COURSE GUIDE

ESM 342
ENVIRONMENTAL IMPACT ASSESSMENT AND AUDITING

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INTRODUCTION

ESM 342: Environmental Impact Assessment and Auditing is a two-credit unit course for Environmental Science and Resource Management. The course is broken into 8 modules and 29 study units.

At the end of this course, you are expected to be conversant with the following terms: environmental impact assessment; definition; environmental auditing; types of environmental audit, audit report, and the legislation. This course further provides insight on the audit processes and terms like the pre-audit preparation, main audit and post audit activities. In Environmental Impact Assessment (EIA), you will learn the processes involved in carrying out an EIA, the stakeholders involved and the challenges of EIA faced by various nations. Through this course, you will be equipped to identify key requirements when either an audit is to be carried out or an environmental impact assessment. It is noteworthy that an Environmental Audit cannot replace an EIA or vice-versa. EIA is carried out before a project is developed while an Environmental Audit is carried out on a developed project so as to monitor its progress and to maintain good activities.

The Course Guide, therefore, tells you briefly what the course: ESM342 is all about, the types of course materials to be used, what you are expected to know in each unit, and how to work through the course material. It suggests the general guidelines and also emphasises the need for self-assessment and tutor-marked assignments. There are also tutorial classes that are linked to this course and you are advised to attend.

WHAT YOU WILL LEARN IN THIS COURSE

The overall aim of this course, ESM 342, is to introduce you to the introduction of Environmental Impact Assessment and Environmental Auditing and the variables associated with them. During this course, you will be equipped with definitions of environmental auditing, environmental impact assessment- terminologies such as screening, scoping, mitigation as well as different levels of operation in the environmental systems. The role of the environmental auditing is important to monitor projects that have been developed and to seek ways of maintaining such systems through compliance with legislative requirements and national or international standards. In this course the importance of legislation concerning the various tools are emphasised.

For Environmental Impact Assessment, it is important to realise that there are mandatory projects that require an EIA and those that do not require an EIA. There are various steps in the EIA which ensures that

the project has little or no environmental impact on the land, water, air, soil, human beings, biodiversity etc. Finally, the course provides a brief presentation on qualities of a good environmental audit report and provides case study samples from various countries and companies.

COURSE AIM

This course aims to give you an in-depth understanding of environmental auditing and environmental impact assessment. It is hoped that the knowledge would equip you with the conceptual issues of Environmental Impact Assessment and Auditing and also provide practical examples through the case studies of Environmental Impact Assessment from other countries.

COURSE OBJECTIVES

Note that each unit has specific objectives. You should read them carefully before going through the unit. You may want to refer to them during your study of the unit to check on your progress. You should always look at the unit objectives after completing a unit. In this way, you can be sure that you have done what is required of you by the unit.

However, below are the overall objectives of this course. On successful completion of this course, you should be able to:

- define auditing and environmental auditing
- differentiate between the various types of auditing
- describe the stages of the audit process
- list the characteristics of a good audit report
- list the keys to a successful audit
- explain the challenges of carrying out Environmental Audit in Nigeria
- give an account of the laws concerning Environmental Audit and Environmental Impact Assessment in Nigeria
- describe the functions of FEPA in relation to Environmental Audit
- list the functions of FEPA in relation to environmental auditing
- enumerate the roles of NESREA as an environmental regulator
- explain functions of the International Standard Organisation in Environmental Auditing
- identify the shortcomings of Environmental Auditing in Nigeria
- identify the shortcomings of EIA in Nigeria
- compare the application of EIA in Nigeria with that of other developing nations.

WORKING THROUGH THIS COURSE

To complete this course, you are required to read the units, the recommended text books, and other relevant materials. Each unit contains some self-assessment exercises and tutor-marked assignments, and at some point in this course, you are required to submit the tutor-marked assignments. There is also a final examination at the end of this course. Stated below are the components of this course and what you have to do.

COURSE MATERIALS

The major components of the course material are:

1. Course Guide
2. Study Units
3. Text Books and References
4. Assignment File
5. Presentation Schedule

STUDY UNITS

There are 8 modules broken into 29 study units in this course. They are:

Module 1

Unit 1 Origin and Evolution of EIA
Unit 2 Definition of EIA
Unit 3 Current Status of EIA
Unit 4 EIA Legislation

Module 2

Unit 1 Purpose of EIA
Unit 2 Principle of EIA Administration and Practice
Unit 3 Elements of EIA Process
Unit 4 Cost and Benefit of EIA Process
Unit 5 Stakeholder in EIA Process

Module 3

Unit 1 EIA Process
Unit 2 EIA Process in Nigeria
Unit 3 Nigeria EIA National Procedural Guideline
Unit 4 EIA Review Process

Module 4

Unit 1 EIA Report
Unit 2 Typical Elements of an EIA Report
Unit 3 Review of EIA in Nigeria
Unit 4 Origin of EIA and the Spread throughout the World and Case Studies of EIA from Around the World
Unit 5 Case Studies of EIA Practice From Around the World

Module 5

Unit 1 Environmental Auditing
Unit 2 Environmental Audit Process
Unit 3 Legal Aspects and Practice of Environmental Auditing under Nigerian Law

Module 6

Unit 1 Environmental Audit Report (EAR)
Unit 2 Definition and Content of EAR
Unit 3 Preparing an EAR

Module 7

Unit 1 Overview of Environmental Policy
Unit 2 Overview of Environmental Compliance
Unit 3 Nigerian Environmental Policy/National Policy Guideline

Module 8

Unit 1 Environmental Governance
Unit 2 Models of Environmental Governance

TEXTBOOKS AND REFERENCES

These texts will be of immense benefit in this course:

- The Presidency Federal Environmental Protection Agency National Guidelines for Environmental Audit Decree 59, 1992 as amended Decree No.14 of 1999.
- European Industrial Gases Association (2005). Environmental Auditing Guide IGC Document 135/05/e, Revision of part of TN 515/95http://www.eiga.org
- 1990 Constitution of the Federal Republic of Nigeria
- Federal Environmental Protection Act of 1988

- Environmental Impact Assessment Act of 1992
- National Policy on the Environment of 1998
- Standards Organisation of Nigeria Act of 1971
- LASEPA Edict of 1996
- Agenda 21
- ISO 14001 Environmental Management Systems
- Effluent Limitations Regulations of 1991
- Pollution Abatement in Industries and Facilities Generating Wastes Regulations of 1991
- National Guidelines for Environmental Audit of 1999
- National Guidelines on Environmental Management Systems of 1999
- Environmental Guidelines and Standards for Petroleum Industry in Nigeria

ASSIGNMENT FILE

The assignment file will be given to you in due course. In this file, you will find all the details of the work you must submit to your tutor for marking. The marks you obtain for these assignments will count towards the final mark for the course. Altogether, there are 23 tutor-marked assignments for this course.

TUTOR-MARKED ASSIGNMENTS (TMAs)

You need to submit all the TMAs as provided in the ILMS in your portal. When you have completed each assignment, submit online and you can access your grades immediately before the deadline. If for any reason you cannot complete your assignment on time, contact your tutor before the assignment is due to discuss the possibility of extension. Extension will not be granted after the deadline, unless on exceptional cases.

FINAL EXAMINATION AND GRADING

The final examination for ESM 342 will be of 2 hours duration and have a value of 60% of the total course grade. The examination will consist of questions which reflect the self-assessment exercises and tutor-marked assignments that you have previously encountered. Furthermore, all areas of the course will be examined. It is also better to use the time between finishing the last unit and sitting for the examination, to revise the entire course. You might find it useful to review your TMAs and comment on them before the examination. The final examination covers information from all parts of the course.

PRESENTATION SCHEDULE

The presentation schedule included in this course guide provides you with important dates for completion of each tutor-marked assignment. You should therefore try to meet the deadlines.

ASSESSMENT

There are two aspects to the assessment of this course. First, there are tutor-marked assignments; and second, the written examination.

You are thus expected to apply knowledge, comprehension, information and problem solving gathered during the course. The tutor-marked assignments must be submitted to your tutor for formal assessment, in accordance to the deadline given. The work submitted will count for 30% of your total course mark.

At the end of the course, you will need to sit for a final written examination. This examination will account for 70% of your total score.

COURSE MARKING SCHEME

The following table includes the course marking scheme

COURSE MARKING SCHEDULE	
Assignment	**Marks**
Assignments 1 – 4	Four assignments, best three marks of the four counts 10% each of the 30% course marks.
End of course examination	70% of overall course marks
Total	**100% of course materials.**

HOW TO GET THE MOST FROM THIS COURSE

In distance learning, the study units replace the university lecturer. This is one of the huge advantages of distance learning mode; you can read and work through specially designed study materials at your own pace and at a time and place that suit you best. Think of it as reading from the teacher, the study guide tells you what to read, when to read and the relevant texts to consult. You are provided exercises at appropriate points, just as a lecturer might give you an in-class exercise.

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 the other units and the course as a whole. Next to this is

a set of learning objectives. These learning objectives are meant to guide your studies. 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 chances of passing the course.

The main body of the units also guides you through the required readings from other sources. This will usually be either from a set book or from other sources.

Self-assessment exercises are provided throughout the unit, to aid personal studies and answers are provided at the end of the unit. Working through these self -tests will help you to achieve the objectives of the unit and also prepare you for tutor-marked assignments and examinations. You should attempt each self- test as you encounter them in the units.

The following are practical strategies for working through this course.

1. Read the Course Guide thoroughly.
2. Organise a study schedule. Refer to the course overview for more details. Note the time you are expected to spend on each unit and how the assignment relates to the units. Important details, e.g. details of your tutorials and the date of the first day of the semester are available. You need to gather together all these information in one place such as a diary, a wall chart calendar or an organiser. Whatever method you choose, you should decide on and write in your own dates for working on each unit.
3. Once you have created your own study schedule, do everything you can to stick to it. The major reason that students fail is that they get behind with their course works. If you get into difficulties with your schedule, please let your tutor know before it is too late for help.
4. Turn to unit 1 and read the introduction and the objectives for the unit.
5. Assemble the study materials. Information about what you need for a unit is given in the table of content at the beginning of each unit. You will almost always need both the study unit you are working on and one of the materials recommended for further readings, on your desk at the same time.
6. Work through the unit, the content of the unit itself has been arranged to provide a sequence for you to follow. As you work through the unit, you will be encouraged to read from your set books.
7. Keep in mind that you will learn a lot by doing all your assignments carefully. They have been designed to help you meet the objectives of the course and will help you pass the examination.

8. Review the objectives of each study unit to confirm that you have achieved them. If you are not certain about any of the objectives, review the study material and consult your tutor.
9. 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 pace your study so that you can keep yourself on schedule.
10. When you have submitted an assignment to your tutor for marking, do not wait for its return before starting on the next unit. Keep to your schedule. When the assignment is returned, pay particular attention to your tutor's comments, both on the tutor-marked assignment form and also written on the assignment. Consult you tutor as soon as possible if you have any questions or problems.
11. 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 this Course Guide).

FACILITATORS, TUTORS AND TUTORIALS

There are 8 hours of tutorial provided in support of this course. You will be notified of the dates, time and location 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, keep a close watch on your progress and on any difficulties you might encounter and provide assistance to you during the course. You must mail your tutor-marked assignment to your tutor well before the due date. At least two working days are required for this purpose. They will be marked by your tutor and returned to you as soon as possible.

Do not hesitate to contact your tutor by telephone, e-mail or discussion board if you need help. The following might be circumstances in which you would find help necessary: contact your tutor if you:

- do not understand any part of the study units or the assigned readings
- have difficulty with the self tests or assessment exercises
- have questions or problems with an assignment, with your tutor's comments on an assignment or with the grading of an assignment.

You should try your best to attend the tutorials. This is the only chance to have face to face contact with your tutor and ask questions which are answered instantly. You can raise any problem encountered in the course of your study. To gain the maximum benefit from the course

tutorials, prepare a question list before attending them. You will learn a lot from participating in discussion actively.

SUMMARY

EMS 342: Environmental Impact Assessment and Auditing is designed to acquaint you with the environmental impact assessment, definition; environmental auditing; types of environmental audit, audit report, and the legislation. This course further provides insight on the audit processes and terms like the pre-audit preparation, main audit and post audit activities. In Environmental Impact Assessment (EIA), students will learn the processes involved in carrying out an EIA, the stakeholders involved and the challenges of EIA faced by various nations. Through this course, students will be equipped to identify key requirements when either an audit is to be carried out or an environmental impact assessment. It is noteworthy that an Environmental Audit cannot replace an EIA or vice-versa. EIA is carried out before a project is developed while an Environmental Audit is carried out on a developed project so as to monitor its progress and to maintain good activities. Upon completion of this course you should be able to apply the knowledge to assess and edit your environment. You will be well equipped to proffer answers or pragmatic solutions to such questions like:

- define auditing and environmental auditing
- describe the stages of the audit process
- list the characteristics of a good audit report
- explain the challenges of carrying out Environmental Audit in Nigeria
- give an account of the laws concerning Environmental Audit and Environmental Impact Assessment in Nigeria
- describe the functions of FEPA in relation to Environmental Audit
- list the functions of FEPA in relation to environmental auditing
- identify the shortcomings of Environmental Auditing in Nigeria
- identify the shortcomings of EIA in Nigeria
- compare the application of EIA in Nigeria with other developing nations.

The above lists of questions are just few among many and they are to guide and stimulate you to properly understand course materials. Do not limit yourself to the course materials consult relevant books, journals and periodicals and internet, interact with experts in the field of environmental assessment and auditing and group discussions or on one on one basis.

I wish you a rewarding endeavour.

MAIN COURSE

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MODULE 1

UNIT 1 ORIGIN AND EVOLUTION OF EIA

CONTENTS

1.0 INTRODUCTION

During the decade of the 1950s and 1960s, it became increasingly clear that many industrial and development projects were producing unforeseen and undesirable environmental problems. By the late 1960s, citizen groups had made public the problem of pollution. Hence, the 'ecology' and 'environment' become commonplace in the print and electronic media. On 1st January 1970, the United States of America had the distinction of becoming the first country in the world to adopt legislation requiring Environmental Impact Assessment on major projects. The National Environmental Policy Act (NEPA) of 1969 was adopted to ensure balanced decision-making. Following the pioneering effort of the USA, the growth of EIA legislation has been quite phenomenal.

2.0 OBJECTIVES

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

- explain the origin of EIA
- identify countries that have incorporated EIA into National legislation.

3.0 MAIN CONTENT

3.1 Origin and Evolution of EIA

Historically, the decades following World War II were periods of unprecedented economic development and environmental change. The rapid creation of jobs, housing, transportation, and energy systems were accompanied by widespread negative environmental transformations including air and water pollution, destruction of ecosystems, the conversion of farmlands and major redevelopment of historic urban centers. These changes were graphically brought into homes each evening by the new medium of television.

The evolution of Environmental Impact Assessment (EIA) can be divided into four overlapping phases:

i **Introduction and Early Development** (1970-1975) – The mandate and foundations of EIA was established in the USA; then adopted by a few other countries such as Australia, Canada, and New Zealand; the basic concept, procedure and methodology still apply.

ii **Increasing scope and sophistication (mid ’70s to early ’80s)** – More advanced techniques (e.g. risk assessment); guidance on process implementation (e.g. screening and scoping); social impacts considered; public inquiries and reviews which drive innovations in leading countries. The take up of Environmental Impact Assessment was still limited but includes developing countries such as China, Thailand and the Philippines.

iii **Process strengthening and integration (early ‘80’s to early ’90s)** – There was the review of EIA practice and experience; the scientific and institutional frameworks of EIA was updated; there was the coordination of EIA with other processes, such as project appraisal, land use and planning; ecosystem-level changes and cumulative effects begin to be addressed; attention was given to monitoring and other follow-up mechanisms. Many more countries adopted EIA; the European Community and the World Bank respectively established supra-national and international lending requirements.

iv **Strategic and sustainability orientation (early ’90s to date)**: EIA aspects was enshrined in international agreements; there was a marked increase in international training, capacity building and networking activities; development of strategic environmental assessment (SEA) of policies and plans; inclusion of sustainability concepts and criteria in EIA and SEA practice; EIA

was now applied in all the OECD countries and large number of developing and transitional countries.

The emergent environmental movement of the 1960s played a key role in governments enacting substantive new environmental laws. Typically, each law addressed a specific problem. For example, the **U.S. Clean Air Act** and **Clean Water Act** were designed to regulate pollution by setting specific allowable concentration limits on lists of specific toxic chemicals in air, water, and on land. Other laws focused on such issues as wetlands, endangered species, and historic preservation. These regulatory approaches were highly effective—but necessarily quite narrow in scope. In contrast, a fundamental concept of environmental understanding and stewardship is the need for an integrated holistic approach to knowledge building and decision making.

The **U.S. National Environmental Policy Act (NEPA) of 1969** was the first legislation to provide a robust framework for allowing all recognised environmental concerns to be addressed simultaneously. Of special note was the work of **Lynton Caldwell** who was a seminal driver of United States environmental policy and legislation. He was one of the authors of NEPA. He wrote the Draft Resolution on a National Policy for the Environment that provided the theoretical foundations of NEPA. NEPA was designed to complement, not supersede, other laws and programmes. It created the EIA process as a means to integrate the generation and dissemination of environmental information, and foster collaboration among the diverse set of public and private actors and stakeholders which characterise major, environmentally controversial decisions. Since its enactment, many international organisations—for example, the European Community, other sovereign countries, provinces or states and local governments—have passed their own versions of Environmental Impact Assessment legislation.

1. The first comprehensive legislation for EIA was enacted in 1970 in the **United States of America** by the National Environmental Policy Act (NEPA).
2. **Canada** adopted legislation in 1973, **Netherlands** in 1981, and **Japan** in 1984.
3. In **Colombia** EIA was first introduced in the 1970s, but, in 1993 the Ministry of Environment was created including a new law on EIA (Decree 1753/1994).
4. **Australia** also introduced EIA regulations in the 1970s with state policy in 1972 and Federal Environmental Law in 1974.
5. **Spain** may have implemented European Union (EU) Regulations on EIA; it was reported in 1994 as having had the lowest per capita number of EIA reports in Europe.
6. In **Nigeria,** EIA was introduced in 1992.

7. In **Costa Rica, the** law on EIA was not introduced until 1995 when an Environmental Law was created.
8. In the **Bahamas** EIA comes under the Environmental Planning and Protection Act 2000. EIA is overseen by the Bahamas Environment Science and Technology (BEST) Commission.

4.0 CONCLUSION

In this unit, you have learned about the origin and evolution of EIA and the factor that catalyses the introduction of EIA. This knowledge will facilitate the understanding of the subsequent study units in this course.

5.0 SUMMARY

Since the passage of the US National Environmental Policy Act (NEPA) 1969 which incorporated a requirement for assessing the environmental impact of 'major federal action significantly affecting the quality of human environment', the concept of environmental impact has spread throughout many countries.

6.0 TUTOR-MARKED ASSIGNMENT

1. List six countries that have passed EIA legislation.
2. Briefly describe the four overlapping phases of the evolution of Environmental Impact Assessment (EIA).
3. The U.S. National Environmental Policy Act (NEPA) of 1969 played a key role in Environmental management. Explain.

7.0 REFERENCES/FURTHER READING

Ahmad, Y. J. & Sammy, G. K. (1985). *Guidelines to Environmental Impact Assessment in Developing Countries.* London: Hodder and Stoughton.

Biswas, A. K. & Agarwala, S. B. C. (Eds). (1992). *Environmental Impact Assessment for Developing Countries.* Oxford: Butterworth-Heinemann.

Clark, B. D. (1999) "Capacity Building." In: J. Petts (Ed.). *Handbook of Environmental Impact Assessment.* Vol. 2. Oxford: Blackwell.

Hildebrand, S. G. & Cannon, J. B. (Eds). (1993). *Environmental Analysis: The NEPA Experience.* Lewis: Boca Raton, FL.

Hollick, M. (1986). "Environmental Impact Assessment: An International Evaluation". *Environmental Management*, 10, 157-178.

UNIT 2 DEFINITION OF EIA

CONTENTS

1.0 INTRODUCTION

Simply defined, Environmental Impact Assessment (EIA) is a systematic process which aims to identify, predict and evaluate the environmental effects of proposed actions and projects. This process is applied prior to making major decisions and commitments for a development. Before carrying out an EIA most especially for a major development, appropriate social, economic, cultural, and ecological and health effects are to be considered as an integral part of EIA. Particular attention is given to preventing, mitigating and offsetting the significant adverse effects of proposed undertakings.

The main purpose underpinning Environmental Impact Assessment (EIA) is to plan, organise and coordinate the tasks necessary to carry out each phase of the EIA process and to produce a report that will effectively report the issues that will inform decision making. This decision will determine if a project should move forward or not with its development. It requires a lot of specialist and managerial skills. This concept has made EIA to be one of the most adopted environmental tools by governments and development institutions globally. The decision made therefore helps to minimise environmental costs and consequently sustains the environment for the future. EIA is widely applied, but has been primarily applied to development projects.

2.0 OBJECTIVES

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

- define Environmental Impact Assessment
- list the objectives of EIA
- explain the laws of EIA application in Nigeria.

3.0 MAIN CONTENT

3.1 Definition of EIA

Environmental Impact Assessment (EIA) is an instrument used to determine the impact of a development on the surrounding environment. These impacts are measured for air, land, water, humans and animals. EIA is carried out on projects which are categorised in the EIA law to involve large public investments in areas such as infrastructure and to ensure that environmental aspects are addressed and potential problems are foreseen at the appropriate stage of project design. EIA should be seen as an integral part of the planning process and initiated at the project's inception. The EIA identifies problem areas and outlines alternatives as well as mitigating approach to potential problems either during construction, operation or decommissioning phases of the development.

Various definitions have been given to EIA as follows:

- Environmental Impact Assessment is "the process of **identifying, predicting**, **evaluating** and **mitigating** the biological, technical, social, and other relevant effects of development proposals prior to major decisions being taken and commitments made" (IAIA, 1999).

- An **Environmental Impact Assessment** is an appraising of the possible positive or negative impacts that a proposed project may have on the environment, together consisting of the environmental, social and economic aspects**. (Wikipedia, 2011).**

- *Environmental Impact Assessment is, in its simplest form, a planning tool that is now generally regarded as an integral component of sound decision making. As a planning tool it has both information gathering and decision making component which provides the decision maker with an objective basis for granting or denying approval for a proposed development. - Justice La Forest, Friends of the Oldman v. Canada et al. (1991).*

- Environmental Impact Assessment (EIA) may be defined as a formal process used to predict the environmental consequences of any development project. EIA thus ensures that the potential problems are foreseen and addressed at an early stage in the projects planning and design. -Manu and Anshu, UEMRI-India.

- Environmental Impact Assessment is a planning tool that its main purpose is: "to give the environment its due place in the decision

making process by clearly evaluating the environmental consequences of a proposed activity before action is taken. The concept has ramifications in the long run for almost all development activities because sustainable development depends on protecting the natural resources which is the foundation for further development". -Alan Gilpin (1995) Environmental Impact Assessment - Cutting Edge for the twenty-first century, Cambridge University Press.

- A systematic process to identify, predict and evaluate the environmental effects of proposed actions and projects. This process is applied prior to major decisions and commitments being made. A broad definition of environment is adopted. Whenever necessary, social, cultural and health effects are considered as an integral part of EIA. Particular attention is given in EIA practice to preventing, mitigating and offsetting the significant adverse effects of proposed undertakings.
  - United Nations Environment Programme (UNEP, 2002).

- The process of identifying, predicting, evaluating and mitigating the biophysical, social and other relevant effects of development proposals prior to major decisions being taken and commitments made. -International Association for Impact Assessment (IAIA) and Institute of Environmental Assessment (IEA, 1999).

- A decision-making process, and a document that provides a systematic, reproducible, and interdisciplinary evaluation of the potential effects of a proposed action and its practical alternatives on the physical, biological, cultural and socio-economic attributes of a particular geographical area.
  - U.S. Environmental Protection Agency (US EPA, 1998),

A distinguishing feature of EIA, when compared to other environmental management tools, is that it is anticipatory. The anticipatory nature of EIA provides a means of ensuring that projects conform to standard levels of environmental performance and in doing so improve the sustainability of the proposals and enhance the probability of gaining consent. EIA can highlight when a project:

- is likely to result in irreversible environmental damage;
- causes adverse effects on valued ecosystem, landscapes and other environmental features;
- could result in adverse health effects on a community;
- provides an opportunity for environmental or social improvements.

3.2 Functions of EIA

- EIA is to ensure that decision makers consider the ensuing environmental impacts when deciding whether or not to go on with a project.
- It is an information provision tool which provides information to the key decision makers that will determine whether a project should be given consent. The environmental information is one of the many factors that will be taken into account, and it may or may not have a significant influence on the final decision.

EIA has two roles: **Legal and Educational roles**

a. The **legal role** of EIA is quite straight forward: It ensures that development projects such as a housing estate, a road/bridge or some similar construction projects have a minimal impact on the environment in their entire **'lifecycle' i.e. during design, construction, use, maintenance, and demolition.** Many countries now have laws stipulating that unless an EIA study is carried out (particularly for large infrastructure projects), permission for construction will not be granted by the local authority. But countries in Africa will possibly see EIA processes as a hindrance to development as environment is not yet a priority.

b. The **educational role** of EIA is equally important and probably a forerunner to the legal role. It aims to educate everyone involved i.e. professionals and non-professionals of the potential environmental impacts of any proposed activity to be carried out. We need to look at all our daily activities as they can potentially and cumulatively affect the environment. These include our daily choices, where delicate balances between financial and environmental considerations are made automatically – almost on impulse or without thinking.

The purposes of the Environmental Impact Assessment process are to:

- support the goals of environmental protection and sustainable development

- integrate environmental protection and economic decisions at the earliest stages of planning an activity

- predict environmental, social, economic, and cultural consequences of a proposed activity and to assess plans to

mitigate any adverse impacts resulting from the proposed activity, and

- provide for the involvement of the public, department of the Government and Government agencies in the review of the proposed activities.

Alberta Environmental Assessment and Enhancement Act (38)

4.0 CONCLUSION

Environmental Impact Assessment aims to minimise the negative impact of environmental activities as a result of projects. Some developments which require EIA, according to the law are referred to as "mandatory" and give the scope to which an EIA should be conducted. The EIA identifies problem areas and outlines alternatives as well as mitigating approach to potential problems either during construction, operation or decommissioning phases of the development.

