nigerian factor’, suggest ways that can improve the desirable cooperation for effective monitoring and enforcement of environmental laws in the country between Department of Petroleum Resources (DPR) and National Oil Spill Detection and Response Agency (NOSDRA).
13. Identify and justify five locations in Nigeria that can be adopted as global heritage sites of UNESCO.

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