5.0 SUMMARY

From this unit, you have learnt how to define an Environmental Impact Assessment in various ways. Furthermore you have an understanding of why an EIA needs to be carried out and the mandatory projects that require an EIA and the roles of EIA.

6.0 TUTOR-MARKED ASSIGNMENT

1. Define EIA according to International Association for Impact Assessment (IAIA) and Institute of Environmental Assessment (IEA), 1999.
2. In your own words, define environmental Impact Assessment.
3. Briefly distinguish between the two roles played by Environmental Impact Assessment.
4. List four aims of carrying out an Environmental Impact Assessment.

7.0 REFERENCES/FURTHER READING

Ahmad, Y. & Sammy, G. (1988). *Public Involvement: Guidelines to EIA in Developing Countries*. London: Hodder and Stoughton.

Asian Development Bank.(n.d.). "Environment Risk Assessment: Dealing with uncertainty in EIA." *Environment Paper No. 7.* Asian Development Bank, Manila, The Philippines.

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UNIT 3 IMPORTANCE OF ENVIRONMENTAL IMPACT ASSESSMENT

CONTENTS

1.0 INTRODUCTION

Reducing the burden of environmental impact is necessary if development is to become sustainable. These impacts are more complex, larger in scale and further reaching in their potential consequences than thirty years ago when EIA was first introduced. As a result, EIA has become of ever increasing importance as a tool for development decision-making.

2.0 OBJECTIVES

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

- list the importance of EIA
- relate the use of EIA to sustainable development.

3.0 MAIN CONTENT

3.1 Importance of EIA

Generally, the importance of EIA includes:

- **Better environmental planning and design of a proposal**: The carrying out of an EIA entails an analysis of alternatives in the design and location of projects. This can result in the selection of an improved technology, which lowers waste outputs or an environmentally optimum location for a project. A well-designed project can minimise risks and impacts on the environment and people, and thereby avoid associated costs of remedial treatment or compensation for damage.

- **Ensuring compliance with environmental standards**: Compliance with environmental standards reduces damage to the environment and disruption to communities. It also avoids the likelihood of penalties, fines and loss of trust and credibility.

- **Savings in capital and operating costs:** EIA can prevent undue costs of unanticipated developmental impacts to the environment. These impacts can escalate if environmental problems have not been considered from the start of proposal design and consequently require rectification. An anticipated and preventive approach is much cheaper than reactive treatment. Generally, changes which must be made late in the project cycle are the most expensive.

- **Reduced time and costs of approvals of development applications**: If all environmental concerns have been taken into account properly before submission for project approval, then it is unlikely that delays will occur as a result of decision-makers asking for additional information or alterations to mitigation measures and hence leading to an increased acceptance of the project by members of the public.

4.0 CONCLUSION

In this unit, we have so far had an understanding of the importance of EIA to growth and development and the implications for non-applying EIA as necessary.

5.0 SUMMARY

Environmental Impact Assessment is very important in various major development projects in order to minimise negative impacts on the environment.

6.0 TUTOR-MARKED ASSIGNMENT

1. Discuss the importance of EIA to the development of the society.
2. In your own words, briefly explain how the following statements are important for EIA:
   a. “Compliance with environmental standards”.
   b. “Savings in capital and operating costs”.

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UNIT 4 EIA LEGISLATION

CONTENTS

1.0 INTRODUCTION

Every EIA system is distinctive to some degree, reflecting the political system of a country. An EIA framework or components from one country (or international organisation) may not be readily imported into another, at least without significant adaptation.

2.0 OBJECTIVES

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

- explain the various EIA systems in place
- list out the legislation behind the various EIA systems
- describe the types of EIA legislation in place.

3.0 MAIN CONTENT

3.1 EIA Legislation

An environmental policy without appropriate legislation will be ineffective as, in turn, it will be legislation without enforcement. Economic and financial pressures will tend to dominate other concerns.

As is the case in many developing countries, legislation on environmental issues has been in existence for many years but is still being limited in application. For example, laws exist in most countries for the prevention of water pollution, the protection of cultural heritage, but, much of the existing legislation or regulations have not been considered "environmental". Recently, specific new environmental legislation has been enacted. This may be as a response to major

disasters, or as a result of government policies, public pressure or the general increased international awareness of the environmental dangers that now exist in the world. Relevant water and land laws as well as environmental protection legislation need to be understood with regards to the application in EIA.

New legislation may include a statutory requirement for an EIA to be done in a prescribed manner for specific development activities. When carrying out an EIA it is thus essential to be fully aware of the statutory requirements and the legal responsibilities of the concerned institutions. These are best given as an annex to the terms of reference. The legal requirements of the country must be satisfied. New laws can impose an enormous burden on the responsible agencies. The statutory requirement to carry out an EIA for specific projects will, for example, require expert staff to carry out the study, as well as officials to review the EIA and approve the project.

Laws designating what projects require EIA should, ideally, limit the statutory requirements to prevent EIA merely becoming a hurdle in the approval process. This will prevent large volumes of work being carried out for little purpose. Most legislation lists projects for which EIA is a discretionary requirement. The discretionary authority is usually the same body that approves an EIA. This arrangement allows limited resources to be allocated most effectively. However, it is essential that the discretionary authority is publicly accountable.

When external financial support is required it will also be necessary to satisfy the obligations of the donor organisation. Most major donors now require an EIA for projects relating to irrigation and drainage. The function of environmental legislation can vary. It is not easy to give a precise definition of when an EIA is needed. Therefore the statutory requirement for an EIA is not particularly well suited to law. On the other hand, many of the most important environmental hazards are easily addressed by law. For example, it is straightforward to set legal limits for pollution, flow levels and compensation; however, the problem is one of enforcement. It is normal for an EIA to assess the acceptability or severity of impacts in relation to legal limits and standards. However, it is important to highlight cases where existing standards are insufficiently stringent to prevent adverse impacts and to recommend acceptable standards. Enforcement problems can be partially addressed by changing institutional structures.

3.1.1 Two Main Types of Legal Provision Made for EIA

- General environmental or resource management law, which incorporates EIA requirements and procedure; and

- An EIA specific law, which can either be comprehensive or take the form of a framework or enabling statute.

3.1.2 Examples of EIA Legal Provision

- General environmental law (e.g. NEPA)
- Comprehensive resource management and planning law (e.g. New Zealand RMA)
- Enabling or framework EIA law (e.g. European Directive)
- Comprehensive or prescriptive EIA law (e.g. CAEE).

Selected examples of National and International EIA systems are given below to illustrate legal, policy and institutional arrangements that are of particular interest. These include the EIA components and responsibilities that apply to it.

i. ***US National Environmental Policy Act (NEPA, 1969).*** NEPA has been called the *Magna Carta* of EIA. It is both the founding legislation and still remains a pre-eminent statement of the spirit and purpose of EIA. The language in the purpose and declaratory sections of NEPA corresponds to the objectives and principles of sustainability, anticipating by more than 20 years what is contained in the Rio Declaration. Section 102 defines the procedural requirement for the preparation of an environmental impact statement (EIS), which have been subject to considerable reinterpretation by the courts.

ii. ***New Zealand Resource Management Act (RMA, 1991).*** Internationally, the Resource Management Act is significant as a sustainability benchmark, which was the result of a four-year process of law and government reform. The RMA is an omnibus law, which repealed or amended numerous statutes, regulations and orders and integrated their functions into one legal regime with a single purpose of 'promoting the sustainable management of natural and physical resources'. Section 5 of the Act defines sustainable management amongst other things as avoiding or remedying adverse environmental impacts.This imposes a biophysical test of sustainability on activities. The RMA does not define an EIA process (instead this is detailed in a good practice guide issued by the Ministry of Environment).

iii. ***Canadian Environmental Assessment Act (CEAA, 1993; proclaimed in 1995).*** CEAA is an example of a comprehensive EIA-specific law, passed in response to a series of legal challenges and rulings on the previous 1984 Guidelines Order. The legislation is of interest internationally because it entrenches

the principle of public participation, designates the responsibilities of federal authorities in regulations (the law list) and prescribes the requirements and procedure for undertaking different levels of EIA (initial screening report, comprehensive study and public review by either an independent panel or a mediator). The Act applies only to projects; a separate SEA process applies to policy and plans (established 1990; amended 1999).

iv. ***European Commission (EC) Directive on EIA (1985, amended 1997).*** The EIA Directive is a framework law that is binding upon member states. It sets out the principles and procedural requirements for EIA within the European Union, leaving it to the discretion of member states as to how these are transformed into national legislation. Recent amendments to the Directive have strengthened a number of key provisions, notably in relation to screening, consideration of alternatives, public consultation and decision-making. A proposed EC Directive on SEA of plans and programmes, currently under negotiation, is closely modelled on the EIA Directive. The requirements of the Directive are also reflected in the EIA legislation, policy and insti*tutional arrangements of countries beyond the boundaries of the* European Union, notably by applicant countries of Central and Eastern Europe (CEE) which are bringing their own EIA systems into line with them. In addition, the Directive can be expected to influence EIA law making in other CEE countries in transition and may have a more generalised influence as a relatively standardised, commonly accepted, minimum process for EIA.

4.0 CONCLUSION

EIA legislation varies from country to country. EIA is a discretionary requirement. The discretionary authority is usually the same body that approves an EIA.

5.0 SUMMARY

The unit gives an overview of how legislation EIA is practiced in other countries. It also sheds light into the legislation that are presently been used.

6.0 TUTOR-MARKED ASSIGNMENT

1. Give three examples of where EIA legislation is practiced.
2. Explain EIA legislation accordingly to Canadian Environmental Assessment Act.

7.0 REFERENCES/FURTHER READING

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MODULE 2

UNIT 1 PURPOSE OF EIA

CONTENTS

1.0 INTRODUCTION

The purpose of EIA is to provide information for decision-making on the environmental consequences of proposed actions and to promote environmentally sound and sustainable development through the identification of appropriate enhancement and mitigation measures.

2.0 OBJECTIVES

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

- explain the importance of EIA
- describe the purpose of EIA to sustainable development.

3.0 MAIN CONTENT

3.1 Purpose of EIA

The purpose of EIA can be divided into two categories. The **immediate purpose** of EIA is to inform the process of decision-making by identifying

the potentially significant environmental effects and risks of development proposals. The **ultimate (long term) purpose** of EIA is to promote sustainable development by ensuring that development proposals do not undermine critical resources and ecological functions or the well being, lifestyle and livelihood of the communities and peoples who depend on them.

Immediate purposes of EIA are to:

- improve the environmental design of the proposal
- ensure that resources are used appropriately and efficiently
- check the environmental acceptability of the proposals compared to the capacity of the site and the receiving environment
- identify appropriate measures for mitigating the potential impacts of the proposal; and
- facilitate informed decision making, including setting the environmental terms and conditions for implementing the proposal.

Long term purposes of EIA are to:

- protect human health and safety
- avoid irreversible changes and serious damage to the environment
- safeguard valued resources, natural areas and ecosystem components; and
- enhance the social aspects of the proposal.

4.0 CONCLUSION

In this unit, you have learned that EIA has two purposes: the immediate and long term and how each contributes to the management of the environment.

5.0 SUMMARY

The main purpose of EIA is to ensure that project impacts are reduced and the natural resources and ecosystem components are safeguarded.

6.0 TUTOR-MARKED ASSIGNMENT

1. List 5 long term purposes of EIA.
2. Explain why they are referred to as “long term”.
3. Mention two immediate purposes of EIA.

7.0 REFERENCES/FURTHER READING

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UNIT 2 PRINCIPLE OF EIA ADMINISTRATION AND PRACTICE

CONTENTS

1.0 INTRODUCTION

The purpose of EIA is to provide information for decision-making on the environmental consequences of proposed actions and to promote environmentally sound and sustainable development through the identification of appropriate enhancement and mitigation measures.

2.0 OBJECTIVES

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

- explain the administrative systems involved in EIA.

3.0 MAIN CONTENT

3.1 Principle of EIA Administration and Practice

EIA is one of a number of policy tools that is used to evaluate project proposals. It is also a relatively recent development when compared to the use of economic appraisal methods. A number of factors led to the introduction of EIA in the US National Environmental Policy Act (NEPA, 1969), including public concern about the quality of the environment and the increasing effects of new technologies and ever-larger development schemes. In addition, then available economic appraisal techniques, such as benefit cost analysis, did not take account of the environmental and social impacts of major projects.

The architects of NEPA intended the environmental impact statement to be the action-forcing mechanism, which would change the way government decisions were made in the USA. However, they probably did not foresee the extent to which EIA would be adopted internationally, culminating in Principle 17 of the Rio Declaration on Environment and Development. Today, EIA is applied in more than 100 countries, and by all development banks and most international aid agencies. EIA has also evolved significantly, driven by improvements in law, procedure and methodology.

However, it is most important to recognise that EIA cannot be regarded as a means of introducing an environmental "veto" power into administrative decision-making processes. Decisions that are unsatisfactory from an environmental point of view can still be made, but with full knowledge of the environmental consequences. The final decision about a proposal depends upon the likely severity of the adverse effects, balanced against other expected benefits.

In other words, EIA is an administrative process that identifies the potential environmental effects of undertaking a proposal, and presents these environmental effects alongside the other advantages and disadvantages of the proposal to the decision-makers. In the vast majority of EIA procedures this means that the outcome of the EIA process provides advice to the decision-makers it does not provide a final decision. So, by itself, the EIA procedures cannot be expected to stop a proposal although this is an outcome that some members of the general community and environment groups may expect.

In summary then:

- Only a very small fraction of proposals are halted, permanently or temporarily, as a direct result of EIA at the end of the review process;
- Pre-emption or early withdrawal of unsound proposals has been reported though it has proved difficult to document;
- EIA has been useful in developing support for and confirmation of positive environmentally sound proposals;
- The greening or environmental improvement of proposed activities is frequently seen; and particular indirect effects of EIA are both instrumental (such as where policy or institutional adjustments are made as a result of EIA experience) and educational where participation in the EIA process leads to positive changes in environmental attitudes and behaviours. With regards to positive changes in environmental attitudes and behaviour, this serves as a

considerable advantage to the general community in that more awareness is created as a result of the involvement of various stakeholders in the project proposal.

The limited power of EIA may seem to greatly reduce its value. However, as you have seen there are many benefits that come from using EIA.

4.0 CONCLUSION

Provisions related to EIA began appearing in developing countries' legislation during the 1970s, shortly after the United States enacted the first national EIA law-the National Environmental Protection Act of 1969. References to EIA were made in the environmental legislation of Malaysia, Ecuador and the Philippines. In addition, the Philippines promulgated supplemental legislation which set forth a more detailed EIA procedure.

5.0 SUMMARY

This unit discusses the principles of EIA administration and practice. It describes how EIA is practiced in various countries. EIA is an administrative process that identifies the potential environmental effects of undertaking a proposal, and presents these environmental effects alongside the other advantages and disadvantages of the proposal to the decision-makers.

6.0 TUTOR-MARKED ASSIGNMENT

1. Mention two principles of EIA practice.
2. Of what benefit is environmental awareness to the practice of EIA.

7.0 REFERENCES/FURTHER READING

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UNIT 3 ELEMENTS OF EIA PROCESS

CONTENTS

1.0 INTRODUCTION

The Environmental Impact Assessment (EIA) process is an interdisciplinary and multi-step procedure which ensures that environmental considerations are included in decisions regarding projects that may impact the environment. Simply defined, the EIA process helps to identify the possible environmental effects of a proposed activity and how those impacts can be mitigated. The EIA process includes the consideration of alternatives, screening, scoping, Baseline study, Prediction of impacts, mitigation measures, public consultation, submission of EIA report, monitoring and audit.

2.0 OBJECTIVES

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

- list and describe the various stages in the EIA process
- explain the meaning of each step to the overall success of the EIA process.

3.0 MAIN CONTENT

3.1 EIA Process

Figure 3.1 signifies the EIA process, illustrating the various steps in the process with the feedback loops that will generate changes to the project and re-evaluate environmental effects.

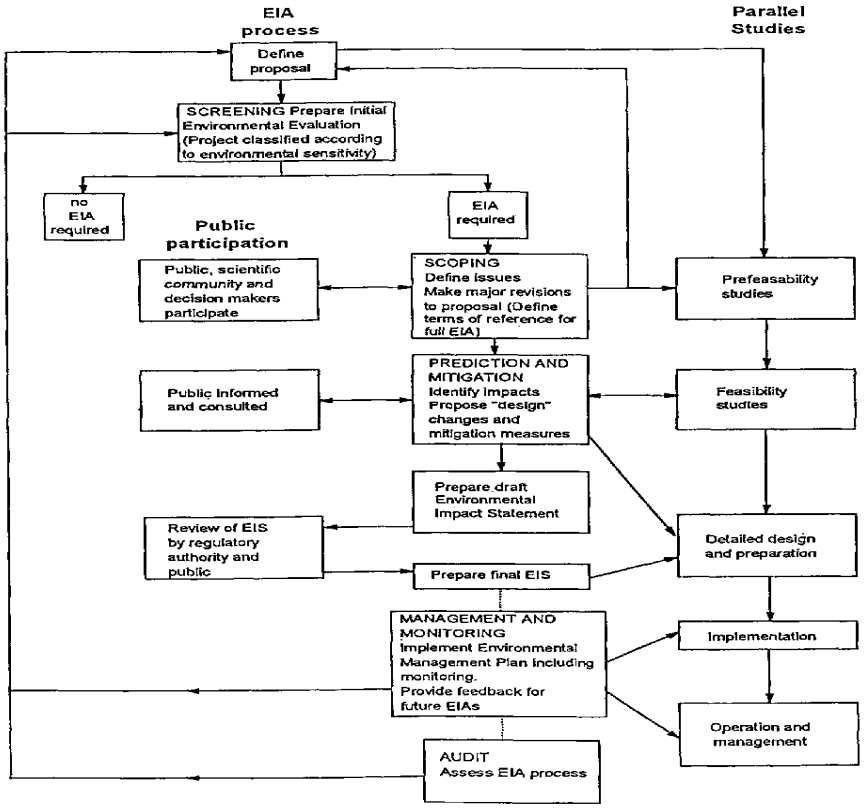

Fig. 3.1: EIA Process

General Principles and Procedures of EIA Legislation
The list below outlines the basic steps in the EIA process especially for a new development/project.

The EIA process, while not uniform from country to country, generally consists of a set of procedural steps culminating in a written impact assessment report that will inform the decision-maker whether to approve or reject a proposed project.

The EIA process involved the following stages:

1. **Identifying and Defining the Project or Activity:** Although this step may seem relatively simple, defining a “project” for the

purposes of an EIA can becomes complex and even controversial if for example the project is that of mining, which is large, has several phases, or involves multiple sites. The goal of this step is to define the project with enough specificity to accurately determine the zone of possible impacts and to include activities that are closely connected with the proposal so that the entire scope of environmental impacts is evaluated.

Consideration of Alternatives:
EIA should start early by providing an environmental input on the decisions on what is to be constructed and where it is to be located. This provides the best opportunity to avoid significant environmental effects by steering clear of environmentally sensitive locations and selecting designs and processes that have a reduced environmental impact.

2. **Screening:** The screening process determines whether a particular project warrants preparation of an EIA. The threshold requirements for an EIA varies from country to country – some laws provide a list of the types of activities or projects that will require an EIA, others require an EIA for any project that may have a significant impact on the environment (Category I – mandatory for EIA) or for projects that exceed a certain monetary value. Category II projects are those projects to which screening determines whether or not EIA is required and Category III projects are those which do not require an EIA. In some cases, particularly if the possible impacts of a project are not known, a preliminary environmental assessment will be prepared to determine whether the project warrants an EIA.

4. **Scoping:** The purpose of scoping is to identify projects that are likely to have significant environmental effects. The identification of key effects is usually undertaken using a combination of professional judgement and gathering of other people's opinions, particularly the determining authority and government agencies. Scoping is a stage, usually involving the public and other interested parties that identify the key environmental issues that should be addressed in an EIA. This step provides one of the first opportunities for members of the public, NGOs or other relevant stakeholders to learn about a proposed project and to voice their opinions.

The advantage of seeking a scoping opinion is that the developer will have some assurance that the issues being addressed by the EIA will be those that are considered important by the determining

authority when a decision is to be made on the project. To an extent, the scoping stage is carried out throughout the process, especially in cases when an unacceptable environmental effects may lead to the redesign of a project, hence the scope of the EIA will also change. Scoping may also reveal similar or connected activities that may be occurring in the vicinity of a project, or identify problems that need to be mitigated or that may cause the project to be rejected.

5. **Baseline Study:** A baseline study is required for project proposals where there is strong evidence that the proposed development will impact on the environment negatively. This study will establish the inventory of the site itself and can include ecological survey for biodiversity, pollution impacts e.g. ground noise disturbance, archaeological surveys to ascertain special sites of cultural heritage, etc. This study can vary from case to case depending on the project proposed for development. The baseline study is important as it may bring about project modification or non-approval of the project in view.

6. **Assessing Impacts**: The assessment of impacts is one of the main purposes of EIA because the environmental effects of a development proposal are predicted.

   The first element in assessing impacts is to understand the baseline conditions: In this case, it is important to know how the environment will be in the absence of the development and then to be able to predict how the conditions of the proposed development will be in the future. The baseline conditions will normally be established by consulting existing publications and undertake surveys on the site and the surrounding area. The scope of the survey would have been determined during the scoping stage of the EIA.

   The second element in assessing impacts is to predict the magnitude of the impact: The change in environmental conditions generated can be carried out using variety of techniques. Where possible, the changes should be expressed in qualitative terms. E.g. models could be used to predict changes in noise levels or air pollution. In some cases too, the techniques used too may rely on professional judgement and consultation with appropriate stakeholders. Not all environmental impacts can be predicted accurately and some account may need to be taken of the uncertainties associated with the predictions.

The third element in assessing impacts is to assess the significance of the impacts: At this stage, you determine if the impact predicted is considered to have significant environmental effect. The possible change noticed at the prediction of impacts will be compared with the standard for the environment. It is based on this measurement that the significance of the impacts is then used to communicate whether the impact is of minor, moderate or major significance.

7. **Mitigation:** When the significant effects are identified, the developer and the consultants may then decide to bring about elimination or reduction of the impacts in order for the development to be approved. The means of mitigation the environmental effects should follow a systematic process and comply with standard requirements.

8. **Public Consultation with Stakeholders:** Consultation with stakeholders is essential during the EIA process. Public consultation documents seek to communicate the anticipated impacts and proposed mitigations of the project's impact and disclosure report should describe the environmental, socioeconomic and community health effects of the project. Public participation may consist of open meetings, public hearings, and opportunities to provide written comments about a proposed project. However, there are no consistent rules for public participation among current EIA systems. Even within a particular country, there can be variations in the quality and extent of public involvement in the EIA process, depending on the type of project being considered, the communities that may be affected, or government agencies that are overseeing the project.

9. **Preparing Terms of Reference:** The Terms of Reference serves as a roadmap for EIA preparation and should ideally encompass the issues and impacts that have been identified during the scoping process. A draft Terms of Reference may be made available for public review and comment. Public review at this early stage of the process provides a key opportunity to ensure that the EIA is properly framed and will address issues of community concern.

10. **Preparing Draft EIA:** A draft EIA is prepared in accordance with the Terms of Reference and/ or the range of issues identified during the scoping process. The draft EIA must also meet the content requirements of the overarching EIA law or regulations. This step will ideally engage a wide range of technical specialists to evaluate

baseline conditions, predict the likely impacts of the project, and design mitigation measures.

11. **Review and Decision Making:** The findings of the EIA are written up in an environmental statement and submitted together with the application for consent for approval. The EIA regulator crosschecks the document for adequate information and evaluates it. The information is evaluated for its relevance to the decision to be made, reliability in terms of information provided and the interpretation of data and sufficient to form a sound basis for a decision. A decision to approve or reject a project is generally based on the final EIA report, but in some instances, an environmental clearance may be just one step in the mine permitting process. The decision may be accompanied by certain conditions that must be fulfilled, such as posting a reclamation bond or filing an Environmental Management Plan.

12. **Preparing the Final EIA report:** This step produces a final impact assessment report that addresses the viewpoints and comments of the parties that reviewed the draft EIA. These comments may prompt revisions or additions to the text of the draft EIA. In some cases, the final EIA report will contain an appendix summarising all of the comments received from the public and other interested parties and provide responses to those comments.

13. **Administrative or Judicial Review:** Depending on the jurisdiction, there may be opportunities for a party to seek administrative and/or judicial review of the final decision and the EIA process. An appeal may address procedural flaws in the EIA process, such as a failure to hold any required public hearings, or may point to substantive issues that the decision-maker failed to consider. A country's judicial review or administrative procedure act, or sometimes the EIA law itself, will usually identify the kinds of issues that can be raised in an appeal and the type of relief that may be granted.

14. **Project Implementation:** The project is at this stage given the go ahead for implementation provided all regulatory requirements have been met and permits are obtained. The development will proceed following the project decision following the exhaustion of administrative and/or judicial reviews.

15. **Monitoring:** Monitoring is an important part of project implementation. Monitoring serves three purposes:

- ensuring that required mitigation measures are being implemented
- evaluating whether mitigation measures are working effectively; and
- validating the accuracy of models or projections that were used during the impact assessment process.

4.0 CONCLUSION

There are two steps in EIA. The two stages are:
a). Preliminary Assessment: Carried out in the early stages of planning

b). Detailed Assessment: Carried out during project planning until the project plan is completed and are reported formally as an Environmental Statement.

5.0 SUMMARY

After identified the needs of the proposed project, EIA process required to implement screening to determine the necessary of EIA and how far each assessment should be. When these degrees are decided, the process proceeds into the step of scoping to identify environmental factors considered to be affected seriously, that will distilled up the key factors for assessment. In this stage, public consultation is required. At the same time, assess the expected effects, study the mitigation measure and make the EIA report. Based on this EIA report, hold the public consultation again, and then submit the final report to the decision-makers.

6.0 TUTOR-MARKED ASSIGNMENT

1. Mention four stages in the EIA process.
2. Briefly explain the following stages: project implementation, review process, public participation and monitoring.
3. *"Preparing the Final EIA report leads to the production of a final impact assessment report"*. Explain the statement.

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UNIT 4 COSTS AND BENEFITS OF EIA PROCESS

CONTENTS

1.0 INTRODUCTION

Although there are costs associated with undertaking an EIA, experience has shown that the potential savings over the life of a project can repay the investment many times over. The savings can be economic (e.g. identification of least cost alternative) as well as environmental (e.g. negative impact reduction, maintaining other resource use opportunities).

Generally, the earlier an EIA process is introduced in the project cycle, the greater the potential returns. When EIA is integrated into the project preparation phase, environmental design considerations can be introduced in the first place rather than the proposal having to be modified later.

2.0 OBJECTIVES

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

- distinguish between the cost and benefit of EIA process to a development
- list and explain the benefits of carrying out an EIA.

3.0 MAIN CONTENT

3.1 Costs

It can be difficult to determine the exact costs of an EIA because major projects typically require a large number of investigations and reports, often for closely related purposes (e.g. engineering feasibility studies of hydrology and surface materials). The World Bank notes that the cost of preparing an EIA rarely exceeds one per cent of the project costs and this percentage can be reduced further if local personnel were used to do most of the work (Reference). For Bank projects, the relative cost of an EIA typically ranges from only 0.06 per cent to 0.10 per cent of total project costs. The total cost of an EIA might range from a few thousand dollars for a very small project, to over a million dollars for a large and complex project, which has a significant environmental impact and requires extensive data collection and analysis.

3.2 Benefits

The benefits of EIA can be direct, such as the improved design, the location of a project, or indirect, such as better quality EIA work or raised environmental awareness of the personnel involved in the project. In these cases, there will be with flow-on effects in their future work. As mentioned above, these potential gains from EIA is increased if EIA is implemented right from the design of the project.

In general, the benefits of EIA include:

- **Better environmental planning and design of a proposal**: In carrying out an EIA, this entails an analysis of alternatives in the design and location of projects. This can result in the selection of an improved technology, which lowers waste outputs or an environmentally optimum location for a project. A well-designed project can minimise risks and impacts on the environment and people, and thereby avoid associated costs of remedial treatment or compensation for damage.
- **Ensuring compliance with environmental standards**: The compliance with environmental standards reduces damage to the environment and disruption to communities. It also avoids the likelihood of penalties, fines and loss of trust and credibility.
- **Savings in capital and operating costs:** EIA can prevent the undue costs of unanticipated impacts. These impacts can escalate if environmental problems have not been considered from the start of proposal design and would later require rectification. An anticipated and preventive approach is much cheaper than reactive measures.

Generally, changes which must be made late in the project cycle are the most expensive.

- **Reduced time and costs of approvals of development applications:** If all environmental concerns have been taken into account properly before submission for project approval, then it is unlikely that delays will occur as a result of decision-makers asking for additional information or alterations to mitigation measures. Increased project acceptance by the public.

These benefits can be achieved by an open and transparent EIA process, with provision of opportunities for public involvement of people who are most directly affected by and interested in the proposal, in an appropriate way that suits their needs.

4.0 CONCLUSION

Environmental Impact Assessment Process in planning promotes sustainable development by ensuring that development proposals do not undermine critical resource and ecological functions or the well being, lifestyle and livelihoods of the communities and people who depend on them. Its fundamental benefit is therefore to maximise environmental benefits, and minimise or eradicate impacts, during the construction, operation and decommissioning phases of a development.

5.0 SUMMARY

In this unit, you have learnt about the costs and benefits of EIA. The benefits of the EIA process to sustainable development cannot be overemphasised. This is why there is the need to incorporate the use of EIA in developmental projects is essential.

6.0 TUTOR-MARKED ASSIGNMENT

1. How would you describe the relevance of EIA to a development project?
2. Of what importance is EIA to the concept of “sustainable development”.
3. List and explain three benefits of carrying out an EIA.

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UNIT 5 STAKEHOLDERS IN THE EIA PROCESS

CONTENTS

1.0 INTRODUCTION

Nearly all EIA systems make provision for some type of public involvement. This term includes public consultation (or dialogue) and public participation, which is a more interactive and intensive process of stakeholder engagement. Most EIA processes are undertaken through consultation rather than participation. At a minimum, public involvement must provide an opportunity for those directly affected by a proposal to express their views regarding the proposal and its environmental and social impacts.

2.0 OBJECTIVES

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

- list all the stakeholders in the EIA process
- mention the roles of each stakeholder identified in the process.

3.0 MAIN CONTENT

3.1 Stakeholders in EIA Process

Projects or programmes have significant impacts on the local population either directly or indirectly. Whilst the aim is to improve the well being of the population, a lack of understanding of the people and their society may result in development that has considerable negative consequences. More significantly, there may be divergence between national economic interests and those of the local population. For example, the need to increase local rice production to satisfy increasing consumption in the urban area may

differ from the needs as perceived by the local farmers. To allow for this, public participation in the planning process is essential. The EIA provides an ideal forum for checking that the affected members of the public have been adequately consulted and their views taken into account during project preparation.

The level of consultation will vary depending on the type of plan or project. New projects involving resettlement or displacement will require the most extensive public participation. As stated before, the purpose of an EIA is to improve projects and this, to some extent, can only be achieved by involving those people directly or indirectly affected. The value of environmental amenities is not absolute and consensus is one way of establishing values. Public consultation will reveal new information, improve understanding and enable better choices to be made. Without consultation, legitimate issues may not be heard, leading to conflicts and unsustainable activities.

The purpose of public involvement is to:

- inform the stakeholders about the proposal and its likely effects of their locality
- solicit for their inputs, views and concerns; and
- take account of the information and views of the public in the EIA and in decision making.

The key objectives of public involvement are to:

- obtain local and traditional knowledge that may be useful for decision-making
- facilitate consideration of alternatives, mitigation measures and trade-offs
- ensure that important impacts are not overlooked and benefits are maximised
- reduce conflict through the early identification of contentious issues;
- provide an opportunity for the public to influence project design in a positive manner (thereby creating a sense of ownership of the proposal)
- improve transparency and accountability of decision-making; and
- increase public confidence in the EIA process.

Stakeholders Involved in the EIA Process

An EIA will involve a number of different stakeholders. Successful EIAs are characterised by a clear efforts being made to actively involve the team members. The following groups will be typically involved:

The range of stakeholders involved in an EIA typically includes:

- The people individuals, groups and communities who are affected by the proposal
- The proponent and other project beneficiaries
- Government agencies
- NGOs and interest groups; and
- Others, such as donors, the private sector, academics etc.

a. Local people

Individuals or groups in the affected community will want to know what is proposed; what the likely impacts would be; and how their concerns will be understood and taken into account. They will want assurances that their views will be carefully listened to and considered on their merits. They will want proponents to address their concerns. They will also have knowledge of the local environment and community that can be tapped and incorporated into baseline data.

b. Proponents/Project Developers

These are originators of the project; they are responsible for undertaking the EIA but will usually employ a consultant to take full or partiality for it. They will indicate their interest, location and ensure that their proposal is in line with regulatory requirements. Understandably, proponents will wish to shape the proposal to give it the best chance of success. Often, this involves trying to create public understanding and acceptance of the proposal through the provision of basic information. More creatively, project design can be improved through using public inputs on alternatives and mitigation and understanding local knowledge and values.

c. Consultants

These are usually employed to undertake the EIA. This is likely to involve a large multidisciplinary team. Selected consultants should be registered, accredited and competent to collate information and write reports. For large and complex projects this could cover up to 15 different disciplines. In successful EIAs the team is led and

coordinated by an EIA project manager who has the responsibility of:

- ensuring that the EIA stays on schedule and on budget
- providing quality control for the work provided by other members of the team
- coordinating consultation with other stakeholders
- working with the project design team to resolve environmental problems; and
- ensuring that the report resulting from the EIA is coherent and defensible.

d. Government Agencies

State, Local and Federal Ministries provide specialist inputs into the EIA and decision making process. The government has a major role to play in providing a national framework for integrating development and conservation. The government should:

- establish a comprehensive system of environmental law and provide for its implementation and enforcement by all stakeholders
- review the adequacy of legal, political and administrative controls concerning implementation and enforcement mechanisms, recognising the local approaches
- ensure the national policies, development plans and programmes, budgets and other decisions take full account of their effects on the environment.

For the responsible EIA agency, the concern will be whether or not the public involvement process conforms to requirements and procedures.

e. Non-Governmental Organisations (NGOs)

Comments from NGOs can provide a useful policy perspective on a proposal; for example, the relationship of the proposal to sustainability objectives and strategy. Their views may also be helpful when there are difficulties with involving local people. However, this surrogate approach should be considered as exceptional; it cannot substitute for, or replace views which should be solicited directly.

f. Other Interest groups

Other interested groups include those who are experts in particular fields and can make a significant contribution to the EIA study. The advice and knowledge of government agencies and the industry sector most directly concerned with the proposal should always be sought. However, in many cases, substantive information about the environmental setting and effects will come from outside sources.

Among these groups listed above, the key decision makers include the Project Developers, Environmental Consultants and Regulators.

4.0 CONCLUSION

There is a growing consensus that timely and broad based stakeholder involvement is a vital ingredient for effective environmental assessment, as it is for project planning, appraisal and development in general. The World Bank has found that public participation in EIA tends to improve project design, environmental soundness and social acceptability.

5.0 SUMMARY

Many countries with EIA programmes have mandated some level of participation in EIA. Some countries make public participation mandatory in their EIA system. There is formal provision for public involvement although this tends to be general and limited in the detail. According to Boyle (1998), in 1990-1991 in Thailand, Indonesia and Malaysia, the members of the public were effectively excluded from projects planning and decision making.

6.0 TUTOR-MARKED ASSIGNMENT

1. List all the stakeholders in the EIA process.
2. Mention the roles of each stakeholder identified in the process.
3. What are the purposes of public participation in EIA process?

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MODULE 3

UNIT 1 EIA PROCESS

CONTENTS

1.0 INTRODUCTION

There are various steps in the EIA process which ensures that the project has little or no environmental impact on the land, water, air, soil, human beings, biodiversity etc. Nine of the steps will be explained in this unit. Role of an interdisciplinary EIA team will also be described.

2.0 OBJECTIVES

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

- explain the EIA process
- state at least six steps of EIA process.

3.0 MAIN CONTENT

3.1 EIA Process

EIA process can be itemised into the following 9 steps**.**

a. Preliminary Activities and Decision of Terms of Reference (TOR)

Preliminary activities include defining of the Terms of Reference (TOR) for the project and also the determining of the personnel required for the assessment. A brief summary of the project is extremely helpful at this stage. This summary should be clear and explicit and should list exactly what the development project entails. The existing laws and regulations that are applicable to the project should also be reviewed along with the regulating authorities. The same procedure must be adopted for technical, financial and managerial resources available for the project. It is very important to identify the team that will carry out the EIA procedure along with a coordinator and the decision-maker who will read the final report.

Role of an interdisciplinary EIA team

In an EIA proposal, there could be a number of potential environmental impacts which could be physical, chemical, biological, social, cultural and economic impacts. The team members will be selected for the process based on their areas of specialisation and this is the role of the EIA Project Manager. This team will bring about multiple view points of the potential impacts of the proposed development. An interdisciplinary team consists of a group of people, trained in different fields, who interact to produce a coordinated EIA report. The EIA Project Manager has the primary task of drawing together the findings. Often, the lack of an interdisciplinary approach results in an EIA report that lacks real synthesis, containing a number of specialist studies with little cross-referencing. Members of an interdisciplinary team will be chosen for their complementary perspectives and technical expertise in analysing the environmental and social impacts that are of concern. In some cases, specialist consultants in the various areas are invited as special/technical experts. Thus, an EIA team might include an engineer, an economist, a physical geographer and a sociologist, with a senior government official to play the role of a coordinator. All these people need to be identified and declared before the actual commencement of an EIA process. The composition of the EIA team varies from country to country. In the United States, the developer carries out the functions of both the EIA preparation and the decision-making with the Environmental Protection Agency (EPA) involved only in reviewing and monitoring the project. In other countries, a government organisation may actually carry out the EIA process. Some countries may not have the appropriate means and

facilities for this purpose, and therefore, in such cases, a team of consultants may be employed to help with the assessment. This often turns out to be an expensive proposition. A team partly of local governmental personnel and partly of consultants might serve the purpose very well in such cases. Similarly, the decision-maker may be a person, a committee, or a number of organisations, etc.

b. Scoping

Scoping is a process for identifying environmental impacts of the project. At a very early stage in the preparation of an EIA, the impacts of the project on the environment are identified. When the list of the impacts is very large, only the most significant impacts are selected. This process, therefore, determines the limits and the scope of the environmental degradation involved with the project. Scoping actually controls the cost and time of the assessment in deciding the scope of the EIA and therefore is a very important step both in identifying the impacts and controlling the size of the EIA. The following techniques are used for scoping.

- Checklist technique
- Matrix technique
- Networks technique
- Overlay technique

c. Baseline Study

A baseline study is the study of the original status of the environment in the area before the development work of the project is started. This study serves the purpose of a base reference against which the changes due to implementation of the project are measured. Baseline studies are based on the experience with respect to environmental aspects and cover everything important about the environmental impacts of the project. On the other hand, a proper scoping highlights the significant environmental issues of the project with respect to its locality and regional environment. Hence, scoping and baseline studies often run into each other. Baseline studies are rather easily carried out in the countries where the required technical expertise, long-term database for environmental measures (for instance in the case of river flow) and relevant research papers and reports are available for the area concerned. Thus, the baseline studies are more easily prepared in developed countries. The local expertise, such as consulting a forester or a soil scientist, could be

utilised instead to complete the baseline studies in the developing countries. In such cases, the team responsible for the EIA must have the ability to find out the appropriate personnel for the required information. Failing that, the overseas consultants can be hired but it will raise the cost of the EIA preparation. In other words, it is the price a country has to pay for not having the required database.

d. Environmental Impact Evaluation

Environmental Impact Evaluation actually grows out of scoping and baseline study of the project. In principle, EIA assigns various quantified values to different levels of all the impacts affecting the project. This step is generally considered as the most technical in nature and therefore is the most difficult and controversial part of the EIA. It is difficult because not every impact, especially natural and social impacts, can be quantified. For example, it is very difficult to agree on a number that can sum up all the negative impacts of deforestation. Occasionally, it is possible to use surrogate measures, such as the amount of money required to mitigate the damage or the amount of money local inhabitants are willing to pay to clean up the river. However, the accuracy and appropriateness of such techniques can be questioned. Again, an existing data set can be extremely useful for impact evaluation, but it is also costly.

Impact evaluation actually calls for very careful considerations of the most important impacts and their accurate numerical representation. This has to be done not only for the proposed project but also for all possible alternatives, so that a well-balanced final decision can be reached regarding the fate of the project. Impact evaluation is therefore dependent on the quality of the scoping that is done earlier on the project.

e. Mitigation Measures

These are taken after the impact evaluation. These measures are taken to reduce the magnitude or intensity of the impacts affecting the environment. This of course will incur some costs, but it is expected that such measures will, in the long run, mitigate the impacts so as to make the project both economically and environmentally viable. The EIA team has to decide between two alternatives, either having a high cost and low pollution programme or having a low cost but a high pollution situation.

f. Assessment of Alternative Measures

Assessment of Alternative Measures becomes possible at this stage. The proposed project and all other relevant versions have been examined for environmental impacts by now. They have also been corrected by applying the mitigation measures to minimise the adverse effects on the environment. They have also been subjected to some kind of standardisation such as impact quantification so that all the relevant versions can be easily compared. The next step is to assess the environmental degradation and improvement in terms of economic losses and gains. In standard EIAs, a summary for each version of the project is given together with the comparative assessment using Benefit-Cost Analysis (BCA). Benefit-Cost Analysis has a long history of use as a method for evaluating development projects and therefore is popular with a very wide range of people, such as, engineers, economists, bureaucrats, etc. However, there is a difficulty in the assessment as not everything is quantifiable. There is no exact numerical representation for a beautiful view, for instance, although attempts have been made to describe such situations numerically. Therefore, not all assessments use net benefit criteria. The Benefit-Cost Analysis, when used, is equally applied to all options to make the comparative assessment easy. For instance, it is more desirable to put up with limited pollution at a lower cost of mitigation than to remove the pollution completely at a much higher cost.

g. Preparation of Final Document

Preparation of the Final Document should meet the following two objectives. First is to prepare a complete and detailed account of the EIA. The second is to prepare a brief summarised account for a decision-maker, who may not be a technical person. The detailed document is usually called as the *reference document*. This document is used by the technical personnel that is associated with the project. It is also referred for preparing future EIAs in the same geographical area, or for the same type of project in a different area. The referred part usually contains the technical calculations, graphs, and the results of field and laboratory measurements. The summarised non-technical account is usually called as the *working document*, which is written clearly without using technical language to communicate to the decision-maker the findings of the EIA team. Main objective of this document is that the non-technical decision-makers must properly understand the findings and recommendations

of the EIA team so that they can take a well-informed and correct decision promptly.

h. Decision-making

Decision-making is the process **w**hich starts after the above-mentioned steps of EIA are completed. Usually the decision is taken by a manager or a committee, or personnel from the concerned ministry who had not been associated with the EIA during its preparation. Technical and economic aspects of project alternatives are thoroughly considered but, at times, political expediency and project feasibility control the final choice. In general, a decision-maker has three choices:

- Accepting one of the project alternatives
- Returning the EIA with a request for further study in certain specific areas
- Totally rejecting the proposed project along with alternative versions.

i. Monitoring of Project Implementation and Its Environmental Impacts

This is usually carried out while the selected project is under actual **i**mplementation. The monitoring is basically the process of inspection to make sure that the proper guidelines and recommendations stated in the EIA are faithfully followed. Such inspections may also be carried out after the completion of the project to determine as to what accuracy the environmental impacts have been predicted by the EIA. This could be a very valuable exercise for the environmental impact assessors.

4.0 CONCLUSION

The Environmental Impact Assessment (EIA) process is an interdisciplinary and multistep procedure to ensure that environmental considerations are included in decisions regarding projects that may impact the environment.

5.0 SUMMARY

In this unit, you have learned that the EIA process is critical in the development of a project. The proposed project would need to be screened

to determine if it is necessary or not to carry out an EIA, the extent of EIA process is also important, carry out a baseline study, decide if the project needs an alternative, consider mitigated measures in the event of an unfortunate circumstance and the preparation of a final document which contains the edited version of the various aspects of the process.

6.0 TUTOR-MARKED ASSIGNMENT

1. What are the various checklist processes used in EIA scooping?
2. Discuss the project and impact monitoring process.

7.0 REFERENCES/FURTHER READING

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UNIT 2 EIA PROCESS IN NIGERIA

CONTENTS

1.0 INTRODUCTION

An institutional framework was set up to deal with the problem of our environment in 1988. The establishment of the then Federal Environmental Protection Agency led to a separate EIA legislation, the EIA Act 86 of 1992 (formally EIA Decree 86 of 1992) making it mandatory for all developmental purpose (although with some exceptions, see figure 1 for list of projects). Base on this, various sectoral EIA procedures together with EIA procedural guidelines was put in place.

2.0 OBJECTIVES

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

- discuss the stages of EIA process in Nigeria
- outline the EIA procedural guideline in Nigeria
- describe the contents of the EIA Laws in Nigeria
- enumerate the mandatory Projects for EIA under the EIA Law
- list the challenges of applying EIA in Nigeria.

3.0 MAIN CONTENT

3.1 EIA Process in Nigeria

The EIA process is the various stages a project undergoes from proposal to approval for implementation, resulting in issuance of an Environmental Impact Statement (EIS) and Certificate. The process enunciated for EIA in Nigeria encompasses several stages, viz:

i. Determining if the project required an EIA
ii. Screening a project for potential environmental effects
iii. Scoping to determine the spatial and temporary dimension of the environmental effects
iv. Carrying out detailed baseline studies to determine the environmental condition prior to project implementation
v. Preparing a detailed environmental impact assessment report
vi. Carrying out a panel review of the EIA report it this is necessary and
vii. Obtaining authorisation/approval.

The National Procedural Guidelines provide practical steps from project conception to commissioning (See Figure 2.1).

Nigeria and EIA Decree 86 of 1992
The Nigerian EIA legislation was promulgated into Federal Legislation in 1992 under EIA **Act Decree No. 86**. It demands from the public or private sectors of the economy not to undertake or embark on any public projects or activities without prior consideration of their environmental effects at the early stages of the projects. The EIA Legislation introduced environmental considerations into development project planning and execution prescribed guidelines for EIA studies and spelt out the project areas and sizes of projects requiring EIA. It also ensured that consultations with the regulators and locales residing where the development is to take place are put into consideration.

3.2 EIA at the State Government Level

Each of the 36 States of the Federal Republic of Nigeria can make laws on environmental protection and may also set up environmental protection agencies. Some examples include:

- Federal Capital Territory (Abuja Environmental Protection Board Act, empowers the Board to request an EIA for a development project)

- Lagos State
  - Lagos State Environmental Protection Agency Law of 1996
  - Lagos State Environmental Pollution Control Law

The Lagos State Physical Planning and Development Regulations of 2005 require a Developer to submit together with the application for development permit, a detailed Environmental Impact Analysis Report for the following projects:

a) Oil and gas pipeline depots and installation
b) Refineries
c) Large scale industrial developments
d) Roads, rail lines, seaport and airport development
e) Large scale educational institutions.

- Akwa Ibom State (The Akwa Ibom State Environmental Protection and Waste Management Agency Act (EPWMA) empowers the Agency to conduct pre and post EIAs of projects and make recommendations for corrective measures).

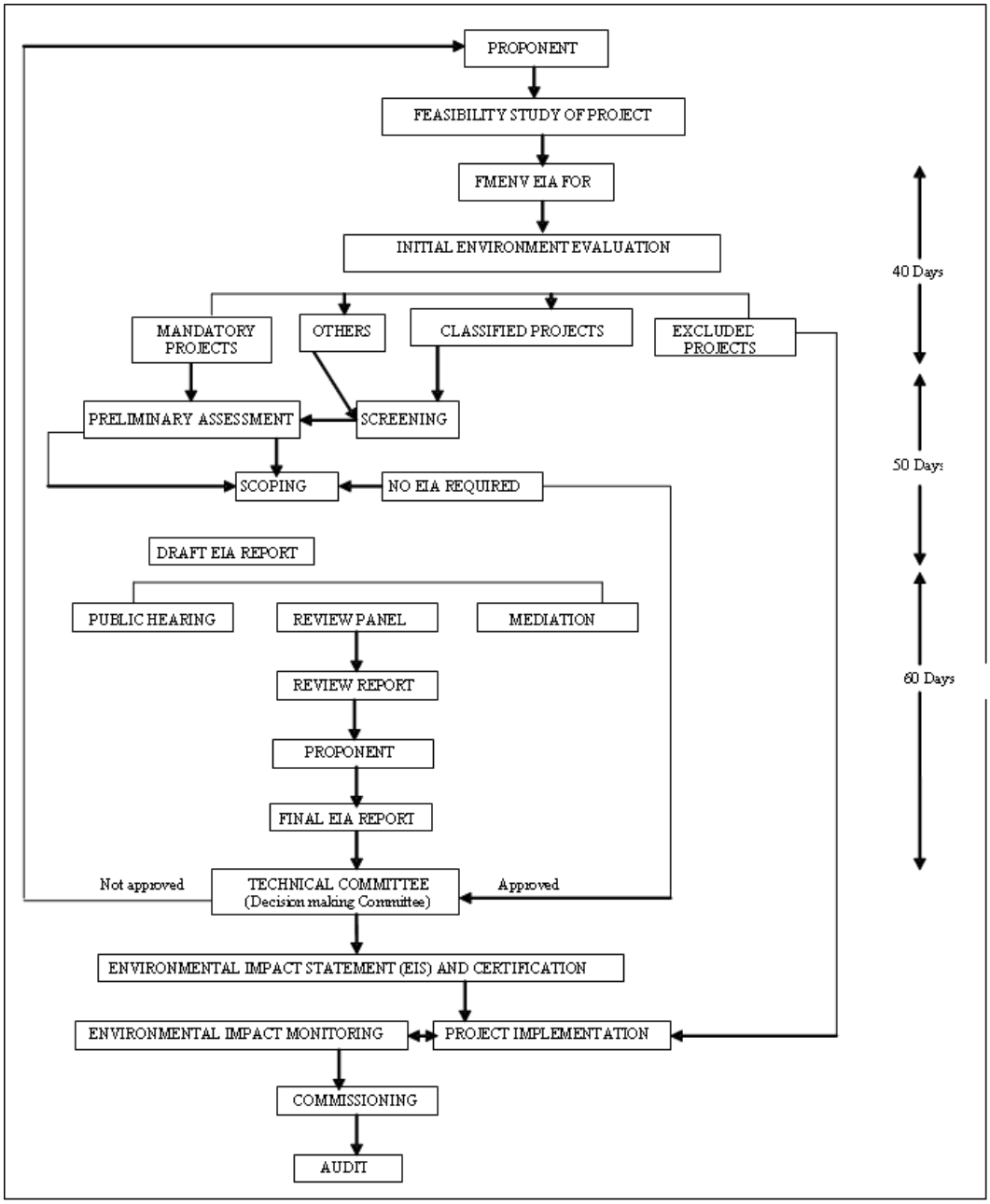

Fig. 2.1: FMENV EIA Management Procedure
Source: FEPA, 1995

SELF-ASSESSMENT EXERCISE

Find out the various environmental protection laws operating in your state.

3.3 The Objectives of EIA

EIA ensures that the environmental implications of major developments are identified.

- S.1 of the EIA Decree states the objectives required before making an application as follows:

  a. to determine if the proposed development is likely to significantly affect the environment and this would be carried out by the Government of the Federation, State or Local Government
  b. to implement the appropriate policies in all areas where the proposed development is to take place and these must also be consistent with the State and LGA laws and decision processes
  c. to develop procedures for information exchange, notification and consultation when proposed developments are likely to have significant environment effects on bordering towns and villages
  d. to consider the extent, nature or location of a proposed project or activity is such that is likely to significantly affect the environment.

- S.2 (2) states that "Where the extent, nature or location of a proposed project or activity is such that is likely to significantly affect the environment, its environmental impact assessment shall be undertaken in accordance with the provisions of this Decree."

- S.4 of the Decree describes the constituents of an EIA with at least the following minimal matters as follows:
  - a description of the proposed activities
  - a description of the potential affected environment including specific information necessary to identify and assess the environmental effects of the proposed activities
  - a description of the practical activities, as appropriate
  - an assessment of the likely or potential environmental impacts on the proposed activity and the alternatives,

including the direct or indirect cumulative, short-term and tong-term effects

- an identification and description of measures available to mitigate adverse environmental impacts of proposed activity and assessment of those measures
- an indication of gaps in knowledge and uncertainly which may be encountered in computing the required information
- an indication of whether the environment of any other State, Local Government Area or areas outside Nigeria is likely to be affected by the proposed activity or its alternatives
- a brief and non-technical summary of the information provided that have been provided above.

3.4 Mandatory Projects for EIA under Decree 86 of 1992

This section, based on the EIA Decree provides a list of projects that will require an EIA and include: oil refineries, large waste and waste water disposal and treatment facilities, large extensive agricultural units and industrial facilities, transportation and power generation.

a. **Agriculture** - Land development schemes covering an area of 500 hectares or more.

b. **Airport** - Construction of airports (having an airstrip of 2,500 meters or more).

c. **Drainage and Irrigation**

d. Drainage of wetland, wild-life habitat or of virgin forest covering an area of 100 hectares or more.

e. Irrigation schemes covering an area of 5,000 hectares or more.

f. **Land Reclamation -** Coastal reclamation involving an area of 50 hectares or more.

g. **Fisheries -** Land based aquaculture covering an area of 50 hectares or more.

a. **Forestry**

- Conversion of hill forest land to other land use covering an area of 50 hectares or more.
- Logging covering an area of 500 hectares or more.

- Conversion of mangrove swamps for industrial, housing or agricultural use covering an area of 50 hectares or more.

b. **Industry**

- Chemical - Where production capacity of each product or of combined products is greater than 100 tonnes/day

- Petrochemicals - All sizes
  Non-ferrous primary smelting - Aluminium - All sizes; Copper - All sizes

- Non-metallic - Cement for clinker throughout for 30 tonnes/hour and above; Lime for 100 tonnes/day and above; burnt lime rotary kiln or vertical kiln for 50 tonnes/day and above.

- Iron and steel - Requires iron ore as raw materials for production greater than 100 tonnes/day; or using scrap iron as raw materials for production greater than 200 tonnes per day.

- Shipyards - Dead Weight Tonnage greater than 5000 tonnes.

- Pulp and paper industry - Production capacity greater than 50 tonnes/day

c. **Infrastructure**

- Construction of hospitals with outfall into beachfronts used for, recreational purposes/Industrial estate development for medium and heavy industry covering an area of 50 hectares or more. Construction of Expressways, national highway, new township.

d. **Ports**

- Construction of ports. Port expansion involving an increase of 50 per cent or more in handling capacity per annum.

e. **Mining**

- Mining of materials in new areas where the mining lease covers a total area in excess of 250 hectares.
- Ore processing, including concentrating for aluminium, copper or gold.
- Sand dredging involving an area of 50 hectares or more.

f. **Waste Treatment and Disposal**

- Toxic and Hazardous Waste
- Municipal Solid Waste
- Municipal Sewage

g. **Water Supply**

- Construction of dams, impounding reservoir with a surface area of 200 hectares or more.
- Groundwater development for industrial, agricultural or urban water supply of greater than 4,500 cubic metres per day.

Other sectors include: Petroleum, Housing, Power Generation and Transmission, Quarries,, Railways, Transportation, Resort and Recreational Development. For further information (see EIA Act, 1992).

Contents of an EIA Document
S.4 of the EIA Decree, 1992 states that an EIA shall include the following matters as a minimum including:

i. A description of the proposed activity including: information on the site, design and size of the project

ii. An assessment of the likely or potential environmental impacts of the proposed activity including the direct, indirect, cumulative, short-term and long-term effects in order to avoid, reduce and, if possible, remedy significant adverse effects
iii. the data required to identify and assess the main effects which the project is likely to have on the environment
iv. A description of practical alternatives as appropriate studied by the developer and an indication of the main reasons for choice made, taken into account the environmental effects
v. A brief non-technical summary of the information provided (i-iv above).

3.5 Challenges of EIA System and Practice in Nigeria

- Inconsistent environmental management policies
- Poor environmental awareness within the business community
- Weak regulatory framework
- Weak organisational structure to enforce EIA system
- Multiple regulators at the Federal/State levels
- Project alternatives are rarely considered
- Low quality reports
- Manpower issues and technical competence
- Public consultation seldom enforced
- Lack of funding
- Lack of coordination
- Non-cooperation of local communities.

4.0 CONCLUSION

Environmental Impact Assessment aims to minimise the negative impact of environmental activities as a result of development projects. Some developments which require EIA, according to the law are referred to as "mandatory" and give the scope to which an EIA should be conducted. The EIA identifies problem areas and outlines alternatives as well as mitigating approach to potential problems either during construction, operation or decommissioning phases of the development. It is important that the legal requirements for an EIA are understood by the proponents prior to a project development. If the process is followed accordingly, a lot of problems, social, environmental, economic, financial would be prevented.

5.0 SUMMARY

In this unit, you have learnt about the various stages of the EIA processes in Nigeria. Through the understanding of the requirements of the EIA Decree, you have also known that there are projects that are mandatory to have an EIA carried out on them because of the potential environmental implications of such major developments. It was also vital to note that challenges could abound especially when carrying out an Environmental Impact Assessment on a potential development.

6.0 TUTOR-MARKED ASSIGNMENT

i. Outline the EIA process in Nigeria.
ii. Describe the contents of S.4 of the EIA Decree in Nigeria.
iii. List 5 projects that are mandatory to EIA process. Give reasons for each answer.
iv. Enumerate the challenges of EIA application in Nigeria.

7.0 REFERENCES/FURTHER READING

- Constitution of the Federal Republic of Nigeria, (1990).
- Federal Environmental Protection Act of 1988.
- Environmental Impact Assessment Act of 1992.
- National Policy on the Environment of 1998.
- Standards Organisation of Nigeria Act of 1971.
- LASEPA Edict of 1996.
- Environmental impact Assessment Procedure Federal Environmental Protection Agency 1995.
- Agenda 21.
- ISO 14001 Environmental Management Systems.
- Effluent Limitations Regulations of 1991.
- Pollution Abatement in Industries and Facilities Generating Wastes Regulations of 1991.
- National Guidelines for Environmental Audit of 1999.
- National Guidelines on Environmental Management Systems of 1999.
- Environmental Guidelines and Standards for Petroleum Industry in Nigeria.

UNIT 3 EIA REVIEW PROCESS

CONTENTS

1.0 INTRODUCTION

The review of an EIA is an important step in the process. The purpose of the review process is to establish if the information in an EIA report is sufficient for decision making. The review would assess if the report provided complies with terms of reference, is correct and technically sound, is complete and provides statements of key findings.

2.0 OBJECTIVES

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

- establish why the review of an EIA report is important
- list the roles and contribution of review of the quality of the EIA report
- describe the procedure and methods which are used for this purpose.

3.0 MAIN CONTENT

The review of the quality of an EIA report is one of the main 'checks and balances' built into the EIA process. It helps to ensure that the information submitted is credible and sufficient for decision-making purposes. Often, the quality of EIA reports can be significantly improved by review, resulting in more informed approvals and better environmental outcomes.

The purpose of review is to assure the completeness and quality of the information gathered in an EIA report. When undertaken as a formal step, it

acts as a final check on the quality of the EIA report submitted to obtain a project authorisation. Often, this process leads to a requirement for additional information on potential impacts, mitigation measures or other aspects. The objectives of EIA review are to assess the adequacy and quality of an EIA report; take account of public comment; determine if the information is sufficient for a final decision to be made; and identify, as necessary, the deficiencies that must be addressed.

In many EIA systems, the review stage is the major opportunity for public involvement. However, the arrangements for this purpose vary considerably from country to country. They range from notification of a period for receiving written comments on the EIA report to holding public hearings. Typically, the latter mechanism is part of an independent review by an EIA panel or inquiry body, which is considered to be a particularly transparent and rigorous approach.

Most EIA systems provide opportunities for the review of an EIA report. However, the procedures established for this purpose differ considerably, possibly more than for other process elements. The conduct of EIA reviews is based on both informal and formal arrangements. Marked variations exist in their particular requirements, forms of public consultation and the roles and responsibilities of lead agencies. An issue common to all EIA review procedures is how to ensure objectivity. The responsible authority is widely perceived as having a vested interest in the outcome of review, particularly when it is also the proponent. Checks and balances are introduced by guidance and review criteria, and the involvement of the public and outside experts. More impartial procedures include the use of inter-agency committees or independent panels or tribunals, which are acknowledged as a ‘reference standard of good practice’ for EIA review.

In general, EIA review can be divided into two main types:

- *internal review* – undertaken by the responsible authority or other government agency, with or without formal guidelines and procedure; and
- *external review* – undertaken by an independent body, separate from and/or outside government agencies, with an open and transparent procedure for public comment.

In many cases, the internal review is informal and characterised by:

- relatively low operating costs
- discretionary guidance on the conduct of the review

- a lack of transparency on process and factors considered; and
- the absence of documentation on outcomes and results such as advice tendered to decision-makers.

External review procedures are more formal and characterised by:

- higher levels of quality assurance
- independence from the responsible authority (to varying degrees)
- transparent and rigorous process
- the use of guidelines and/or review criteria and methodology
- documented outcome or statement on the sufficiency or deficiency of an EIA report; and
- separate commission, panel, inter-agency or expert committee or other review body.

Selected examples of EIA review procedures in various countries:

- review by environmental agency carried out in Australia, Nigeria
- review by independent panel or mediator such as in Canada, only for major proposals
- review by standing commission of independent experts such as in the Netherlands
- review by standing commission of experts within the government such as in Italy, Poland
- review by inter-agency committee as in the USA
- review by planning authority using government guidelines such as the UK, New Zealand.

4.0 CONCLUSION

The review of the quality of an EIA report is one of the main 'checks and balances' built into the EIA process. It helps to ensure that the information submitted is credible and sufficient for decision-making purposes. Also, it gives the EIA document some form of public acceptance especially when the public have access to the report.

5.0 SUMMARY

In this unit, you have learnt that the EIA review stage is an important stage in the EIA process. You have also learnt that there are two categories: the internal and external review processes. The external review process provides a more open system of review because it involves more public

participation. As a result, it brings quality assurance of the contents in EIA documentation and the entire processes.

6.0 TUTOR-MARKED ASSIGNMENT

1. What are the characteristics of an external EIA review procedure?
2. Mention two purposes of an EIA review.
3. Give three benefits of EIA review.

7.0 REFERENCES/FURTHER READING

Boyle, J. & Mubvami, T. (1995). *Training Manual for Environmental Impact Assessment in Zimbabwe*. Department of Natural Resources, Zimbabwe: Ministry of Environment and Tourism.

Fuller, K. (1999). "Quality and Quality Control in EIA." In J. Petts (Ed). *Handbook of Environmental Impact Assessment.* UK: Blackwell Science Ltd. 2, 55-82.

Lee, N. & Colley, R. (1992). *Reviewing the Quality of Environmental Statements.* Occasional Paper Number 24, EIA Centre, University of Manchester.

Sadler, B. (1996). *Environmental Assessment in a Changing World.* Ottawa: Final Report of the International Study of the Effectiveness of Environmental Assessment. Canadian Environmental Assessment Agency and International Association for Impact Assessment,

Scholten, J. (1997). "Reviewing EISs/EA reports." In *Report of the EIA Process Strengthening Workshop.* Environment Protection Agency, Canberra. Commission of the European Communities (CEC) Directorate General for Environment, Nuclear Safety and Civil Protection (1993) *Review Checklist.* (CEC) Brussels. pp. 61-90.

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MODULE 4

UNIT 1 EIA REPORT

CONTENTS

1.0 INTRODUCTION

A number of different names are used for the report that is prepared on the findings of the EIA process. This could be the Environmental Impact Statement (EIS) and Environmental Statement (ES). Despite the different names, EIA reports have the same basic purpose, approach and structure.

2.0 OBJECTIVES

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

- explain content of an EIA report
- determine what makes a good EIA report.

3.0 MAIN CONTENT

3.1 EIA Report

An EIA report is a document of importance that gives an account of the proposed action, its effect, impact, mitigation and possible environmental management process. As the EIA Report will be read by experts and non-experts alike, the project proponent must ensure that this document effectively communicates the relevant information to all the likely audience. The style of an EIA Report should therefore:

- Not be longer than 100 pages (200 pages including technical annexes) unless absolutely necessary.
- Be presented to make information accessible to the non-specialist, avoiding technical terminology where possible in the main body and summary of the report.
- Have technical annexes for all technical reports and detailed studies which should only be summarised, as appropriate, in the main body of the report.
- Ensure that information is presented in summary tables and use good quality maps, charts, diagrams and other visual aids wherever possible.
- Be clearly laid out with a clear table of contents, to allow the reader to find and assimilate information easily and quickly and usually, the proponent is responsible for the preparation of the EIA report. The information contained in the report should meet the terms of reference established at the scoping stage of the EIA process (see Scoping section of course).

The Terms of Reference

The purpose of the EIA report aims to provide a coherent statement of the potential impacts of a proposal and the measures that can be taken to reduce and remedy them. It also contains essential information by the proponent who would implement the contents of the proposed report in an environmentally and socially responsible way and that the responsible authority would make an informed decision on the proposal, including the terms and conditions that must be attached to an approval or authorisation. Consequently, the public would be made to understand the proposal and its likely impacts on people and the environment.

An EIA Report is said to be successful if it meets the following characteristics:

- actionable: i.e. the document can be applied by the proponent to achieve environmentally sound planning and design
- decision-relevant: i.e. the document can organise and present the information necessary for project authorisation and, if applicable, permitting and licensing; and
- user-friendly: a document that communicates the technical issues to all parties in a clear and unambiguous way.

4.0 CONCLUSION

An EIA report is important because it provides all the relevant information that pertains to a project that is to be developed. It puts into consideration the project alternatives, potential environmental impacts, of the project, its effects and mitigation processes in the event of a negative impact. The report is usually prepared by the proponent and submitted to the authorising body for review.

5.0 SUMMARY

In this unit, you have learnt about the EIA report and the other names by which it could be called. Also, the contents of the EIA report are also described in the unit.

6.0 TUTOR-MARKED ASSIGNMENT

1. In your own words, describe an EIA report.
2. What are the contents of a good EIA report?
3. An EIA report is said to be successful if it is “user-friendly” and “actionable”. Discuss.

7.0 REFERENCES/FURTHER READING

Aina, E. O. A. (1989). “New Direction for Sustainable Development in Nigeria.” A paper delivered at the International Workshop on the Environment and Sustainable Development in Nigeria at the NICON-HILTON Hotel Abuja.

Federal Environmental Protection Agency. (1995). “Environmental Impact Assessment Procedure.” FEPA, Nigeria.

UNCED (1992). "Achieving Sustainable Development in Nigeria." *National Report for United Nations Conference on Environment and Development*, Rio de Janeiro, Brazil.

UNIT 2 TYPICAL ELEMENTS OF AN EIA REPORT

CONTENTS

1.0 INTRODUCTION

In the previous unit, you learnt about what an EIA report was and how important it was to be prepared in accordance with regulatory standard requirements. It went on to state that an EIA report should be actionable, user-friendly and relevant to decision making. In this unit, you will learn more about the contents of an EIA report. At a minimum, an EIA report should contain an introduction, a project description, a detailed description of the environment, an assessment of environmental impacts and mitigation measures, an environmental management plan and an environmental monitoring plan. In many jurisdictions, the EIA report also contains an evaluation of alternatives, environmental economic analyses including a cost-benefit analysis, and a description of the feedback on the public participation programme.

2.0 OBJECTIVES

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

- outline and describe the various elements of an EIA report
- discuss the contents of an EIA report.

3.0 MAIN CONTENT

3.1 Typical Elements of EIA Report

In many countries, the information to be included in an EIA report is specified in legislation, procedure or guidance. Alternatively, the format may be established by custom or referenced from the World Bank sample outline of an EIA report. Typically, the content of an EIA report will be prepared in accordance with specific terms of reference established during the scoping process. It may also include additional issues and other matters that have emerged as a result of EIA studies and need to be taken into account in decision-making.

An EIA report typically includes many or all of the following headings and items:

- an executive or non-technical summary (which may be used as a public communication document)
- statement of the need for, and objectives of, the proposal
- reference to applicable legislation, regulatory and policy frameworks
- description of the proposal and how it will be implemented (construction, operation and decommissioning)
- comparison of the proposal and the alternatives to it (including the no action alternative)
- description of the project setting, including the relationship to other proposals, current land-uses and relevant policies and plans for the area
- description of baseline conditions and trends (biophysical, socioeconomic etc), identifying any change anticipated prior to project implementation
- review of the public consultation process, the views and concerns expressed by stakeholders and the way these have been taken into account
- consideration of the main impacts (positive and adverse) that are identified as likely to result from the proposal, their predicted characteristics (e.g. magnitude, occurrence, timing, etc.) proposed mitigation measures, the residual effects and any uncertainties and limitations of data and analysis
- evaluation of the significance of the residual impacts, preferably for each alternative, with an identification of the best practicable environmental option
- an environmental management plan that identifies how proposed mitigation and monitoring measures will be translated into specific actions as part of impact management; and
- appendices containing supporting technical information, description of methods used to collect and analyse data, list of references, etc.

The constituents of an ideal EIA report in its presentation must contain the following:

Executive Summary, Project Justification, Project and Process Description, Description of Project Environment/Baseline Data, Identification of Associated and Potential Impacts, Mitigation Measures, Environmental Management Plan, Conclusion and Recommendations, Bibliography / References.

(a) **Executive or non-technical summary**

The executive summary gives a concise description of the main findings and recommendations. It is not meant to summarise all of the contents of the EIA report. Instead, the focus is on the key information and options for decision-making. Except for very large proposals, the executive summary should be kept short, no more than seven pages and preferably less. Often, the executive summary is the only part of the report that decision makers and most people will read. It can be written for distribution to the public as an information brochure.

An executive summary should describe:

- the proposal and its setting
- the terms of reference for the EIA
- the results of public consultation
- the alternatives considered
- major impacts and their significance
- proposed mitigation measures
- the environmental management plan; and
- any other critical matters that bear on the decision.

(b) **Need and objectives of the proposal**

The EIA report should provide a clear statement of the need for and objectives of the proposal. Typically, the need to execute the project is substantiated by reference to relevant policies and plans. Reference also can be made to the demands and issues that the proposal is intended to address, the purpose that will be achieved, and the benefits that are anticipated.

(c) **Legal and policy framework**

There is usually a brief description of the legal and policy framework that applies to the proposal being assessed. Relevant aspects of the EIA procedure can be cited together with other requirements or considerations that need to be mentioned. The Terms of Reference for the EIA should be summarised while also explaining the reasons for any variation with them. A copy of the complete Terms of Reference should be appended to the report where appropriate.

(d) **Description of the proposal and its alternatives**

A description of the proposal and the alternatives indicates the elements and main activities that will take place during project construction, operation and decommissioning. This section of the report draws attention to the major differences between the proposed project, its alternatives, and the no-action alternative. It can also include information on:

- the project setting and the major on-site and off-site features (e.g. access roads, power and water supply, etc.)
- resource use, raw material inputs and emission and waste discharges
- operational characteristics, processes and products
- the relationship of the technical, economic, social and environmental features of the proposal; and
- Comparison of alternatives and options (such as size, location, technology, layout, energy sources, source of raw materials) within the above context.

The above information is given in only enough detail for impact prediction and mitigation measures to be understood and appreciated. Wherever appropriate, maps, flow diagrams and other visual aids are used to summarise information.

(e) Description of the affected environment

A concise description is needed of the biophysical and socio-economic conditions of the affected environment. Baseline information should include any changes anticipated before the project begins. Current land use and other proposed development activities within the project area should also be taken into account. This indicates how the proposal relates to current policies and plans and whether or not it is consistent with them.

Baseline information is often covered in too much detail in an EIA report. It should provide only the necessary background and baseline information against which the impact predictions are understood. Key aspects of the affected environment that need to be included for this purpose include:

- spatial and temporal boundaries
- biophysical, land use and socio-economic conditions
- major trends and anticipated future conditions; and
- environmentally-sensitive areas and valued resources that may need special protection.

(f) Public consultation and inputs

A concise, yet complete, statement of the nature, scope and results of public consultation is an important section of the report. These particulars are sometimes overlooked or aspects are insufficiently described. Depending on the provision made for public consultation, some or all of the following points can be included:

- identification of the interested and affected public
- the method(s) used to inform and involve stakeholders
- analysis of the views and concerns expressed
- how these have been taken into account; and
- outstanding issues and matters that need to be resolved.

(g) Environmental impacts and their evaluation

This section of the EIA report evaluates the potential positive and adverse impacts for both the proposal and its alternatives and for each component of the environment identified as important in the terms of reference. Impact characteristics are described as predictions of magnitude, severity, occurrence, duration, etc. The significance of residual impacts that cannot be mitigated should be explicitly stated.

Information contained in this section includes:

- prediction of each major impact, its characteristics and likely consequences
- consideration of their compliance with environmental standards and policy objectives
- recommended measures for avoiding, minimising and remedying the impact

- evaluation of significance of the residual impacts (stating the standards or criteria used); and
- limitations associated with impact prediction and evaluation, as indicated by the assumptions made, gaps in knowledge and uncertainties encountered.

The section can also indicate how environmental data was gathered, the predictive methods used and the criteria used to judge significance. It is helpful to present information in summary form to give readers an overview of the impact characteristics of the proposal and the alternatives to it.

(a) Comparative evaluation of alternatives and identification of the environmentally preferred option

In this section, the proposal and the alternatives are systematically compared in terms of adverse and beneficial impacts and effectiveness of mitigation measures. As far as possible, the trade-offs should be clarified and a clear basis for choice established. The environmentally preferred option should be identified and reasons given for the selection made. The report of the evaluation should include information (especially costs) about the mitigation measures for the main alternatives, so that the evaluation can be conducted on a reasonably consistent basis. This will help to ensure that the best alternative, across all the environmental and social criteria, is selected.

A comparative evaluation can be undertaken with reference to:

- adverse and beneficial impacts
- effectiveness of mitigation measures
- distribution of benefits and costs, locally and regionally; and
- any other opportunities for community and environmental enhancement.

As with the identification and evaluation of the impacts, the presentation of the comparison of alternatives can follow many forms. Evaluation methods have been developed to bring together the various environmental effects (and impacts) associated with a proposal and its alternatives. The methods enable comparisons of impacts and alternatives to be made. They also lead directly to an output which summarises all the environmental impacts and provides the basis for the evaluation of the proposal (and alternatives) by decision-makers. Methods can be classified into eight main types, although this is obviously arbitrary and not necessarily consistent for different

researchers. The categories which cover the vast majority of methods are, according to Thomas and Elliott (2005):

1. ad hoc methods
2. checklists
3. matrices
4. overlays
5. systems diagrams
6. networks
7. quantitative or index methods
8. mathematical models.

4.0 CONCLUSION

The various elements of an EIA report are very critical to an EIA report. It is important that all aspects of the report are compiled thoroughly during the process. This would enable the regulatory assessors to make informed judgement on whether the proponent could go ahead with a project, or provide further information in areas where insufficient information has been provided. A report that misses out on the major elements of a report could be rejected.

5.0 SUMMARY

In this unit, you have learnt about the various elements of an EIA report and the description of each element. The importance of providing correct information, project alternatives has also been discussed.

6.0 TUTOR-MARKED ASSIGNMENT

1. Discuss the contents of an EIA report.
2. The elements of an EIA report are critical to the decision-making process. *Discuss.*

7.0 REFERENCES/FURTHER READING

Aina, E. O. A. (1989). “New Direction for Sustainable Development in Nigeria.” A paper delivered at the International Workshop on the Environment and Sustainable Development in Nigeria at the NICON-NOGA HILTON Hotel Abuja.

Federal Environmental Protection Agency. (1995). “Environmental Impact Assessment Procedure.” FEPA, Nigeria.

UNCED (1992). "Achieving Sustainable Development in Nigeria." *National Report for United Nations Conference on Environment and Development*, Rio de Janeiro, Brazil.

UNIT 3 REVIEW OF EIA IN NIGERIA

CONTENTS

1.0 INTRODUCTION

The purpose of review is to assure the completeness and quality of the information gathered in an EIA. When undertaken as a formal step, it acts as a final check on the quality of the EIA report submitted to obtain a project authorisation. In Nigeria, the EIA review is handled by the Federal Ministry of Environment.

2.0 OBJECTIVES

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

- explain the EIA review process in Nigeria
- describe the various review processes leading to the approval of an EIA report.

3.0 MAIN CONTENT

In Nigeria, the draft EIA Report goes through several review stages. In line with the EIA guidelines, a draft EIA report submitted to the FMENV by the proponent is evaluated to establish the type of review to be adopted. There are different forms of review depending on the nature, scope, anticipated impact, risk etc. that may arise in project planning and implementation. An EIA draft report may be subjected to any or a combination of the following:

- An in-house review

- Public review
- Panel review
- Mediation.

(a) **In-House Review:** All Draft EIA reports are reviewed in-house in order to assess how the issues raised in the terms of reference have been addressed and to determine if the draft EIA report is suitable for public review (if necessary). The review process could be terminated at the in-house review stage if the report is found to be technically deficient. No further action will be taken until the proponent has rectified the identified technical deficiencies.

(b) **Public Display of EIA Reports and Public Review**: In accordance with the provisions of section 25 of the EIA Act, EIA reports are displayed for public comments during a period of 21 working days. Notices of display venues are usually published, in newspapers and announced on radio and television. Usually, the venues of display include the headquarters of the Local Government in which the proposed project is to be located, State Ministries of Environment, FMENV Zonal Offices, FMENV Liaison Office in Lagos and FMENV headquarters in Abuja. Comments received from such venues, including those of the Chairman of the Local Government, are forwarded to the headquarters in Abuja for collation and evaluation in the EIA Secretariat.

(c) **Panel Review:** In compliance with the provisions of Sections 36, 37 and 38 of the EIA Act, a review panel made up of a chairman and persons with relevant knowledge and experience is constituted to undertake an independent evaluation of each EIA report. The review panel meeting is normally advertised to give interested stakeholders and members of the public the opportunity to attend and make further inputs. The comments, decisions and recommendations of the meeting are then submitted to the FMENV to guide final decisions on the certification or otherwise of the proposed project.

(d) **Mediation:** This type of review is applied either when a proposed project is likely to cause significant adverse effect that may not be mitigated or public concerns about the impact of the project warrant such conclusions. Such a project is usually referred to a mediation panel. The parties affected directly or with a direct interest in the project are identified and must be willing to participate in the mediation exercise. The FMENV must be convinced that mediation is likely to produce a result that will be satisfactory to all parties before taking this line of action.

4.0 CONCLUSION

The process of EIA review is critical to the EIA process. With the involvement and contributions of various stakeholders to the process, the potential negative impact of a development could be averted or minimised.

5.0 SUMMARY

In this unit, you have learnt about the various review processes in Nigeria including: in-house review, panel review, public review and mediation.

6.0 TUTOR-MARKED ASSIGNMENT

1. How many stages of EIA review are available in the Nigerian EIA system?
2. Discuss the role of the mediation process in Nigeria EIA review.
3. Of what relevance are the contributions of the public to an EIA ?

7.0 REFERENCES/FURTHER READING

Aina, E. O. A. (1989). "New Direction for Sustainable Development in Nigeria." A paper delivered at the International Workshop on the Environment and Sustainable Development in Nigeria at the NICON-NOGA HILTON Hotel Abuja.

Federal Environmental Protection Agency. (1995). "Environmental Impact Assessment Procedure." FEPA, Nigeria.

UNCED (1992). "Achieving Sustainable Development in Nigeria." *National Report for United Nations Conference on Environment and Development*, Rio de Janeiro, Brazil.

UNIT 4 ORIGIN OF EIA AND THE SPREAD THROUGHOUT THE WORLD AND CASE STUDIES FROM AROUND THE WORLD

CONTENTS

1.0 INTRODUCTION

Environmental Impact Assessment began to be used in the 1960s as part of a rational decision making process. It was first conceived in the United States. It was a reaction to project planning and decision making based on economic efficiency and engineering feasibility at the expense of the environment. EIA was made legislation in the US by the National Environmental Policy Act (NEPA) 1969. NEPA (1969) set a requirement for the environmental effects of federal actions to be assessed prior to a decision being taken. It has since evolved as it has been used increasingly in many countries around the world. Some of these include: Australia, China, Egypt, European Union, India, New Zealand, Unites States and Nigeria.

The spread of EIA in some countries include: Canada (1973), Australia (1974), Colombia (1974), West Germany (1975), France (1976), Philippines (1977), European Commission Directive (1985), United Kingdom (1988), Kazakhstan (1991), Nigeria(1992).

By 1996, it was estimated that over 100 countries had national EIA systems. (Sadler, 1996).

2.0 OBJECTIVES

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

- give a brief history of EIA in some countries
- outline the EIA process in individual countries
- list the shortcoming of EIA in some of the countries described in the unit.

3.0 MAIN CONTENT

3.1 Australia

The history of EIA in Australia could be linked to the enactment of U.S. National Environment Policy Act (NEPA) in 1970, which made the preparation of environmental impact statements a requirement. In Australia, the EIA procedures were introduced at a State Level prior to that of the Commonwealth (Federal), with a majority of the states having divergent views to the Commonwealth (Elliot et al., 2009). One of the pioneering states was New South Wales, whose State Pollution Control Commission issued EIA guidelines in 1974. At a Commonwealth (Federal) level, this was followed by passing of the Environment Protection (Impact of Proposals) Act in 1974. The Environment Protection and Biodiversity Conservation (EPBC) Act 1999 superseded the Environment Protection (Impact of Proposals) Act 1974 and is the current central piece for EIA in Australia on a Commonwealth (Federal) level. An important point to note is that this Commonwealth Act does not affect the validity of the States' and Territories' environmental and development assessments and approvals; rather the EPBC runs as a parallel to the State/Territory Systems (Elliot et al., 2009). Overlap between federal and state requirements is addressed via bilateral agreements or one off accreditation of state processes, as provided for in the EPBC Act.

The Commonwealth

The EPBC Act provides a legal framework to protect and manage nationally and internationally important flora, fauna, ecological communities and heritage places-defined in the EPBC Act as matters of 'national environmental significance'. The following are the eight matters of 'national environmental significance' to which the EPBC Act applies (Dept of Environment, Australia, 2010):

i. World Heritage sites
ii. National Heritage places
iii. Ramsar wetlands of international significance
iv. Listed threatened species and ecological communities
v. Migratory species protected under international agreements
vi. The Commonwealth marine environment
vii. Nuclear actions (including uranium mining); and
viii. National Heritage.

In addition to this, the EPBC Act aims at providing a streamlined national assessment and approval process for activities. The EPBC Act comes into play when a person (a 'proponent') wants an action (often called a 'proposal' or 'project') assessed for environmental impacts under the EPBC Act. He or she must refer the project to the Department of Environment, Water, Heritage and the Arts (Australia). This 'referral' is then released to the public, as well as relevant state, territory and Commonwealth ministers, for comment on whether the project is likely to have a significant impact on matters of national environmental significance(Dept of Environment, Australia, 2010). The Department of Environment, Water, Heritage and the Arts assess the process and makes recommendation to the Minister or the Delegate for the feasibility. The final discretion on the decision remains that of the Minister, which is not solely based on matters of 'national environmental significance' but also the consideration of social and economic impact of the project (Dept of Environment, Australia, 2010).

3.2 China

The Environmental Impact Assessment Law (EIA Law) requires an environmental impact assessment to be completed prior to project construction. However, if a developer completely ignores this requirement and builds a project without submitting an environmental impact statement, the only penalty is that the Environmental Protection Bureau (EPB) may require the developer to do a make-up environmental assessment. If the developer does not complete this make-up assessment within the designated time, only then is the EPB authorised to fine the developer. Even so, the possible fine is capped at a maximum of about US$25,000, a fraction of the overall cost of most major projects (Wang, 2007).

3.3 Egypt

Environmental Impact Assessment (EIA) is implemented in Egypt under the umbrella of the Ministry of state for environmental affairs. The Egyptian Environmental Affairs Agency (EEAA) is responsible for the EIA services. In June 1997, the responsibility of Egypt's first full time Minister of State for Environmental Affairs was assigned as stated in the Presidential Decree No.275/1997. From thereon, the new ministry has focused, in close collaboration with the national and international development partners, on defining environmental policies, setting priorities and implementing initiatives within a context of sustainable development. According to the Law 4/1994 for the Protection of the Environment, the Egyptian Environmental Affairs Agency (EEAA) was restructured with the new mandate to substitute the institution initially established in 1982. At the central level, EEAA represents the executive arm of the Ministry (EEAA, 2010).

3.4 European Union

The European Union has established a mix of mandatory and discretionary procedures to assess environmental impacts (Watson, 2003). European Union Directive (85/337/EEC) on Environmental Impact Assessments (known as the EIA Directive) (EC Directive, 1985) was first introduced in 1985 and was amended in 1997. The directive was amended again in 2003, following EU signature of the 1998 Aarhus Convention. In 2001, the issue was enlarged to the assessment of plans and programmes by the so called Strategic Environmental Assessment (SEA) Directive (2001/42/EC), which is now in force (Watson, 2003). Under the EU directive, an EIA must provide certain information to comply (EC Directive, 2001). There are seven key areas that are required:

a. Description of the project
b. Alternatives that have been considered
c. Description of the environment (that may be affected by the development)
d. Description of the significant effects on the environment
e. Mitigation
f. Non-technical summary (EIS)
g. Lack of know-how/technical difficulties.

3.5 Methods of carrying out an EIA in India

The Ministry of Environment and Forests (MoEF), of India have the responsibility for carrying out Environmental Impact Assessment in India. Environmental Impact Assessment (EIA) studies need a significant amount

of primary and secondary environmental data. The primary data are those which need to be collected in the field and used to define the status of environment (like air quality data, water quality data etc while the secondary data are those data which have been collected over the years and can be used to understand the existing environmental scenario of the study area (documents/historical data). The environmental impact assessment (EIA) studies are conducted over a short period of time. Environmental trends based on few months of primary data have its own limitations. Ideally, the primary data has to be considered along with the secondary data for complete understanding of the existing environmental status of the area. In many EIA studies, the secondary data needs could be as high as 80% of the total data requirement.

Another shortcoming in the collection of EIA data is the multiple agencies involved in data collection e.g. ecology, geology. There is not a Government Department that harmonises information collected in order to make them available in a single place and manner required by the EIA practitioner. This in turn adversely affects the time and efforts required for conducting the environmental impact assessments (EIAs) by project proponents and also timely environmental clearances by the regulators.

With this background, Environmental Information Centre (EIC) was set up to serve as a professionally managed clearing house of environmental information that can be used by the Ministry of Environment and Forests, project proponents, consultants, NGOs and other stakeholders involved in the process of environmental impact assessment in India. The EIC therefore caters for these needs by creating and disseminating organised environmental data for various developmental initiatives all over the country. The centre stores data in GIS format and makes it available to all environmental impact assessment studies and to EIA stakeholders in a cost effective and timely manner.

3.6 New Zealand

In New Zealand, EIA is usually referred to as *Assessment of Environmental Effects* (AEE). The first use of EIA's dates back to a Cabinet minute passed in 1974 called Environmental Protection and Enhancement Procedures.

This had no legal force and only related to the activities of government departments. When the Resource Management Act was passed in 1991, an EIA was required as part of a resource consent application. Section 88 of the Act specifies that the AEE must include "such detail as corresponds with the scale and significance of the effects that the activity may have on

the environment". While there is no duty to consult any person when making a resource consent application (Sections 36A and Schedule 4), proof of consultation is almost certain to be required by local councils when making a decision about whether or not to publicly notify the consent application under Section 93.

3.7 Russian Federation

In 2004, the state authority responsible for conducting the State EIA in Russia was split between two Federal bodies:

a. Federal Service for monitoring the use of natural resources – a part of the Russian Ministry for Natural Resources and Environment; and
b. Federal Service for Ecological, Technological and Nuclear Control.

The main problem concerning State EIA in Russia is the clear differentiation of jurisdiction between the two above-mentioned Federal bodies. The two main pieces of environmental legislation in Russia are: The Federal Law ‘On Ecological Expertise, 1995 and the ‘Regulations on Assessment of Impact from Intended Business and Other Activity on Environment in the Russian Federation, 2000 (Department of Environment, cited 2010).

3.8 United States

Under United States Environmental Law, an Environmental Assessment (EA) is compiled to determine the need for an *Environmental Impact Statement* (EIS), and originated in the **National Environmental Policy Act (NEPA)**, enacted in 1969. NEPA requires that reasonable statements as to the prospective impacts be disclosed in advance. The purpose of NEPA process is to ensure that the decision maker is fully informed of the environmental aspects and consequences prior to making the final decision.
An ***Environmental Assessment (EA)*** is an environmental analysis prepared pursuant to the National Environmental Policy Act to determine whether a federal action would significantly affect the environment and thus require a more detailed *Environmental Impact Statement (EIS)*. The release of an Environmental Assessment results is either a *Finding of No Significant Impact (FONSI) or an Environmental Impact Statement (EIS).*

The Environmental Assessment is a concise public document for which a federal agency is responsible that serves to:

- briefly provide sufficient evidence and analysis for determining whether to prepare an EIS or a FONSI
- aid an agency, compliance with the act when no EIS is necessary
- facilitate preparation of a statement when one is necessary.

The Environmental Assessment includes brief discussions of the need for the proposals of alternatives as required by Section 102(2) (E) NEPA, of the environmental impacts of the proposed actions and alternatives, as well as a listing of agencies and persons consulted. The agency must approve an EA before it is made available to the public. The EA is made public through notices of availability by local, state, or regional newspapers, etc.

There is a 30 day review period required for an Environmental Assessment, and the document is made available for public commentary. Usually, an agency will release either a *Draft Environmental Assessment* (Draft EA) or a *Draft Environmental Impact Statement* (DEIS) for comment. Interested parties and the general public have the opportunity to comment on the draft, after which the agency will approve the “Final Environmental Assessment" (Final EA) or *Final Environmental Impact Statement* (FEIS). Commenting on the Draft EA is typically done in writing, submitted to the lead agency as defined in the Notice of Availability. Draft EIS require public hearings, so comments can be made in person, as well as in writing. Occasionally, the agency will later release a "Supplemental Environmental Assessment" (Supplemental EA) or a *Supplemental Environmental Impact Statement* (SEIS), especially if the project parameters or environmental conditions or effects change substantially after the issuance of the Final EA or FEIS.

The adequacy of an EIS can be challenged in federal court. Major proposed projects have been blocked because of an agency's failure to prepare an acceptable EIS. Several State Governments that have adopted some laws under NEPAs have imposed EIS requirements for particular state actions. An example of a state law is that of the Californian Environmental Quality Act which refers to the required environmental impact studies as Environmental Impact Reports.

4.0 CONCLUSION

It is important to carry out an EIA before the commencement of a major development. The size of a development is determined by the legislation in the country where the EIA is being carried out. The studies from the various countries also indicate that each country has her own peculiar challenges.

5.0 SUMMARY

In this unit, you have learnt about the emergence of EIA from various parts of world**.** This knowledge brings to fore the complexities of EIA in the various countries.

6.0 TUTOR-MARKED ASSIGNMENT

1. Outline the stages of EIA in the European Union.
2. Describe the EIA process in Australia.
3. Compare the shortcomings of EIA in India with that of the United States.

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UNIT 5 CASE STUDIES OF EIA PRACTICE FROM AROUND THE WORLD

CONTENTS

1.0 INTRODUCTION

Case studies based on EIA Reports are one of the best means of relating EIA training to local conditions and realities. In particular, appropriate case studies offer lessons and insights on EIA strengths and weaknesses locally. They are valuable for a number of purposes, including:

- demonstrating the institutional arrangements and procedures for EIA implementation in a given country

- illustrating how the main steps and activities of the EIA process are carried out locally

- considering the environmental settings and types of impacts that are typically addressed in EIA practice; and

- highlighting key trends and issues of EIA practice, including areas where capacity needs to be improved.

In this unit, case studies from a developed nation (Finland) and a developing nation (Sudan) were discussed.

2.0 OBJECTIVES

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

- establish the different challenges encountered from the various EIA case studies
- compare EIA practices with that obtained in their locality.

3.0 MAIN CONTENT

3.1 Case study of an EIA in Finland, Development of Highway 1 (E18)

Jantunen, J **Uusimaa Regional Environment Centre**

The case study shows the main stages of an EIA procedure and provides a short overview of the difficulties encountered during the EIA, how they were overcome and the benefits of the EIA.

The national Highway 1 is part of the European road E18, which is the most important east-west road corridor in Finland. The E18 is a central element of the Nordic Triangle, which links the Nordic capitals to each other, to Russia and to central Europe, and it are part of the TEN networks. The section of Highway 1 between Salo and Lohja (63 km) is narrow, winding and unsafe. According to the Finnish Road Administration, the road is running short of capacity. Already in the 1960s, the Road Administration began planning to develop this highway to a motorway standard. A preliminary design with several alternatives was completed in 1988 and in 1990 the Ministry of Transport made a decision on a project for a motorway between Salo and Lohja and chose the alternative for the final design. The Road Administration worked on completing the final design during 1992 and 1993, before Finland joined the European Union in 1995 and before the Finnish EIA legislation came into force on 1 September 1994. However, in accordance with the Finnish EIA legislation, this project was still subject to a mandatory EIA.

3.2 The EIA Procedure in Finland

In the Finnish EIA procedure, the developer first prepares an assessment programme, which contains information on the project, alternatives to the

project and how the assessment will be carried out. The assessment programme is already subject to public participation. On the basis of further studies and opinions given on the assessment programme, the developer prepares an assessment report where information on the project and the alternatives are presented, together with a comprehensive evaluation of their environmental impacts. This report is again subject to public comment. The report will be attached to decision-making material. The authorities are not allowed to make any decision on a permit or a plan until the assessment procedure has been concluded. The task of investigating environmental impacts falls to the developer. A coordinating authority is responsible for coordination of the assessment procedure, reviewing reports and related duties. In this particular EIA the coordinating authority was the Uusimaa Regional Environment Centre. In the EIA Decree there is a detailed list of different project types that always require the assessment procedure. The list is based on the lists in the EIA Directive (85/337/EC with amending 97/11/EC) and the UNECE Convention on EIA in a Transboundary Context (1991). The EIA procedure can also be applied in individual cases to a project not included on the list or it can be applied to modifications of a completed project that will probably have significant adverse environmental impact. The Ministry of the Environment is responsible for making these case-by-case decisions on whether to apply the assessment procedure. However, for nuclear power projects it is the Ministry of Trade and Industry who makes these decisions.

Screening

In the case of national Highway 1, the Road Administration was not willing to start the whole design process for the road from the beginning, so there were only two main alternatives in the EIA. The first alternative was a 63 km motorway from Salo to Lohja. The details of the alignment were not fixed and there was the possibility that minor changes would be needed in certain places, mostly because of spots with high conservation value. The other alternative was a *do the minimum* alternative, that is, just upgrade the existing roads. Because of the motorway alternative, it was clear that the project was subject to an EIA, in accordance with the Finnish legislation and the EIA Directive.

Identification and Scoping

The new road would pass through important natural areas and would cause changes to both the natural landscape and cultural landscape areas. There were also several important groundwater areas, as well as lakes and rivers, to be considered.

The scoping was focused on identifying the most sensitive and important areas and on analysing the changes that would result because of the building of the road. The EIA was focused on national and regional impacts. The most important goal was to determine the impacts of a new motorway and the impacts of just upgrading the existing roads. The feasibility study had already assessed quite comprehensively the local impacts. However, later it was seen that the EIA paid too little attention to the local impacts. In one area with high landscape values there were some alternative alignments proposed and these were assessed in more detail.

According to the Finnish legislation on EIA, the EIA procedure is also subject to public participation. Several different interest groups were consulted and the opinions were very diverse, depending on the interest group or the location of the group. This was also one of the first EIA procedures in Finland and especially nature conservation associations were actively involved in seeing what the EIA procedure meant in practice.

Baseline Data

The earlier investigations and traffic forecasts done during the feasibility study were updated and some new supplementary surveys were made. The existing roads were mapped and biotope mapping was done when needed. Groundwater surveys were also updated and more information on the transport of dangerous chemicals was collected.

Potential impacts from noise and emissions were assessed closely and there were inquiries and interviews of local people to assess social impacts. Landscape analysis was done in both rural environments and more densely populated villages. Different scenarios were used to look at impacts on community structure and economics: what factors increase economic growth and what kinds of impacts will they have on employment.

Additionally, possible changes in the status of local municipalities and in their physical land use planning were studied.

Impact Study and Assessment

In the Finnish EIA legislation there are requirements for an EIA report. The EIA report covered the environmental aspects that were determined to be the most significant during the scoping phase. A new motorway has significant advantages and disadvantages. The upgrading of the existing roads however will have minor consequences as compared with a totally new motorway. A new motorway will help ease problems on the existing roads, but just upgrading the existing roads will not be an effective solution to traffic problems. In general, the upgrading of existing roads means that

the already existing problems will increase and the people living next to the roads will suffer even more. In economic terms, the new motorway was seen to be the better solution. The most significant adverse impact of the new motorway will be the loss of biodiversity. The new motorway will also cause fragmentation in some lake areas, as well as in one important recreation area. Moreover, the motorway will change the landscape especially in rural areas with high cultural values.

On the other hand, the new motorway will have a positive economic impact on some municipalities and it will boost development in some villages next to the existing roads. A negative impact though is that some areas that are now quiet areas will be affected by the traffic noise from the new motorway. However, the number of people overall suffering from traffic noise will decrease. In the EIA, it was shown that the upgrading of the existing roads will have significant adverse impacts on some villages next to the existing roads. On the other hand, the upgrading of these roads will allow for the implementation of ground water protection, which will reduce risks of ground water contamination.

When completed, the assessment report was subject to public comments. Local municipalities and other authorities were quite satisfied with the assessment report but the general public and the local associations were more critical. They suspected that the EIA favoured the new motorway alternative.

The Uusimaa Regional Environment Centre reviewed the report and stated that the EIA had been done in accordance with the Finnish EIA legislation and that it was sufficient. However, the Regional Environment Centre pointed out that the concern about the neutrality of the EIA was not groundless. In its statement, the Centre suggested guidelines for future environmental studies needed in different planning and permit processes for the motorway.

After the EIA

The EIA was completed in 1996. The Finnish Road Administration proceeded to work on the final design of the project. In 1995 Finland became a member of the EU and it then had to implement the Habitats Directive. During the EIA procedure, the Finnish Nature Conservation Act, which implements the Habitats Directive, was not yet in force and Finnish authorities paid too little attention to species listed in Appendix 4(A) of the Habitats Directive. Some local people found evidence of flying squirrels, which are listed in Appendix 4(A), close to the planned motorway.

The Road Administration ordered a report on flying squirrels for the entire road section. According to the report, 47 occurrences of flying squirrels close to the planned motorway were recorded, of which 29 were in the immediate vicinity of the road. This resulted in a long legal process that delayed even further the construction of the new motorway. Another surprise was a shooting range located in an area of a proposed interchange. A high concentration of lead was detected in the soil. According to the amended EIA decree, the disposal of heavily leaded soil is subject to a mandatory EIA. This meant a new EIA procedure for the cleaning up and disposal of the leaded soil, which resulted in even more delays. Currently, all the plans for the project have been ratified, there are no more legal proceedings, and the motorway is under construction.

Benefits of the EIA

This particular EIA case was far from ideal. The main problem was that the alignment for the motorway alternative was chosen before the EIA started. This caused misunderstanding among some of the groups involved. There were also discussions with the European Commission about the lack of alternatives in regard to the flying squirrel.

Maybe the biggest benefit in this case was that the EIA ensured that environmental issues were taken into account in the planning procedures and the decision-making process. This resulted in modifications to the project, so that it was more environmentally friendly, which made it easier for the project to be accepted, and also more in line with the national legislation. In this case the EIA helped to identify environmentally sensitive areas and significant issues so that they could be taken into account and the adverse impacts could be reduced to an acceptable level. Some positive outcomes of the EIA are: an important recreation area was saved by building a tunnel, most habitats of the flying squirrel were saved by small changes in design, groundwater areas were protected, long sections of the road run through deep rock cuttings and the planned primary measure for noise control is terrain modification. For environmental reasons, landscape bridges have been planned for the longest bank sections. Surface water runoff from the road area will be treated and there will be controlled channelling of this water into the natural water system. There will be limitations on construction work in waterway sites during the spawning season of fish and the nesting season of birds. This particular case is a good example of how to apply an EIA when the planning procedure and decision-making process have reached the point where it is not possible to start again from the very beginning.

Lessons learned

An important point is to be sensitive to the new information and not to rely too much on the old information. Nature is dynamic and it is not always easy to identify immediately all the important species listed in the Habitats Directive. If you receive a hint about something, check it out and don't ignore it. Natura 2000 sites and the species listed in Appendix 4(A) of the Habitats Directive are very important factors in planning and decision-making.

Be aware of the legislation. If you have a major infrastructure project, it will take many years, if not decades, to carry it out. When a country becomes a member of the EU, totally new environmental legislation needs to be implemented. This is what happened in Finland. New legislation will probably be applied to some projects, maybe even more than once, and each time new legislation is applied, there is the possibility that new groups will have the right to appeal your project. Don't choose an alternative too early. There should be several alternatives. Try to identify the main interest groups and impacts of the project; this is because these are important when looking at different alternatives. A detailed design with obvious alternatives might go to waste and you can lose valuable time if you need to begin the procedure again.

3.3 Environmental Impact Assessment from a Sudanese Perspective by Osman Mirghani Mohamed Ali

Introduction

The history of the EIA process in Sudan as well as its *status quo* is reviewed. Examples are cited of ElAs conducted and appraised in the light of legislation, participation, environmental sustainability and capacity building. Emphasis is laid upon developmental projects related to the Nile System in Sudan.

Problems negatively impacting the efficiency of the EIA process in Sudan fall into internal and external categories. The former are related to the origin, procedure and fate of the EIA as follows:

- legislation and institutional aspects of EIA
- lateness of the ElA in the project cycle
- inadequate time allotted for completion of EIA
- composition of the EIA Team and qualification of team members ; and
- fate of the accomplished EIA.

Environmental Assessment in Sudan

A history of EIA in Sudan shows that the report of the Equatorial Nile Project (ENP) of 1954 is probably the first ever environmental impact assessment endeavour carried out in the developing world (Moghraby, 1997). That was an EIA in function but not in name! Recent environmental and socio-economic evaluations were also carried out (Moghraby, 1982; Moghraby & El Sammani, 1985). It is worth mentioning that EIA requirements were first introduced by the World Bank in 1989 through its Operational Directive 4.01 on Environmental Assessment, now Operational Policy 4.01 (Freestone, 1996).

Sudan is currently embarking on ambitious developmental programmes such as rehabilitation of agricultural schemes, construction of transcountry roads, digging of irrigation canals, building and heightening of dams and extraction and transportation of crude oil as well as a number of new industries. Each of these projects could have diverse and significant environmental impacts. For each of these projects an EIA is either in progress or is planned.

Features of the Process of EIA in Sudan

Legislation

As most of the developing projects in Sudan are sponsored and implemented by overseas donors, it is the donors who require and usually supervise the implementation of particular ElAs. Sudan itself has not legislated for EIA as a mandatory requirement as is the case, for example, in the German Act on the Assessment of Environmental Impacts (Tier, 1998). Instead, there are over 150 natural resources laws and sectoral regulations dealing with health, water supply, land tenure, game, protected areas, fisheries and marine resources and other sectors of natural resources.

More recently, Sudan has taken a remarkable step towards promulgating comprehensive environmental legislation, the *Environmental Protection Policy Act*, awaiting the signature of the President before being implemented, which states that: ‘Any large developmental project, whose construction might negatively impact the quality of the environment should undergo an Environment Feasibility Study (EFS).’ Stipulated in the EFS is the requirement for the following information:

- effect of proposed project/action on the environment
- any unavoidable negative environmental impact; and
- available alternatives for proposed actions.

Agencies Conducting EIA

For an effective implementation of an EIA two pre-requisites are vital:

- proper qualification of the conducting agency and
- its independence and non-polarity.

Unfortunately, these two conditions are not strictly observed. An array of agencies and consultants are available, all claiming to be qualified and experienced in conducting ElAs for all types of projects. As for the second condition, in a particular irrigation project, the constructing firm entrusted with the implementation of the rehabilitation protocol won the tender for carrying out the EIA for the same project. This, no doubt undermines the integrity of the bidding authority and blemishes the value and goal of the process itself.

The Timing of the EIA

The implementation of an EIA has to insure that, should an adverse environmental impact be foreseen, the necessary corrective measures are formulated in the early stages of preparation of the proposed project. The prerequisite of this is that the EIA should be started and accomplished before the proposed date of the project execution. However, this is not always the case. In Zimbabwe the EIA was carried out for the proposed Osbome Dam while the construction of the dam was already under way with the engineers, surveyors and other staff working on the dam site! (ICEA, 1989). In Sudan, the rehabilitation of canals and other irrigation structures as well as the construction of the pump stations in all four schemes of the Northern Province Irrigation Rehabilitation Project were in progress when the tenders for the EIA were opened! This delay in starting the EIA process happened even though the feasibility study of the Rehabilitation Project was conducted 16 years ago! In both cases such efforts cannot be deemed as EIA and can only rank as environmental evaluation studies (EES). The time factor affects the quality of EIA in so far as the lateness of the EIA would not permit meticulous, integrated conduct of the assignment, nor would it allow for application of the recommended mitigation procedures.

Participation

The participation of the local people and NGOs will no doubt act as a safeguard ensuring that the EIA has not overlooked the envisaged impacts on the community concerned. This participatory involvement should begin

from the point of the project identification and continue throughout the project cycle. However, this is loosely, if at all, adhered to. Similar to the findings of Gutman (1997), public participation, with a few exceptions, did not rank high among the ElAs. It was either ruled out, omitted by the EIA team or was acknowledged as too late and too limited. Such practices as the coopting of local expertise in the EIA team and in the administration of questionnaires are not enough. This calls for remedial measures such as spelling out in the EIA Act that the participation of the local people is of equal importance and inseparable from the process itself. Concomitant with that, if not prior to it, is the training of NGOS, CBOs and affected groups to take part in the EIA protocols. Good ElAs are expected to contribute to the final project design, give the public a say in the project, and add to overall environmental awareness among involved parties (Gutman, 1997).

The Fate of the EIA

Bad as it is not to undertake an EIA, it is worse to ignore the results of an EIA once accomplished. The monitoring of mitigation measures calls for a responsible body. Such an agency as the environment management agency (PEA) is lacking in Sudan. The HCENR, if institutionally upgraded and financially supported, could fill that gap. Otherwise, questions as to who will:

- implement the findings of the EIA
- supervise the implementation
- supervise the implementation all remain unanswered.

The Federal System

The federal governing system adopted by Sudan casts heavy shadows over the EIA process. Conflict over natural resources could occur between various States. The devolution of the Comprehensive Environmental Legislation to State levels needs the executive power to make it effective. It is suggested that the Central Government should have a stronger grip on policies, legislation, foreign affairs and coordination.

Recommendations

- The country should hasten its steps towards the adoption of the NEAP and the signing of the EPA.

- Qualified firms, institutions and personnel should be involved in EIA. The quality of EIA should comply with ISO 14001.

- Manuals and EIA software should be available in English and, if possible, in Arabic languages.

- Manuals and software should be tailored to Sudanese circumstances or to similar developing countries.

- The HCENR should be upgraded institutionally and supported financially.

- Research and training institutes such as the Institute of Environmental Studies should be supported to be the focal point of all ElAs in Sudan.

- Popular participation should be an integral part of the EIA.

- ElAs should be open to competition by consultants firms via invitation to tender.

- It should be obligatory for overseas implementing firms to consult with Sudanese experts to enhance the Environment Assessment (EA) capabilities in the country.

- Enough time should be available between the completion of the EIA and the execution of the project.

- Social and economic issues should receive equal weight as the natural environment.

4.0 CONCLUSION

The unit gives an overview of how EIA is practised in other countries/organisations and sheds light into the problems and benefits of carrying out an EIA. It is anticipated that in years to come, more governments will approve of alternative ways of carrying out a smooth EIA process through the legislative processes. Furthermore, you are encouraged to explore (through the internet) other case studies on the practices of environmental impact assessment to get more understanding of the challenges.

5.0 SUMMARY

Following the case studies highlighted in this unit, you now know the practices of EIA from Finland and Sudan. You have gained knowledge of

their legislation and their EIA practices. You will, from this unit, understand that the process of EIA are detailed and involve a lot of interactions with various stakeholders, such that, a breach in any of the processes will causes a significant problem in subsequent process and also delay the application time. Some recommendations have also been made following the Sudan's case study which could also be applied in similar circumstances.

6.0 TUTOR-MARKED ASSIGNMENT

1. What are the challenges of EIA in your country? How does it compare with EIA in other developing nations?
2. What process(es) should be put in place by the Federal Government in order to ensure the successful implementation of EIA?

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MODULE 5 ENVIRONMENTAL AUDITING

UNIT 1 ENVIRONMENTAL AUDIT

CONTENTS

1.0 INTRODUCTION

Globally, environmental protection has continued to be a central topic of discussion and a necessity for sustainable development. This calls for environmental audit to be carried out in existing industries and Environmental Impact Assessment to be carried out on new, major projects as stipulated in the Federal Environmental Protection Agency Regulations.

Following this growing need, there is an increasing need for existing industries to demonstrate good environmental management practice. In this unit, you will learn what Environmental Audit is, why it is necessary for enhancing environmental protection, types of environmental audit and their uses.

2.0 OBJECTIVES

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

- define environmental audit
- list the objectives of environmental audit
- identify the types of environmental audit
- state the differences between the types of audit.

3.0 MAIN CONTENT

3.1 Definition of Environmental Audit

An audit is the process of reviewing activities and records against defined standards or procedures to establish what is being done and how far the process is complying with requirements.

FEPA National Guidelines for Environmental Audit in Nigeria defines Environmental Audit as *"a management tool consisting of a systematic, documented, periodic and objective evaluation of environmental performance, management systems and equipment with the aim of firstly, **facilitating management control of environmental practices** and secondly, **assessing compliance** with an operations or activity's environmental policies, including **meeting regulatory requirements**".*

It can also be defined as "*the process of **reviewing activities and records against defined** standards or procedures to establish what is being done and **how far the process is complying with requirements".***

3.2 Objectives of Environmental Audit

The objectives of Environmental Audit include:

a. gather information (either verbally or written) on the facilities' process, potential risks and management procedures
b. better management of resources and improved environmental performance
c. ensure compliance with regulatory requirements
d. encourage organisations to regulate their environmental practices.

3.3.1 Types of Environmental Audit

There are various ways by which environmental audit can be grouped. This could be broadly classified based on **how** audits are to be carried out as follows: self-audit, internal audit and external audit.

- **Self audit**: This involves the audit carried out by selected members of a team from the unit by which an audit is to be carried out. This could be by the senior operatives in the unit being audited.
- **Internal audit**: This involves the audit carried out by selected members of staff from various units of an organisation to audit a particular unit, but not the unit being audited. The aim is to identify and report problems without bias.
- **External audit**: This involves the audit carried out by selected team from outside the establishment and may be assisted by employees of the organisation being audited. External auditors could be Consultants or Regulators. It is important especially where 3rd party benchmarking and neutrality is required.

However, environmental audits can be classified based on **what** is to be audited in an organisation. This could include: Regulatory Compliance Audit, Process Safety Audit, Occupational Health Audit, Liability Audit and Management Audit.

3.3.1 Regulatory Compliance Audit

The Regulatory Compliance Audit is used to measure a company's/facility's compliance status in relation to the current environmental regulations, laws and requirements. This is important for all companies in Nigeria (National Guidelines for Environmental Audit in Nigeria). It identifies areas of non-compliance and seeks ways to ensure future compliance. The frequency of this type of audit varies. It could be quarterly for in-house auditors, biannually for external auditors or as when required.

3.3.2 Process Safety Audit

This type of audit identifies with the health and safety issues in the company's processes. It identifies the hazards and quantifies the risks arising from the process. The process safety audit looks into the

management procedures for accidents and emergencies. This audit is carried out in compliance to laws regarding health and safety best practice.

3.3.3 Occupational Health Audit

This type of audit investigates issues that concern the occupational exposure of workers to pollution (e.g. noise, air) and physical disabilities. It audits the company staff for protective equipment/clothing, assesses occupational exposure of the process operations and recommends the training of staff on basic protective requirements of staff. The company's medical personnel is included as part of the audit who will provide relevant information concerning pollution levels and long-term medical conditions.

3.3.4 Liability Audit

When a building/facility is to be acquired, it is important that a liability audit is carried out on the property or facility. This is to ascertain the environmental problems that could be on the facility and determines the short-term or the long term problems of the facility and makes suggestions for remediation. The frequency of liability is about three months.

3.3.5 Management Audit

The Management Audit is important as it looks at the environmental management issues of a facility, assesses the company's hierarchy, policies and the goals of the environment in that facility. This type of audit is more inclined to documentation of procedures and audits the company's environmental performance measured against standards. Corrections following this audit bring about an improved environmental performance and implementation. The frequency of Management Audit is about four years as recommended by the Department of Petroleum Resources in the "Environmental Guidelines and Standards for the Petroleum Industry in Nigeria".

4.0 CONCLUSION

Environmental Audit is a tool which is used in carrying out environmental responsibilities by evaluating and monitoring financial and production performance. The various types of audits available enable management to be specific in areas that needs to be audited. It enables information to be gathered, measured against standards and regulations and enhances compliance with regulatory requirements.

5.0 SUMMARY

In this unit, you have learnt that Environmental Audit is a management tool which involves documentation and evaluation of environmental performance. It aims at gathering information on facilities and people in order to protect them and identifies the types of audit. Compliance to legal requirements is the key in environmental audit and encourages support from senior management for a successful implementation.

6.0 TUTOR-MARKED ASSIGNMENT

1. In your own words, define an Environmental Audit.
2. The Regulatory Compliance Audit is an important tool which is included in all other types of Environmental Audit. Discuss the reasons for this.
3. What are the differences between an external audit and an internal audit?
4. Briefly describe each of the following:
   - Liability audit
   - Management audit
   - Occupational Health Audit
   - Process Safety Audit

7.0 REFERENCES/FURTHER READING

European Industrial Gases Association (2005) *Environmental Auditing Guide IGC Document 135/05/e, Revision of part of TN 515/95*http://www.eiga.org

The Presidency Federal Environmental Protection Agency National Guidelines for Environmental Audit *Decree 59, 1992 as amended Decree No.14 of 1999.*

UNIT 2 ENVIRONMENTAL AUDIT PROCESS

CONTENTS

1.0 INTRODUCTION

The Audit Process is the main aspect in environmental auditing. The process is a series of *systematic and documented* steps in a function or activity. It is at this stage that all preparations, actual auditing and post audit activities take place. It involves the identification of what needs to be audited, the definition of the scope, identification of roles and

responsibilities, carrying out the audit and the production of a report thereafter occurs. It follows the steps: **PLAN- DO- CHECK-ACT.** The **planning** aspect of auditing looks into the scope and commitment requirement prior to carrying out an audit; **doing** involves carrying out the audit which includes the pre-audit, site audit and post audit activities; **checking** is the process of verifying improved performance and assessing the cost and benefits of implementing the revised process and **acting** takes place when the improvements are installed, standardised, introduce the improvement into other areas of the organisation. An environmental audit is important as it helps to provide valuable information which helps the company to meet the agreed standards, to meet the agreed standards of performance as defined by company policy and to stay ahead of legislative requirements.

2.0 OBJECTIVES

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

- explain the major steps in an environmental audit
- describe the requirement for a preparing an audit
- identify areas that can be audited in a given site
- give reasons why the management needs to be involved in the audit process
- describe how a good environmental report should look like.

3.0 MAIN CONTENT

3.1 Scope of Audit

The scope of an audit determines the extent at which an audit is to be carried out in a facility. It involves clarifying audit site/boundary, objectives and identifies areas to be audited. This implies that the management needs to be involved in the scope definition. The success or failure of the audit is determined by the commitment of management to the audit process including the implementation of the outcomes/recommendation from the audit report.

3.2 Objectives of Audit

The objectives of an audit could be to:

- investigate information such as the history of the facility including previous environmental damage
- examine current company practices e.g. review
  - management of resources like raw materials
  - pollution control (air, water, and land)
  - handling, storage and disposal of chemical and other hazardous substances
  - housekeeping (water, energy, paper consumption, training).

- verify compliance to legislation and company policy, permits, in-house policies, etc
- assess internal policy and company conformance
- identify areas for improvement opportunities.

3.3 Pre-Audit Process

This is the most important stage in the whole audit process. Critical planning at this stage will determine the success of the initial and subsequent audits. At the pre-audit stage, the audit team is selected, there is the need for management commitment, information regarding site activities are queried, documentation concerning compliance to legislation and company policies. Pre-Audit Process involves:

- determine the scope of the audit
- selection of team
- obtain information
- management commitment.

3.3.1 Audit Team Selection

This involves selecting audit team members which includes a members from the facility being audited, the external auditor who is certified, other team members could be selected from other areas not been audited and must have skills that are relevant to the audit process such as research, interview, data collection and report writing. It is at this selection that responsibilities are shared and each member must understand their roles.

The team members of an environmental audit could include the following people: the client, audit team leader (selects the team and briefs them on the purpose of the audit and the areas to be audited. He could be an environmental regulator or a certified auditor) the auditor (this person is responsible for a particular area allocated for the audit exercise), the auditee

(this is the organisation or facility being audited) and observer (this could be trainee auditors or company's consultants).

3.3.2 Audit Area Selection

This involves the selecting the areas to be audited such any of the following: Air quality, Water, Electricity, Material use, Waste management practices, Noise impacts, Accidents and Emergency records and systems in place for management, Public response and complaints, Pollution control facilities in the company, staff training on environmental awareness.

3.3.3 Pre-Audit Information

At this stage, questions are asked either orally or in the form of questionnaires so that pre-information is gathered in order to determine the level of investigation that would be required at the main audit. Some of this information could be in the form of document or involved pre-audit site visit. The information gathered could include the site history/geology, personnel, operational procedures, storage and all these inquiries are demanded from the auditee from about 2-3 weeks in advance of the audit exercise so as to determine the level at which the audit is to be carried out. Selections of topics to be focussed upon in the course of the audit exercise which are related to subject areas in the facility are collated in a **checklist**.

3.3.4 Management Commitment

It is important that the management is involved in the audit exercise. This is because of the scope of the audit, potential interruptions of certain activities and personnel during the course of the exercise. Potentially, interviews could be requested from staff. Following the audit exercise too, the management will have the responsibility of implementing the new changes from the audit outcome. Cooperation is required from members of staff in terms of agreement and approval of the audit in order to achieve success. Depending on the size of the company, there should be a written agreement for conducting an audit.

3.4 Conducting an Environmental Audit

3.4.1 Preliminary Meeting

This is the on-site meeting which comprise of the management and the audit team members. In this meeting, team members are introduced to each

other, the scope and objective of the audit are itemised and the areas or processes that require attention are discussed. In this meeting, the approach and methodology are discussed, questions asked by staff personnel are answered and it is also in this meeting that staff support and cooperation are sought after, information requested in the form of questionnaires is reviewed and questions are asked by the auditors where necessary. In addition, the duration of the audit exercise is determined at this stage.

Document review:
The following document could be reviewed and compared to information provided from questionnaires and checklist such as the company's Management policy and documentation, Permits and licenses and conditions attached to them, Operational procedures, Records (utility, inventory, monitoring, calibration, transportation, training etc.), Previous audit reports or EHS team meeting minutes.

3.4.2 Site Inspection

At the inspection of sites, the auditor finds out issues about non-compliance and may identify matters which are relevant to the audit but were not identified in the planning stage. During on-site audit activities, it is important to work with a procedure which consists of steps which must be followed by the auditor to ensure that there is consistency in the implementation of the audit and the reporting of results.

Considerations for On-site Audits

- Reconcile onsite activities with records kept.
- Interview relevant members of staff regarding current practices (this could be senior management or support personnel).
- Assess compliance with statutory and departmental requirements.
- Be flexible when applying audit procedures as different situations demand diverse judgement.
- During on-site audit, it is important to address all areas within the scope of the time allocated for the exercise.
- Pictures, diagrams, maps etc. are very useful to support findings and to highlight good practices. While this is very good practice, it is important to obtain permission from the management and respect safety requirements.

3.4.3 Review Audit Exercise

At this stage, the audit team reviews data that had been audited on site, verifies them and evaluates the findings.

- In **data collection**, information collected through interviews or by documentation which are provided by the auditees, auditors' notes and observation, pictures, maps, diagrams and other related items are collated and organised in such a way that they can be retrieved easily. These data have the purpose of supporting audit findings and provide bases for verification.
- The **verification** of audit data is important so as to guarantee that the documents produced are all genuine and valid and this must be carried out under the direct supervision of the audit team.
- After verification, the findings need to be **evaluated** against the objectives established for the audit i.e. using regulatory requirements, standards or company requirements. This stage ensures that all issues and problems have been covered and those which require immediate attention are identified. Those which require mitigation approaches for management are also discussed. Questions could be asked by the organisation's representative, feedback provided as to the conduct of the audit and the audit team can inform the organisation when the report will be ready. Following these activities, a debriefing material is produced for the closing up meeting.

3.4.4 Closing Meeting

At the closing meeting, the audit team and auditees and all who had participated in the preliminary meeting come together again and review all that had been carried out during the audit and to discuss the observation. It is at this meeting that matters are resolved. The audit team shall provide an overview if the finding and indicate when the final report will be completed. All documents that had been collected prior to the audit or during the audit are at this time returned back to the organisation. The closing meeting is very critical to the implementation of findings on site; hence the manner of communication has to be cordial, yet firm. This implies acknowledging the co-operation of site personnel, highlighting the positive aspects first before discussing the shortcomings, no matter how minor it is.

3.5 Post Audit Activities

These are the activities that take place "out-of-site" after the site audit had been completed. It involves:

3.5.1 Preparing a Report

A draft report contains the audit findings, recommendations and provides action plans for the implementation or improvement of default areas. This draft is issued to the company thereby providing an important opportunity for the management of the unit being audited to see and comment upon a draft of the audit report before it is revised with the points clarified where possible and inaccuracies corrected. The draft report is then revised and a final report is issued and a follow up meeting is conducted if necessary.

3.5.1.1 Characteristics of a Good Report

a. It should state the factual findings including compliance to standard, policy and legal requirements
b. It should include recommendations for remedial or improvement actions
c. It should be accurate i.e. the findings must be free from errors
d. It should be clear
e. The language used should be simple and easy to understand
f. It should be succinct i.e. straight to the point
g. The draft report should be prepared on time and delivered at least a week after the audit had been carried out. The final report should be ready within 4-5 weeks of the closing meeting.

3.5.1.2 Contents of an Audit Report

Ideally, an audit report should not be lengthy, but should be about 25 to 30 pages depending on the number of areas audited. It should contain the following information:

a. Contents list
b. Executive summary
c. Introduction
d. Purpose and Scope of the audit
e. Methodology
f. Discussion and analysis of the findings
g. Reference to items for corrective action
h. Actions and recommendations
i. Conclusion
j. The distribution list
k. Records of the audit programme

l. List of participants

3.5.1.3 Characteristics of a Good Auditor/Audit Team

- The facts should be presented in the report and not personal opinions
- They must ensure accuracy, consistency and objectivity in the performance of audits
- Professionalism should be demonstrated in the face of auditee's open hostility or diversionary tactics
- The environmental auditor should have suitable education and professional experience to carry out their duties including: communication skills, work scheduling and planning, data analysis and finding, and audit report writing.

3.5.2 Action Plan

This involves identifying the corrective actions indicated in the audit report and doing something about them. It goes on to identifying the scale of the problem, take preventive action or assess the effectiveness of a remedial action. Some of the corrections that have been indicated could be carried out easily within the facility within a given time/period and with limited resources while some could demand more resources in terms of man-power or have serious financial implications. It is at this stage that management commitment is vital to implementing improvement actions and monitoring progress on the facility. At this stage, the facility can structure out a plan for the implementing the recommendation and decide a way forward for compliance.

3.6 Keys to a Successful Audit

An audit is said to be successful if it works in line with the following:

- Support from management
- Participation by all parties
- Auditor independence and objectivity
- Agreement on procedures and scope
- Implementation of action plans and remediation.

3.7 Benefits of Carrying Out an Environmental Audit

a. Management

- Demonstrates a visible commitment to improving an organisation's environmental performance.
- A foundation for the development of environmental management policies or efforts to
  improve existing plans.
- Identifies environmental risks, impacts and opportunities.
- Reviews management controls and systems and associated liabilities and risks from past and present activities of the site or surroundings and implementation of recommendations.
- Reviews processes and plant operating procedures or an activity's current environmental standards of operation and company environmental management procedures, including emergency response planning, monitoring and reporting system and planning for future changes in Processes or Regulations.
- Increases actions to be undertaken by an organisation or activity to meet environmental goals such as sustainable development, recycling and efficient use of resources.

b. Financial

- Prevention of financial losses through remediation.
- Prevents the closure of an organisation or activity as result of government restrictions or negative publicity caused by bad management or monitoring of the environment.
- Assesses of financial implications of environmental issues, liabilities and impact of new regulation.
- Identify areas where costs can be saved (e.g. through energy conservation. minimisation, improved use of raw materials, process changes, waste reduction, and reuse and recycling etc).

c. Legal

- To measure and improve an organisation or activity's compliance with environmental legislation and regulations such as operating permits, air emission standards, effluent standards, waste management standards thus avoiding legal sanctions against an

organisation or activity or its management under prevailing laws and regulations.

- Provides evidence of the implementation of environmental management in court if requested.
- Training.
- To facilitate the sharing of best environmental practices.
- To increase in the awareness of the management and staff of an organisation regarding environmental policies and responsibilities.
- Assessment of training, knowledge and awareness of employees.

d. Reporting

- Provision of an environmental audit report for use by an organisation, or activity in dealings with environmental groups, government and the mass media.
- Provision of information required by insurance companies, financial institutions, shareholders and other stakeholders.

3.8 Challenges of Environmental Audit in Nigeria

- Poor compliance by business organisation.
- Pollution of the environment by industry remains a major problem.
- Weak enforcement by regulatory agencies.
- Low environmental awareness within the business community.
- Environment issues given sufficient little or no attention by senior management of business organisations.
- Fire brigade approach.
- Revenue generation drive of State Environmental Protection Agencies.
- Lack of manpower and poor technical competence within business organisation and regulatory bodies.
- Multiple regulators at the Federal, States and Local Government Levels.
- Low quality reports by consultants.
- Ethical issues.

4.0 CONCLUSION

The Audit Process is a critical aspect of environmental auditing. It involves adequate planning and execution. In order for the process to succeed, there is a need to involve key human resources that will carry out their roles

effectively. It is important to reconcile documented information with actual information observed and collected during the audit exercise.

5.0 SUMMARY

In this unit, you have learnt the major steps necessary to be taken when carrying out an Environmental Audit- the pre-audit preparations, main audit activity and the post-audit requirements, and the keys to a successful audit. Some of the benefits in carrying out an environmental audit include: compliance to legislative requirements, financial, staff commitment and minimisation of environmental risks. Environmental audit also helps the company to stay ahead of the requirements placed on them by law.

6.0 TUTOR-MARKED ASSIGNMENT

1. What are the main objectives of carrying out an Environmental Audit?
2. Make a list of the participants in the selection of an audit team.
3. A management's consent prior to an audit is required. Give reasons for this.
4. An audit data needs to be verified and evaluated. Discuss.
5. What are the attributes of a good Environmental Audit Report?
6. Limited environmental awareness is one of the challenges of environmental protection in Nigeria. Do you agree/disagree? Discuss.

7.0 REFERENCES/FURTHER READING

European Industrial Gases Association (2005) *Environmental Auditing Guide IGC Document 135/05/e, Revision of part of TN 515/95*http://www.eiga.org.

The Presidency Federal Environmental Protection Agency National Guidelines for Environmental Audit *Decree 59, 1992 as amended Decree No.14 of 1999.*

UNIT 3 LEGAL ASPECTS AND PRACTICE OF ENVIRONMENTAL AUDIT UNDER NIGERIAN LAW

CONTENTS

1.0 INTRODUCTION

Environmental law gears human actions on the basis of the principle of prevention, the polluter-pays' principle and the principle of co-operation. The establishment of regulatory bodies and governmental agencies have to be in place for the effective enforcement of policies, laws and regulation and are been enforced by the regulators. Prior to 1988, there were no laws in force to regulate industrial pollution or hazardous wastes. Although the existing environmental legislation only focussed on the protection and conservation of economically important natural resources (E.g. Oil Pipeline

Act 1956, Forestry Act 1958, Sea Fisheries Act 1990, Endangered Species Act 1990, Mineral Oil (Safety) Regulations 1963, Oil in Navigable Waters Act 1968). Following the illegal dumping of toxic wastes in Koko, in the former Bendel State, in 1987, the Nigerian Government promulgated the Harmful Wastes Decree which provides the legal framework for the effective control of the disposal of toxic and hazardous waste into any environment within the confines of Nigeria. This was immediately followed by the creation of a regulatory body, the Federal Environmental Protection Agency (FEPA) in 1988.

2.0 OBJECTIVES

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

- describe the functions of FEPA in relation to Environmental Audit
- list the functions of FEPA in relation to environmental auditing
- mention the roles of NESREA as an environmental regulator.

3.0 MAIN CONTENT

3.1 1990 Constitution of the Federal Republic of Nigeria

S.20 of the Constitution provides that:
"The state is empowered to protect and improve the environment and safeguard the water, air and land, forest and wildlife of Nigeria".

S.17 (3) (c) provides that:
"The State shall direct its policy towards ensuring that the health, safety and welfare of all persons in employment are safeguarded and not endangered or abused".

3.2 Federal Environment Protection Agency (FEPA) Decree 58 of 1988

FEPA was created by Decree 58 of 1988 as the overall body charged with the responsibility of protecting the environment in Nigeria in cooperation with Federal and State Ministries, Local Governments, statutory bodies. To put this into action a National Policy on the Environment was developed. This is the main working document for the preservation and protection of the Nigerian environment. States and Local Government Councils were also encouraged to establish their own environmental regulatory bodies for

the purpose of maintaining good environmental quality as it applies to their particular terrain.

The functions of FEPA include:

- Establishing and prescribing national guidelines, criteria and standards for:
  i. water quality
  ii. air quality and atmospheric protection
  iii. noise levels
  iv. gaseous emissions and effluent limits
  v. ozone protection.

- The agency was also empowered to monitor and control hazardous substances, supervise and enforce compliance.
- FEPA scrapped in 1999 and its functions taken over by a newly created FME who now administer and enforce environmental laws in Nigeria.

3.3 Environmental Audit under the EIA Decree 86 of 1992

S.16 of the EIA Act empowers the Agency to design and implement "follow-up programmes" in respect of an environmental assessment process of a project. A follow-up programme is defined by the Act as a programme for:

a. verifying the accuracy of the environmental assessment of a project
b. determining the effectiveness of any measures taken to mitigate the adverse environmental effects of the project.

The Federal Ministry of Environment requires an environmental audit to be conducted every 2-3 years.

3.4 National Environmental Standards and Regulations Enforcement Agency (NESREA)

The National Environmental Standards and Regulations Enforcement Agency (NESREA) were established by an Act of the National Assembly on 30th July 2007.

- NESREA Act repealed FEPA Act of 1988

- NESREA is an arm of the Ministry of Environment charged with the responsibility of enforcing environmental Laws, regulations and standards and deterring people, industries and organisation from polluting and degrading the environment.

NESREA's authority includes the following:

- enforcement of environmental standards, regulations, rules, laws, policies and guidelines
- protection and development of the environment, biodiversity conservation and sustainable development in Nigeria
- liaison with relevant stakeholders within and outside Nigeria
- develop guidelines, regulations and standards on the environment other than in the oil and gas sector
- to establish programmes for setting standards and regulations for the prevention, reduction and elimination of pollution and other forms of environmental degradation
- to collect and make available basic scientific data on environmental standards through publications and other appropriate means.
- to charge fees for their services
- coordinate and liaise with stakeholders, within and outside Nigeria, on matters of environmental standards, regulations and enforcement.

The Agency has power to:

- prohibit processes and use of equipment or technology that undermine environmental quality
- conduct field follow-up of compliance with set standards and take procedures prescribed by law against any violator
- establish mobile courts to expeditiously dispense cases of violation of environmental regulation.

3.5 FEPA – Subsidiary Instruments

These are supplementary regulatory instruments which support the main legislation of FEPA. These are described below as follows:

3.5.1 Pollution Abatement in Industries and Facilities Generating Wastes Regulations 1991

This regulation prescribes how pollution can be controlled in an industry or facility and restricts the release of toxic substances to air, land or water of

Nigeria's ecosystems, not to be beyond the limits approved by FEPA. It states that an industry or facility should install pollution monitoring units which should be monitored by a capable person or a body accredited by the Agency. In addition, it demands the adoption of in-plant waste reduction and pollution prevention strategies and provides a requirement for carrying out environmental audits. In the case of accidental discharge, this should be reported to the nearest Agency within 24 hours.

S.21: *"The Agency shall demand environmental audit from existing industries and environmental impact assessment from new industries and major developmental projects and the industries shall comply within 90 days of the receipt of the demand"*.

3.5.2 The Management of Solid and Hazardous Wastes Regulations of 1991

This law gives a comprehensive list of dangerous and hazardous wastes, the contingency plans and emergency procedures, guidelines for groundwater protection, toxic waste tracking programme, record keeping and environmentally-sound technologies for waste disposal.

3.5.3 The National Effluents Limitations Regulations 1991

This Regulation describes the activities necessary for implementing the Regulation.

S1 (1) of the regulation states that every industry shall, install anti-pollution equipment for the detoxification of effluent and chemical discharges emanating from the industry.

S1 (2) ensures monitoring and compliance to FEPA Regulations.

S1 (3) ensures that the operator provides information concerning the treatment of effluent and discharges to the nearest water body.

Failure to comply with the Regulation will result in a penalty as described by the Courts.

The Regulation further describes the waste water guidelines to be used for all categories of industries in Nigeria in order to ensure environmental protection. Selected industries include: Agriculture, chemical plant, mining and metallurgy, Food processing, Dye stuff and dye intermediates, Brewery, Automotive factory, Petroleum exploration, Refinery,

Pharmaceuticals, Plastics and Synthetics, Pulp and paper, Sugar Processing, Metal Working Plating and Finishing and Textile Mills.

Table 3.1: Some Effluent Limitation Guidelines in Nigeria for all Categories of Industries

Parameters	Limit for discharge into surface water (mg/l)	Limit for land application (mg/l)
Temperature	Less than 40°C within 15	
pH	6-9	6-9
Total suspended solids	30	-
Total dissolved solids	2,000	2,000
Chloride	600	600
Sulphate	500	1,000

3.5.4 National Policy on the Environment of 1998

The goals of the policy are to:

a. secure a quality environment which is adequate for good health and well-being
b. conserve and use environmental resources for the benefit of present and future generation
c. restore, maintain and enhance the ecosystem
d. raise public awareness and promote understanding of the environment
e. collaboration with other countries and international agencies on environmental protection.

Strategies to achieve sustainable development of industry include:

a. ensuring that EIA reports are submitted by all proposed industrial enterprises prior to approval of licenses to operate
b. initiating periodic Environmental Audits of major industries and compiling inventory of pollutants.

3.5.5 Nigeria's Agenda 21

Nigeria's Agenda 21 Programme seeks to:

a. integrate environment into development planning at all levels of government and the private sector
a. commence a transition to sustainable development
b. address sectoral priorities, plans, policies and strategies for the major sectors of the economy
c. foster regional and global partnerships.

S.21 of the Nigeria's Agenda 21 Programme relates to "managing of chemicals, hazardous, toxic and radioactive wastes".

- The **goal** is " to attain full compliance with international regulations, standards and guidelines on the management of chemicals, hazardous toxic and radioactive wastes"

- **Strategies** to achieve the goal include:

- assisting industries to change to cleaner production methods and adopt waste minimisation technologies
- carry out environmental audits of existing industries to improve hazardous and toxic waste manage
- adopting the polluter pays principle.

3.5.6 Standards Organisation of Nigeria Decree No. 56 of 1971

SON was established by Decree No. 56 of 1971 and its functions include the following:

- organise tests and ensure compliance with approved standards
- undertake investigations into the quality of facilities, materials and products
- establish a quality assurance system including certification of factories, products and laboratories
- ensure reference standards for calibration, verification of measures and measuring instruments
- compile an inventory of products requiring standardisation
- compile Nigerian standards and specifications
- register and regulate standard marks and specifications
- undertake preparation and distribution of standards samples
- establish and maintain laboratories
- co-ordinate and co-operate with corresponding national or international organisations to achieve uniformity in standards' specifications.

3.5.7 International Organisation for Standards (ISO) and Environmental Audit

ISO 14000
The ISO 14000 family addresses "Environmental management".
It carries out the following functions:

- Minimises harmful effects on the environment caused by its activities
- Helps companies to achieve continual improvement of its environmental performance
- ISO offers a wide-ranging portfolio of standardized sampling, testing and analytical methods to deal with specific environmental challenges
- It has developed more than 350 International Standards for the monitoring of such aspects as the quality of air, water and soil
- Encourages the inclusion of environmental aspects in product design and development
- Helping to meet the new challenge of climate change with standards such as ISO 14064:2006 and ISO 14065:2007 standards for greenhouse gas verification and accounting.

SON implements, audits and certifies ISO 14000 Standards in Nigeria.

4.0 CONCLUSION

The goal of environmental laws and policies is to protect the environment for present and future generations. There are specific regulations for each aspect of the environment including land, air and water, natural resources and, the control and the release of emissions. These laws are enforced mostly by governmental bodies and agencies. Non-compliance could lead to serious penalties which could be financial or could lead to the closure of operations.

5.0 SUMMARY

In this unit, you have learnt the various laws and policies that pertain to Environmental Audits and Environmental Impact Assessment. You have also learnt more about the FEPA Decree and the enforcing agency,

NESREA and their functions. Other subsidiary instruments strengthen FEPA Decrees.

6.0 TUTOR-MARKED ASSIGNMENT

1. Outline the functions of FEPA in relation to environmental auditing.
2. Enumerate the duties of NESREA.
3. Explain functions of the International Standard Organisation in environmental auditing.

7.0 REFERENCES/FURTHER READING

Agenda 21.

Constitution of the Federal Republic of Nigeria, (1990).

Effluent Limitations Regulations of 1991.

Environmental Guidelines and Standards for Petroleum Industry in Nigeria.

Environmental Impact Assessment Act of 1992.

Federal Environmental Protection Act of 1988.

ISO 14001 Environmental Management Systems.

LASEPA Edict of 1996.

National Guidelines for Environmental Audit of 1999.

National Guidelines on Environmental Management Systems of 1999.

National Policy on the Environment of 1998.

Pollution Abatement in Industries and Facilities Generating Wastes Regulations of 1991.

Standards Organisation of Nigeria Act of 1971.

MODULE 6

UNIT 1 ENVIRONMENTAL AUDIT REPORT (EAR)

CONTENTS

1.0 INTRODUCTION

With many environmental accidents happening these days, we should be more proactive to find ways to prevent accidents. One of the ways is the effective use of environmental audits to regularly check an organisation's environmental management and practice. Environmental Audit is a general term that can reflect various types or evaluations intended to identify environmental compliance and management system implementation gaps, along with related corrective actions. In this way they perform an analogous (similar) function to financial audits. There are generally two different types of environmental audits: compliance audits and management systems audits.

2.0 OBJECTIVES

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

- define Environmental Audit
- discuss the importance of Environmental Audit Report
- list the objectives of Environmental Audit
- identify the types of Environmental Audit
- state the differences between the types of audit.

3.0 MAIN CONTENT

The Environmental Audit Report or EA Report is a written record of the Environmental Audit process. It describes the project or process being audited, lists the environmental effects associated with that project or process, details the audit procedures that were followed and identifies the relevant environmental legislation and standards that apply. Also, an EAR documents an independent, accurate, and detailed assessment of environmental performance for a development project or industrial facility. An EAR describes the project or process being audited, lists the environmental audit findings associated with that project or facility, details the audit procedures that were followed, and identifies the relevant environmental requirements that were used during the assessment.

The Nigerian National Guidelines for Environmental Audit defines Environmental Audit as “a management tool consisting of a systematic, documented, periodic and objective evaluation of environmental performance, management systems and equipment with the aim of firstly, facilitating management control of environmental practices and secondly, assessing compliance with an operations or activity's environmental policies, including meeting regulatory requirements”. Generally, Environmental audit can be defined as” a measure of environmental risks and an assessment of environmental opportunities”.

3.1 Objectives of an Environmental Audit Report

The objective of an EAR is to provide interested parties with a clear indication of the environmental performance or the project or facility for the period covered by the audit. The primary objectives of the EAR are as follows:

- Provide an objective analysis of the environmental impacts arising from a project or facility
- Establish that the requirements of the No Objection Certificate and other Environmental Impact Assessment (EIA) approvals are appropriately implemented
- Determine that mitigation measures are effective in minimising or removing environmental impacts
- Identify opportunities and make recommendations for improvements in environmental performance of the project or facility

- Provide the information required to develop an Environmental Action Plan (EAP) in the event of any significant findings of negative impacts to the environment
- Provide an objective, third-party report that meets regulator's requirements.

The **Environmental Audit Report** or **EA Report** is a written record of the **Environmental Audit** process. It describes the project or process being audited, lists the environmental effects associated with that project or process, details the audit procedures that were followed and identifies the relevant environmental legislation and standards that apply.

The role of the **Environmental Audit Report** is to provide:

- an objective analysis of the environmental impacts arising from a project or process
- the information required to draw up a Comprehensive Mitigation Plan in the event of there being any significant negative impacts on the environment.

Types of Environmental Audit and their scope
The following types of environmental audit exist:

(a) Regulatory Compliance Audit (RCA): This is a mandatory audit for all company. The audit is to check the extent to which an organisation is complying with existing environmental laws.
(b) Process Safety Audit: this type of audit identifies hazards and quantifies the risks arising from process. It also examines procedures for emergencies and accidents response preparedness and training in areas of health and safety.
(c) Occupational Health Audit: Occupational audit examine the exposure of workers to pollution and physical disabilities (e.g noise, temperature) and also see the availability, quality and usage of protective equipment/clothing, training and information made available to workers on the hazards exposed to.
(d) Product Quality Audit: The product audit examines product or operational quality systems. It also, examines the existing safety and product control systems are analysed, as well as quality assurance.
(e) Liability Audit: This examines environmental conditions of the site and determines the need for clean up and remediation measure of existing facilities.

(f) Management Audit: The management audit is important as it looks at the environmental management issues of a facility, assesses the company's hierarchy, policies and the goals of the environment in that facility. This type of audit is more inclined to documentation of procedures and audits the company's environmental performance measured against standards. Corrections following this audit bring about an improved environmental performance and implementation.

(g) Cleaner Production Audit: also called Waste Minimisation Audit. This audit finds the process involved in the reducing and eliminating the use of toxic chemicals, which aims to results in less pollution and toxic waste produced.

(h) Energy Audit: Energy production involves natural resources. This implies that this type of audit covers the collection, analysis and interpretation of energy audit. The results are cost saving and efficient use of energy.

4.0 CONCLUSION

Environmental Audit is a tool which is used in carrying out environmental responsibilities by evaluating and monitoring financial and production performance. The various types of audits available enable management to be specific in areas that needs to be audited. It enables information to be gathered, measured against standards and regulations and enhances compliance with regulatory requirements.

5.0 SUMMARY

Environmental Audit is a management tool which involves documentation and evaluation of environmental performance. It aims at gathering information on facilities and people in order to protect them and identifies the types of audit.

6.0 TUTOR-MARKED ASSIGNMENT

1. Define an environmental audit?
2. Explain the following:
   a. Clean production audit
   b. Management audit
   c. Occupational Health Audit
   d. Energy Audit.
3. What are the benefits of conducting Environmental Audit?

7.0 REFERENCES/FURTHER READING

Mattsson & Olsson, P. (2001). "Environmental Audits and Life Cycle Assessment." In Dillon, M. & Griffith. (Eds).

The Small Business Source Book on Environmental Auditing – EPA Sustainability Reporting Guidelines – GRI http://www.epa.gov/sbo/pdfs/auditbook_500.pdf

http://www.globalreporting.org/NR/rdonlyres/F9BECDB8-95BE-4636-9F63-8D9121900D4/0/G3_IP_Environment.pdf

http://www.greenbiz.com/toolbox/essentials_third.

http://www.perkinscoie.com/news/pubs_

UNIT 2 CONTENT OF EAR

CONTENTS

1.0 INTRODUCTION

The content of an Environmental Audit Report varies from the legislation available in each country. Generally, an environmental audit report should be easy and clear to read. It should provide information about the company/organisation without bias.

2.0 OBJECTIVES

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

- identify the content of an Environmental Audit Report
- explain the various component of an Environmental Audit.

3.0 MAIN CONTENT

3.1 Content of EAR

An EAR should communicate the relevant information clearly and concisely and should therefore: be presented to make information accessible to the non-specialist, avoiding technical terminology where possible; Have information presented in summary table format to the extent possible and use quality maps, charts, diagrams, and other visual aids whenever possible; Be presented in a logical and easy-to-understand manner, with a clear Table of Contents to allow the reader to find and assimilate information quickly; Present information without bias and discuss issues with the appropriate emphasis regarding their importance as

in the overall context of the environmental audit. The content of an environmental audit report varies from country to country.
The EAR should have a title page and a Table of Contents. This Table of Contents should adhere to the layout provided in the country EAR writing format. Note that the length and detail of the EAR may vary depending on the size and nature of the project or facility being audited, or on the objectives and scope of the audit (e.g., whether it is an initial, surveillance, special audit); however, it is recommended that the EAR follow the format indicated as closely as possible. The body of the report should include the following:

a. *Executive Summary*
The executive summary should summarise the overall scope and objective of the audit, the effectiveness of the project EMS, the status of environmental performance, and the significant audit findings. The summary of the EMS should touch on the strengths and weaknesses of the management system, comment on particular highlights of the audit, and include an overview of any findings that represent non-conformity and/or significant areas of concern. The Executive Summary should concisely and clearly state the conclusions of the audit regarding conformance of the project's EMS against the regulatory requirements and any recommendations or corrective actions that are needed.

b. *Introduction*
The introduction should provide information on the audit scope, objectives, and the criteria used as the basis for the audit; identify background documents relevant to audit; identify the audit team members and those representatives of the project or facility involved in the audit; and describe the audit itinerary.

c. *Site Activity (Audit Process)*
This chapter should include detailed descriptions of the activities and processes that were being conducted onsite during the audit. Contents of this chapter will depend on whether the audit is of an industrial facility or a development project. For industrial facilities, this chapter should provide a general description of production processes, production levels, ancillary operations, and any other information that would relate to the activities or operations that would impact or contribute to environmental issues or concerns within the scope of the audit.

d. *Audit Findings*

This chapter should provide an overview of audit findings, including any analysis of the non conformances noted. In particular, this chapter should describe findings regarding the implementation of EMSs and the resolution (or non-resolution) of previous audit findings and thoroughly discuss individual audit findings. The preferable format for presenting the individual audit findings is in tabular form, which includes whether the finding has been addressed by corrective action.

e. *Conclusions and Recommendations*

This chapter should include the conclusions of the audit with regard to the status of the conformity of the site or facility EMS with the regulatory requirement or other requirements, as well as the effectiveness of the EMS in meeting environmental objectives. The EAR should make recommendations to address any significant non-conformances or deficiencies, including allocating priorities for corrective action. Any recommendations should be specific and detailed enough to allow facility/project management the ability to evaluate the feasibility and appropriateness of implementing the recommendation. Types of recommendations might include further investigation of an issue or implementation of emissions control technology or environmental pollution control best management practices. The emphasis of recommendations should be on removing the source of the problem rather than the use of command-and-control (or end-of-pipe) technology.

f. *Environmental Audit Report Annexes*

The annexes of the EAR should include all information necessary to support the findings of the audit that are not provided in the main text of the EAR. Typical annexes should include the following information:

- Annex 1: Photographic Record—This annex should include evidence available to support non-conformities identified in the report and/or corrective actions taken.
- Annex 2: Audit Checklist(s)—This annex should include reference materials such as checklist(s) or audit protocol used by auditors.
- Annex 3: Supporting Documents—This annex should include other documents that support or provide necessary clarity for audit findings or recommended corrective actions. These documents may include internal audit/inspection reports, monitoring reports, site or facility maps, technology

descriptions, equipment specifications, waste transfer notes, Material Safety Data Sheets, reference materials for regulatory requirements, and/or best management practices.

- Annex 4: Auditor Qualifications—This annex should include information about the audit team members who provided evidence of knowledge and capability to conduct the environmental audit.

4.0 CONCLUSION

While there are many benefits and need for environmental audit, challenges still exits which must be resolved. Some factors that can be considered to ensure success of the Environmental Audit is the awareness on the importance and benefits of environmental audit, through talks, training, campaigns promotion and bulletins.

5.0 SUMMARY

In this unit, you have learned the Contents of an EAR and also know the various supporting document that should accompany an EAR.

6.0 TUTOR-MARKED ASSIGNMENT

1. In your own word explain the content of an Environmental Audit Report.
2. Give four examples of supporting documents that are normally added to an Environmental Audit Report.

7.0 REFERENCES/FURTHER READING

Asian Development Bank. (1993). *Environmental Assessment Requirements and Environmental Review Procedures of the Asian Development Bank*. Office of the Environment, Asian Development Bank, pp. 44.

Asian Development Bank. (1994). *Asian Development Bank Environmental Impact Assessment Training Programme*. Office of the Environment, Asian Development Bank.

Canter, L.W. (1996). *Environmental Impact Assessment*. (2nd ed.). New York: McGraw Hill. p. 660.

Environmental Assessment Sources Book update No 11. (1995).*Environmental Auditing*. Environment Department, World Bank.

Federal Environmental Assessment Review Office. (1987). *Determining the Scope of Environmental Impact Assessments*. Prepared by ESSA Environmental and Social Systems Analysts Ltd. Vancouver, BC.

H.A. Simons Ltd. Consulting Engineers. (1992). "Pulp and Paper Mill Feasibility Study: Phase I: Wood Supply, Environmental Screening and Site Assessment." Prepared for Advance Agro Group, Thailand.

UNEP/UNIDO. (1991). *Audit and Reduction Manual for Industrial Emissions and Wastes*. UNIDO, Vienna and UNEP, Paris.

UNIT 3 PREPARING AN EAR

CONTENTS

1.0 INTRODUCTION

Audit planning is vital to the success of the audit undertaken. It is essential that the auditors spend adequate time in planning, as this will result in better identification of priority areas and potential problems and proper assignment of work. To plan for successful audit assignments, the auditor needs to understand the auditees' commitments in terms of financial norms, compliance requirements and performance expectations.

2.0 OBJECTIVES

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

- describe the stages of the Audit Process
- list the steps involved in Audit Process.

3.0 MAIN CONTENT

3.1 Preparing an Environmental Audit Report

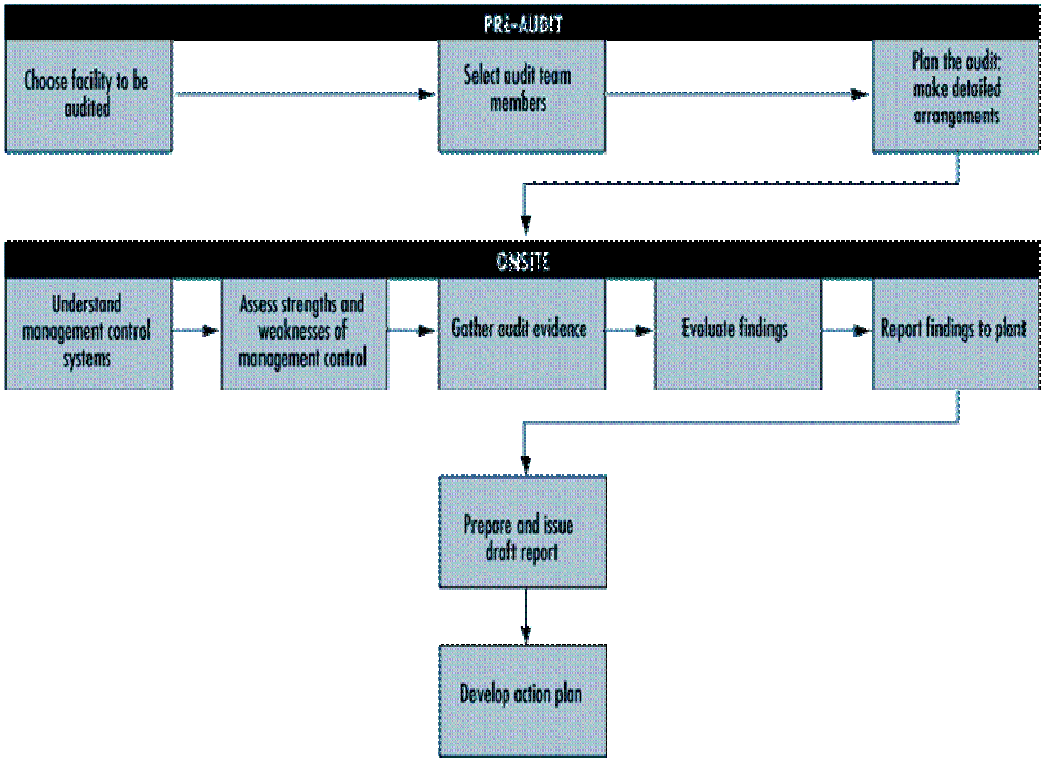
The more specific type of Environmental Audit involves the collection, collation, analysis, interpretation, and presentation of information which is used to:

- assess performance against a set of requirements or targets, related to specific issues
- evaluate compliance with environmental legislation and corporate policies; and

- measure performance against the requirements of an environmental management system standard.

The systematic, periodic, documented and objective aspects of environmental auditing are fundamental to effectiveness. It is fast developing as an important and powerful tool in the corporate environmental assessment and management toolkit. The requirement periodically to repeat audits ensures that there is an ongoing commitment and a systematic process to improve environmental performance. Sometimes the terms assessment, appraisal, monitoring or review have been used interchangeably with audit.

Audit implies detailed statistical verification with a periodic cycle between audits. Environmental audits should be appropriate to the particular circumstances. As environmental auditing draws upon various methodologies, each organisation will define its own system depending upon its size, its activities and its corporate culture. The scope and style of audits vary, but common stages and activities include:



Pre-Audit Steps

Pre-audit steps include the administrative issues associated with planning the audit, selecting the personnel for the audit team (often from different parts of the company or from a specialized unit), preparing the audit

protocol used by the organisation and obtaining background information about the facility. If auditing is new, the need for education of those involved in the audit process (the auditors or those being audited) should not be underestimated. The composition of the audit team will depend on the approach adopted by a particular organisation. Where there is a lack of internal expertise, or where resources cannot be devoted to the audit activity, companies frequently use independent consultants to conduct the audits for them. Other companies employ a mix of in-house staff and external consultants on each team to ensure an "independent" view. Some large companies use only in-house staff for audits, and have environmental audit groups for this specific function. Many major companies have their own dedicated audit staff, but also include an independent consultant on many of the audits they carry out.

Onsite Steps

- *Understanding the internal controls.* As a first step, it is necessary to develop an understanding of the controls that are in place or are thought to be in place. These will include assessing formal procedures and practices; record keeping and monitoring; inspection and maintenance programmes and physical controls for containing spills. The audit team gathers information on the various controls by observation, interviewing staff and the use of detailed questionnaires.
- *Assessing strengths and weaknesses of internal controls.* Evaluating the strengths and weaknesses of internal controls provides the rationale for conducting subsequent audit steps. Auditors will look for indicators such as clearly defined responsibilities, competence of personnel, appropriate documentation and records and systems of authorization. It is more important to determine whether the system is effective than whether it is sophisticated.
- *Gathering audit evidence.* The audit team attempts to verify that the steps and controls work as intended. Evidence may be collected through inquiry (e.g., asking a plant operator what he or she would do if there were a major chemical spill), observation (e.g., watching specific activities and operations in progress) and testing (checking records to confirm compliance with regulations).
- *Recording audit findings.* All the information obtained is recorded (usually on the audit protocol document and as working papers), and a comprehensive record of the audit and the state of the facility at the time is thus produced. Where a deficiency is found, it is noted as an audit "finding".

- *Evaluating the audit findings.* The audit team integrates and evaluates the findings of the individual team members. There may also be common findings. For some observations, an informal discussion with the plant manager may be sufficient; for others, inclusion in the formal report will be appropriate.
- *Reporting the audit findings.* This usually is done at a meeting with the plant management at the end of the team's visit. Each finding and its significance can be discussed with the plant personnel. Prior to leaving the site, the audit team will often provide a written summary of findings for the plant management, to ensure that there are no surprises in the final report.

Post-Audit Steps

Following the onsite work, the next step is to prepare a draft report, which is reviewed by the plant management to confirm its accuracy. It is then distributed to senior management according to the requirements of the company. The other key step is to develop an action plan to address the deficiencies. Some companies ask for recommendations for corrective action to be included in the formal audit report. The plant will then base its plan on implementing these recommendations. Other companies require the audit report to state the facts and the deficiencies, with no reference to how they should be corrected. It is then the responsibility of the plant management to devise the means of remedying the failings. Once an audit programme is in place, future audits will include past reports-and progress in the implementation of any recommendations made therein-as part of their evidence.

Follow-Up Review

Follow-up review for audits is usually governed by the periodicity as applicable in the rules and regulations valid in the country or based on company/organisation policy. As regards follow-up review for compliance and performance audits, such reviews may be carried out to verify the resolution of the report findings within a reasonable time frame.

4.0 CONCLUSION

In this unit, you have learned that, the Audit Process involved four stages and the stages involved in the Audit Process were explained.

5.0 SUMMARY

The term Environmental Audit means different things to different people. Terms such as assessment, survey and review are used to describe the same type of activity. Furthermore, some organisations consider that an "Environmental Audit" addresses only environmental matters, whereas others use the term to mean an audit of health, safety and environmental matters. Although there is no universal definition, auditing, as practised by many leading companies, follows the same basic philosophy and approach.

6.0 TUTOR-MARKED ASSIGNMENT

1. Explain the post audit follow up exercise.
2. Discus the four stages involved in audit exercise.

7.0 REFERENCES/FURTHER READING

Environmental Assessment Source Book Update No11. (1995). *Environmental Auditing*. Environmental Department. World Bank.

UNEP/UNIDO. (1991). *Audit and Reduction Manual for Industrial Emission and Waste*. UNIDO, Vienna and UNEP, Paris.

UNEP/ICC/FIDIC. (1995). "Environmental Management System Training Resources Kit" Version1.0.

MODULE 7

UNIT 1 OVERVIEW OF ENVIRONMENTAL POLICY

CONTENTS

1.0 INTRODUCTION

Environmental Policy is any (course of) action deliberately taken [or not taken] to manage human activities with a view to prevent, reduce, or mitigate harmful effects on nature and natural resources, and ensuring that man-made changes to the environment do not have harmful effects on humans.

2.0 OBJECTIVES

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

- define environmental policy
- discuss the relevance of environmental policy.

3.0 MAIN CONTENT

3.1 Overview of Environmental Policy

Environmental Policy is any [course of] action deliberately taken [or not taken] to manage human activities with a view to prevent, reduce, or mitigate harmful effects on nature and natural resources, and ensuring that

man-made changes to the environment do not have harmful effects on humans. It is useful to consider that Environmental Policy comprises two major terms: environment and policy. Environment primarily refers to the ecological dimension (ecosystems), but can also take account of social dimension (quality of life) and an economic dimension (resource management). Policy can be defined as a "course of action or principle adopted or proposed by a government, party, business or individual", thus, environmental policy focuses on problems arising from human impact on the environment, which retroacts onto human society by having a (negative) impact on human values such as good health or the 'clean and green' environment.

Environmental issues generally addressed by environmental policy include (but are not limited to) air and water pollution, waste management, ecosystem management, biodiversity protection, and the protection of natural resources, wildlife and endangered species. Relatively recently, environmental policy has also attended to the communication of environmental issues.

Environmental policy instruments are tools used by governments to implement their environmental policies. Governments may use a number of different types of instruments. For example, economic incentives and market-based instruments such as taxes and tax exemptions, tradable permits, and fees can be very effective to encourage compliance with environmental policy. Voluntary measures, such as bilateral agreements negotiated between the government and private firms and commitments made by firms' independent of government pressure, are other instruments used in environmental policy. Another instrument is the implementation of greener public purchasing programs.

Often, several instruments are combined in an instrument mix formulated to address a certain environmental problem. Since environmental issues often have many different aspects, several policy instruments may be needed to adequately address each one. Furthermore, instrument mixes may allow firms greater flexibility in finding ways to comply with government policy while reducing the uncertainty in the cost of doing so. However, instrument mixes must be carefully formulated so that the individual measures within them do not undermine each other or create a rigid and cost-ineffective compliance framework. Also, overlapping instruments lead to unnecessary administrative costs, making implementation of environmental policies more costly than necessary.

The current reliance on a market based framework is controversial, however, with many prominent environmentalists arguing that a more radical, overarching approach is needed than a set of specific initiatives, to deal coherently with the scale of the climate change challenge. For an example of the problems, energy efficiency measures may actually increase energy consumption in the absence of a cap on fossil fuel use, as people might drive more efficient cars further and they might sell better. Thus, for example, Aubrey Meyer calls for a 'framework based market' of contraction and convergence examples of such as the recent Cap and Share and 'Sky Trust' proposals.

4.0 CONCLUSION

In this unit, you have learnt that:

- Environmental policies are key government environmental management tools.
- There are several instrument of environmental policy.
- Policy instruments are inter-mixed.

5.0 SUMMARY

Environmental policy are key instrument used in addressing environmental issues such as air, water pollution, waste management, ecosystem management, biodiversity protection, and the protection of natural resources, wildlife and endangered species. Relatively recently, environmental policy has also attended to the communication of environmental issues.

6.0 TUTOR-MARKED ASSIGNMENT

1. Define environmental policy.
2. Give two examples of instrument used in environmental policy implementation.

7.0 REFERENCES/FURTHER READING

Environmental Assessment Sourcebook update No11 (1995). *Environmental Auditing*. Environmental Department. World Bank.

UNEP/UNIDO (1991). *Audit and Reduction Manual for Industrial Emission and Waste*. UNIDO, Vienna and UNEP, Paris.

UNEP/ICC/FIDIC: “Environmental Management System Training Resources Kit” Version1.0 October 1995.

UNIT 2 OVERVIEW OF ENVIRONMENTAL COMPLIANCE

CONTENTS

1.0 INTRODUCTION

"Environmental Compliance" means conforming to environmental laws, regulations and standards laid out by the Legislators. Environmental Regulatory officers enforce compliance to environmental standards. Non compliance on the part of the organisation being regulated could attract penalties.

2.0 OBJECTIVES

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

- define environmental compliance
- identify the importance of environmental compliance.

3.0 MAIN CONTENT

3.1 Overview of Environmental Compliance

Many countries are taking action to protect public health from environmental pollution and to restore and protect the quality of their natural environment. They have developed or are developing management strategies to prevent or control pollution. Most environmental management strategies involve legal requirements that must be met by individuals and facilities that cause or may cause pollution. These requirements are an essential foundation for environmental and public health protection, but they are only the first step. The second essential step is *compliance*—getting the groups that are regulated to fully implement the requirements.

Without compliance, environmental requirements will not achieve the desired results. Compliance does not happen automatically once requirements are issued. Achieving compliance usually involves efforts to encourage and compel the behaviour changes needed to achieve compliance.

Environmental Compliance means conforming to environmental laws, regulations, standards and other requirements. In recent years, environmental concerns have led to a significant increase in the number and scope of compliance imperatives across all global regulatory environments. Being closely related concerns and compliance activities are increasingly being integrated and aligned to some extent in order to avoid conflicts, wasteful overlaps and gaps.

It is important that entire organisation uses a combination of management information and hierarchical management control structures. Assessing whether a company's business practices conform to laws and regulations and follow standards and best practices, i.e., compliance management, is a complex and costly task. . A more common philosophy and impetus behind environmental management is the concept of carrying capacity. Simply put, carrying capacity refers to the maximum number of organisms a particular resource can sustain. The concept of carrying capacity, whilst understood by many cultures over history, has its roots in Malthusian theory.

Environmental management is therefore not the conservation of the environment solely for the environment's sake, but rather the conservation of the environment for humankind's sake.

In view of maintain this balance; many governments have evolved the use of environmental compliance as a check for the carrying capacity of the environment. Today, environmental compliance is not only instruments used for industries but for the general public in view of maintaining the general environment. An important part of Environmental protection is Compliance and Enforcement. Compliance with the nation's environmental laws is the ultimate objective, but enforcement is a vital part of encouraging governments, businesses and other companies who are regulated to meet their environmental obligations.

4.0 CONCLUSION

Compliance is the full implementation of environmental requirements. Compliance occurs when requirements are met and desired changes are achieved, e.g., processes or raw materials are changed, work practices are

changed so that, for example, hazardous waste is disposed of at approved sites, tests are performed on new products or chemicals before they are marketed, etc. The design of requirements affects the success of an environmental management program. If requirements are well-designed, then compliance will achieve the desired environmental results. If the requirements are poorly designed, then achieving compliance and/or the desired results will likely be difficult.

5.0 SUMMARY

In this unit, you have learned about compliance, need for compliance and important of compliance.

6.0 TUTOR-MARKED ASSIGNMENT

1. Define environment compliance.
2. Mention two importance of environmental compliance.

7.0 REFERENCES/FURTHER READING

Environmental Assessment Sourcebook update No11 (1995). *Environmental Auditing*. Environmental Department. World Bank.

UNEP/UNIDO (1991). *Audit and Reduction Manual for Industrial Emission and Waste*. UNIDO, Vienna and UNEP, Paris.

UNEP/ICC/FIDIC: "Environmental Management System Training Resources Kit" Version1.0 October 1995.

UNIT 3 NIGERIAN ENVIRONMENTAL POLICY/NATIONAL POLICY GUIDELINE

CONTENTS

1.0 INTRODUCTION

The Nigerian Environmental Policy identified key sectors requiring integration of environmental concerns and sustainability with development. It presented specific guidelines for achieving sustainable development in the following fourteen sectors of Nigeria's economy: Human Population; Land Use and Soil Conservation; Water Resources Management; Forestry, Wildlife and Protected Natural Areas; Marine and Coastal Area Resources; Sanitation and Waste Management; Toxic and Hazardous Substances; Mining and Mineral Resources; Agricultural Chemicals; Energy Production; Air Pollution; Noise in the Working Environment; Settlements; Recreational Space, Green Belts, Monuments, and Cultural Property

2.0 OBJECTIVE

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

- discuss Nigerian Environmental policy, its importance and the various sectors it covers.

3.0 MAIN CONTENT

3.1 Nigerian Environmental Policy

The National Policy on the Environment was launched by the Government on 27 November, 1989. It contains specific guidelines for achieving sustainable development in fourteen vital sectors of the nation's economy, namely: Human Population; Land Use and Soil Conservation; Water

Resources Management; Forestry, Wildlife and Protected Natural Areas; Marine and Coastal Area Resources; Sanitation and Waste Management; Toxic and Hazardous Substances; Mining and Mineral Resources; Agricultural Chemicals; Energy Production; Air Pollution; Noise in the Working Environment; Settlements; Recreational Space, Green Belts, Monuments, and Cultural Property. The content of the Nigeria Environmental Policy is presently been implemented and incorporated into the VISION 2020.

Nigeria is confronted by major environmental problems, the most important of which are: deforestation, drought and desertification, soil and coastal erosion, water pollution, oil pollution, water hyacinth invasion, loss of biodiversity, flooding, urban decay, and industrial pollution. One important Sub-committee of VISION 2020 focuses on redressing these major existing environmental problems based on the goals of Agenda 21.

Studies have indicated that the country would suffer large ecological and economic losses if these major environmental problems continue unchecked. Initial estimates indicate that the cost of unsustainable development for Nigeria may be as high as US $5.1 billion per year. Corrective action and new investment programmes are needed now to reduce and eventually prevent these losses.

Future measures are being considered to redress the major environmental problems affecting Nigeria. These measures build on the gains so far achieved in environmental protection and ensure that environmental protection programmes are anchored on a solid foundation. The strategy includes the following aspects: a) integrating environment into development planning and decision-making; b) strengthening the legal basis for sustainable development; c) creating and improving the capacity for sustainable development; d) harmonizing Federal, State and Local Government responsibilities for environmental management; e) adopting and promoting the use of existing environmentally friendly technologies; f) promoting research and development of environmentally sound technologies; g) forging viable partnerships among various stakeholders and interest groups both at National and international levels; h) managing environmental information and education to generate adequate public awareness for decision making; i) internalizing environmental costs through the use of economic instruments in the management of natural resources; j) alleviating poverty; and k) improving the funding for sustainable development.

It is necessary to enhance the capacity of Ministry of Environment and other responsible organisations to enforce environmentally friendly practices and move towards achieving sustainable development. The strategy to accomplish this includes: a) expanding the fundamental objectives and state policy in the Constitution to include sustainable development as a National goal; b) the Government adopting the Polluter Pays Principle as an instrument of environmental protection policy and management; and c) speedy translation of international agreement protocols and conventions on environment and application into National laws and regulations, and their enforcement.

The strategy to integrate environment into economic and sectoral policies, planning and decision making processes includes: a) improving the provisions of the EIA Act 86 of 1992, and ensuring its proper implementation; b) in parallel with current practice at the Federal level, establishing Sustainable Development Units (SDUs) in State Budget and Economic Offices with the same responsibility and function as the SDUs. in the National Planning Commission and the Urban and Regional Planning Department of the Ministry of Works and Housing to enable sustainable land use management; and c) adopting the System of National Accounting to adequately reflect the extent to which economic development activities have increased or decreased environmental pollution and natural resources on which future economic and social development depends.

Future plans to harmonize federal and state responsibilities for environmental management should ensure the optimum use of the limited technical and financial resources available to meet National goals and guidelines for environmental protection and sustainable development. The Federal responsibilities and functions should include: a) the establishment of environmental quality standards, and regulatory guidelines and procedures for implementing, enforcing, and evaluating such standards; b) the establishment of guidelines and procedures for project and policy environmental assessment screening and EIA as well as the necessary capacity to initiate and review them; c) the establishment of Federal Environmental Action Plans for execution by Federal Institutions; d) the establishment of consistent guidelines for state environmental management plans and action programmes, and the coordination of National and inter-State programmes, projects and exchanges of information on the environment; e) the review of federal policies which might have significant adverse impacts on the environment or natural resource base; f) the collection, analysis, and distribution of data relevant to EIA policy analysis and environmental monitoring as well as the preparation of periodic National reports on the state of the environment; g) the allocation and

evaluation of the use of Federal funds for special environmental restoration, protection, and improvement programs and projects; h) the establishment and coordination of exchange of environmental information and expertise with relevant international agencies and international non-governmental organisations; and i) the development of special training programs for upgrading knowledge and skills in the various disciplines required for environmental management.

State responsibilities should include: a) the monitoring and enforcement of environmental quality standards and regulations as may be designated by Ministry of Environment to States; b) the regular assessment of environmental conditions and trends in rural areas and identification of programs and actions needed to reduce or avoid further environmental degradation and pollution; c) the application of the National environmental assessment guidelines and procedures for all development policies and projects likely to have adverse environmental impacts within the State; d) the development of a State environmental management plan with priorities for action to reverse environmental degradation, protect human health and the environment, and accelerate progress towards environmental improvement and sustainable development; e) the development of contingency plans and capabilities to respond quickly and effectively to environmental emergencies such as natural disasters or major industrial accidents; f) the collection, analysis, and distribution of data of relevance to EIAs, policy analysis, and environmental monitoring within the State and local governments; and g) the preparation of periodic reports on the state of the environment in their State or community for submission to the National Council on the Environment.

The strategy to achieve participation and cooperation of other groups includes: a) the installation of very effective machinery to enhance environmental awareness through public enlightenment and environmental education at all levels of society; b) establishment of environmental data banks and information networks; c) creation of fora for building consensus and for the exchange of information among all stakeholders and interest groups on sustainable development decisions; and d) the strengthening of mutually beneficial relationships with bilateral and multilateral environmental bodies, including regional and international NGOs.

Inadequate trained manpower in the area of integrated environmental management is a major constraint in Nigeria. Also, there is inadequate awareness of the importance of environment and natural resources management especially in resource accounting. Lack of appreciation and involvement of the general public in environment related issues and

development, and insufficient popular participation in project design and implementation will for some time constrain the attainment of Agenda 21 goals. Available technology in the country appears grossly inadequate to meet the challenges of implementing Agenda 21 and the programme of technology transfer is yet to be fully implemented.

4.0 CONCLUSION

In this unit, you have learned about the Nigerian Environmental Policy and the sector in which the policy covered.

5.0 SUMMARY

In this unit, you have learnt of the Nigerian Environmental Policy which contains specific guidelines for sustainable development in a variety of sectors. This policy is important because major environmental problems affecting Nigeria can be addressed. Another benefit of the policy is that environmental challenges are addressed from an integrated perspective to bring about a solution that would be of immense benefit to the environment.

6.0 TUTOR-MARKED ASSIGNMENT

1. Mention five sector covered by the Nigerian Environmental Policy.
2. Discuss the challenges facing the implementation of the Nigerian Environmental policy as highlighted in Vision 2020.

7.0 REFERENCES/FURTHER READING

Aina, E. O. A. (1989). “New Direction for Sustainable Development in Nigeria.” A paper delivered at the International Workshop on the Environment and Sustainable Development in Nigeria at the NICON-NOGA HILTON Hotel Abuja.

“Achieving Sustainable Development in Nigeria.”(1992). *National Report for United Nations Conference on Environment and Development*, Rio de Janeiro, Brazil.

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MODULE 8

UNIT 1 ENVIRONMENTAL GOVERNANCE

CONTENTS

1.0 INTRODUCTION

The rapid pace of globalisation and revolution in communication, transportation, finances and commerce has brought about increasing interdependence of national economics. This offers both opportunities and challenges to environmental management. Thus, the most important effect in combating environmental degradation is through extant environmental governance. Environmental governance refers to the sum of organisation, rules, procedures and norms that regulates global environmental protection.

2.0 OBJECTIVES

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

- discuss the concept of environmental governance
- define environmental governance.

3.0 MAIN CONTENT

3.1 Environmental Governance

The rapid pace of globalisation includes the revolution in communication, transportation, finances and commerce that has brought about increasing interdependence of national economies - offer both opportunities and challenges to environmental management. Increasingly, we recognise that international cooperation is essential for

conserving resources and maintain a healthy environment. International commissions and conventions are paying ever more attention to how good environmental decisions are made. Do democratic rights and civil liberties contribute to better environmental management? Should local" citizens or advocacy groups have the right to appeal a decision they believe harms an ecosystem or is unfair? What is the best way to fight corruption among those who manage our forests, water parks and mineral resources? These are all questions about how we can make environmental decisions - a process called environmental governance.

Traditional writings by Political Scientists used the concept of governance to express the nature of the relationship that exists between rules – the ruled and rulers. By the 1980s, governance advanced into development. Development crisis in less developed Countries (LDCS) has increasingly been seen as political in character. The preceding few decades of development experience has demonstrated the critical economic and political interaction for the successful achievement of developmental goals. Then, the question arises, what is Environmental Governance? Environmental Governance refers to the sum of organisms, rules, procedures and norms that regulate global environmental protection. Within the context of the evolution of global environmental politics and policy, the end goal of global environmental governance is to improve the state of the environment and to eventually lead to the broader goal of sustainable development.

The major Institutional decision coming out of the United Nations Conference on the Human Environment (Stockholm, 1972) was the establishment of the United Nations Environment Programme (UNEP), which was created to play the lead role in Global Environmental Governance (GEG) by coordinating environmental activities with the UN agencies and acting as a catalyst for new initiatives. Since then, the world has seen hectic activity in global environmental policy (and, more recently, in sustainable development Policy) and a host of trusties, organisations, and mechanisms have emerged.

The 1992 Rio Earth summit and the 2002 Johannesburg summit on sustainable development mark just two of the man/policy landmarks of this rapid evolution of the GEG systems (UNIEP, 2006). There are many aspects of governance and politics, which are of tremendous relevance to the management of the environment. As a result, environment has entered politics and has become an important issue in political decisions. Control over natural resources should be seen as a major political issue with important ramification for the long-form stability of the political system. Deterioration of the natural resource base obliges rural dwellers to leave their homes to urban centres resulting in urban decay.

Governmental Policies, such has tax Policy, land tenure system, labour registration credit policies etc. all affect the environment. Hence, environment governance needs to be viewed from a very broad prospective as many cross-sectional. Issues are involver and as the integrating of various dimension of sustainable development necessitate a more holistic approach. A vast volume of literature on environment governance focuses on the top -down approach, according to which an improvement in governance is to be sought by reforming government and government-related institutions, assuming that the reason for the crisis of the environment is an institutional weakness. Modest but a growing body of literature is, however, devoted to trying to formalize the role of civil society in the governance process since government badly needs the advice and support and action of civil societies to channel the power they represent.

The process of extremely complex policy making is extremely complex. Policy decision comes from many interactions between various sector, politician, bureaucrats, public- authorities, public opinion and interest groups. The interaction is mediated through the particular historical social, economic and political co-text, with which policy decisions are to be made.(UN 2004). Clusters of belief, values, and ideas influence people's thinking about society, government and individual responsibilities. They ultimately determine the policies adopted to deal with environment problems. Government, however, have different approaches towards environmental regulation, which may have different effects on different interest groups, especially in matters concerning economic growth. Also, influential social political actors can influence the process in ways that prelude policies that are crucial to their own interests, but may not be the most environmentally desirable options (Anderson, 2007). A country's capacity to formulate, implement and sustain policies is enhanced by the country's capacity for good governance and the opportunity and ability of its citizens to participate in decision affecting their lives. Good governance depend on the ability to exercise power and make sound decision over time across a spectrum of economic, social, environment and other areas.

The capacity of government to have good environmental governance is linked to knowledge, mediation, resource allocation, implementation and maintenance of key relationship. However, it has been concluded over the year that the key factors in the definition of good governance could then be summarised in the following ways.

i. technical and managerial competence
ii. organisational capacity
iii. reliability, predictability and the rule of law
iv. accountability
v. transparency and open information system and
vi. participation

The other aspect of good governance stress relations between public authorities and the citizens. It also entails a combination of administrative decentralisation and the involvement of community based organisations (CBOs) and Non-Governmental Organisations (NGOs) in their capacity as service providers. In the final analysis, good governance means good development management that, in turn, entails efficient public service, accountable administration of public funds, respect for law and human rights and democratic community participation and a legal frame work to enforce the rule of law.

However, if democratic governance could only be realised if civil society is strong and autonomous enough to ensure constant supervision over the use of state power.

4.0 CONCLUSION

In this unit, you have learned the concept of Environmental Governance, and also key factors of good environmental governance.

5.0 SUMMARY

Environmental governance is a concept in political ecology or environmental policy related to defining the elements needed to achieve sustainability. All human activities -- political, social and economic — should be understood and managed as subsets of the environment and ecosystems. Governance includes not only government, but also business and civil society, and emphasises whole system management. To capture this diverse range of dynamic forces, Environmental governance often necessitates founding alternative systems of governing, for example watershed based management.

6.0 TUTOR-MARKED ASSIGNMENT

1. Define environmental governance.
2. Mention five factors that contribute to good environmental governance.

7.0 REFERENCES/FURTHER READING

Adinas. (2005). “Global Environmental Governance: UN fragmentation and Coordination.” In *Year Book of International Cooperation on Environment Development* 2001/2002. London: Earth Scan Publication, London.

Anderson D. (2007). "The Legitimacy of International Governance: A Coming Challenge for International Environmental Law". *American Journal of International Law*. 93, 596-624.

The Environmental Society. (2008). "Global Public Policy Network as Coalition for Change." In *The Global Environmental Governance: Option and Haven.*

UNIT 2 MODELS OF ENVIRONMENTAL GOVERNANCE

CONTENTS

1.0 INTRODUCTION

Global environmental governance is the key to managing environmental issues from a diversity of ways. In this unit, you will learn of different models have been put forward by researchers and analysts in order to address the challenge of global environmental governance.

2.0 OBJECTIVES

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

- identify the various models of global environmental governance reforms
- discuss each of the models and their advantages.

3.0 MAIN CONTENT

3.1 Models of Global Environmental Governance Reforms

Improving global environmental governance has been an issue of dynamic debate in academic and policy-making circles over since environmental issue entered the international agenda in the 1970s. Since then, both environmental threats and international responses to them have increased in their numbers and complexities. They key challenge of global environmental governance has, however, remained the same, how to design an institutional frame work (system) that would best protect the global environment is still subject to research. Over the years, several models have been put forward for addressing the global environmental governance.

These models include:

(a) The Compliance Model

This is the creation of a body that could provide binding decisions to hold state and private actors accountable for non-compliance and the resultant environmental damage. Thus, several potential bodies with such enforcement powers have been proposed.

(b) The New Agency Model

This refers to creating a new organisation outside UNEP with concentrated environmental responsibilities and the ability to steer UN Agencies in relation to environmental issues. The most ambitious designs of the new agency would require the inclusion of environment and development or a World Sustainable Development Organisation. Other proposals include could include creating a global Environmental Organisation modelled after the World Trade Organisation. These organisations would be a broad rule-making authority to address failures.

(c) Upgrading UNEP Model

The proposed model takes UNEP as a departure point for improving environmental governance and suggests upgrading it to a special agency to strengthen its status. This model is similar to the previous but distinct in that it seeks the strengthening of UNEP rather than its replacement.

(d) Organisation Streamlining Model

This model addresses the need for improved coordination and synergies among various entities within the system of global environment governance.

(e) Multiple Actors Model

This model argues that the system of governance comprises multiple actors whose actions need to be mutually reinforcing and better integration of those multiple actors; Organisational rearrangement cannot resolve institutional problems.

4.0 CONCLUSION

In this unit, you have learnt about the various models of environmental governance. These models are critical to understanding how environmental issues can be addressed as much as economic issues and their challenges.

5.0 SUMMARY

The unit provides a list of models of environmental governance. These models are important as they bring about sustainable ways of managing environmental challenges including providing binding decisions to control non-compliance, creating responsibilities to control environmental failures in various states and to improve coordination and synergies among various entities within the system of environmental governance.

6.0 TUTOR-MARKED ASSIGNMENT

1. Mention two models of environmental governance.
2. What is the basis for multiple actor models?

7.0 REFERENCES/FURTHER READING

Adinas. (2005). "Global Environmental Governance: UN fragmentation and Coordination." In *Year Book of International Cooperation on Environment Development* 2001/2002. London: Earth Scan Publication, London.

Anderson D. (2007). "The Legitimacy of International Governance: A Coming Challenge for International Environmental Law". *American Journal of International Law*. 93, 596-624.

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