

Department of Public Administration and Management  
**Environmental Affairs**



Only study guide for **PUB2606**

UNIVERSITY OF SOUTH AFRICA

PRETORIA

© 2000 University of South Africa

All rights reserved  
Revised editions: 2011, 2017

Printed and published by the  
University of South Africa  
Muckleneuk, Pretoria

PUB2606/1/2018–2020

70466688

MNB\_style

**IMPORTANT INFORMATION:**

Please register your myUnisa and myLife e-mail addresses and ensure that you have regular access to the myUnisa module site as well as your group site.

This is an online module and therefore the study material for the module is available on myUnisa. However, in order to support you in your learning process, you will also receive some study materials in printed format.

# TABLE OF CONTENTS

	<b>page</b>
<b>PREFACE</b> .....	<b>1</b>
<b>CONTENT FRAMEWOK OF THIS MODULE</b> .....	<b>1</b>
<b>CONNECTING ONLINE TO MODULE PUB2606</b> .....	<b>2</b>
myLife e-mail.....	2
How to register on myUnisa .....	2
myUnisa tools for PUB2606 .....	2
<b>THEME 1 : NATURE AND ORIGIN OF THE GLOBAL ENVIRONMENTAL DILEMMA</b> .....	<b>4</b>
LEARNING UNIT 1 : INTRODUCTION TO ENVIRONMENTAL AFFAIRS.....	8
LEARNING UNIT 2 : PRIMARY ENVIRONMENTAL ISSUES.....	20
SELF-EVALIATION: .....	43
<b>THEME 2 : MANIFESTATION OF ENVIRONMENTAL MANAGEMENT IN THE INTERNATIONAL, REGIONAL AND NATIONAL ARENA</b> .....	<b>45</b>
LEARNING UNIT 3 : ENVIRONMENTAL MANAGEMENT IN THE INTERNATIONAL CONTEXT .....	50
LEARNING UNIT 4 : ENVIRONMENTAL MANAGEMENT IN THE REGIONAL CONTEXT .....	61
LEARNING UNIT 5 : INTRODUCTION TO ENVIRONMENTAL MANAGEMENT IN THE NATIONAL CONTEXT .....	70
LEARNING UNIT 6 : ENVIRONMENTAL MANAGEMENT: A FUNCTIONAL PERSPECTIVE .....	80
LEARNING UNIT 7 : NONGOVERNMENT ROLEPLAYERS AND THE ENVIRONMENT .....	99
SELF-EVALUATION .....	108
<b>THEME 3 : THE PURSUIT OF SUSTAINABLE DEVELOPMENT IN SOUTH AFRICA</b> .....	<b>110</b>
LEARNING UNIT 8 : SUSTAINABLE DEVELOPMENT AND THE RECONSTRUCTION AND DEVELOPMENT PROGRAMME .....	113
LEARNING UNIT 9 : INTEGRATED ENVIRONMENTAL MANAGEMENT .....	121
SELF-EVALUATION .....	132
<b>REFERENCE LIST</b> .....	<b>133</b>



# PREFACE

Welcome as a PUB2606 *Environmental Affairs* student in the Department of Public Administration and Management. We, as lecturers, are at your disposal and will gladly assist you in your studies. Be assured of our enthusiasm and willingness to support you with advice during your study programme.

There is a widespread realisation that a turning point has been reached in the relationship between human beings and their environment. Significant attempts have been made over the last few decades to redress the distorted and unbalanced relationship that has developed over the centuries between people and the environment, and to recreate balance and harmony. The content of this study guide must be seen within this context. This guide is an attempt not only to transmit factual information concerning the environment and environmental management, but also to bring about a fundamental change of attitude and foster an environmental ethic in each and every person who enrolls for this course.

## CONTENT FRAMEWORK OF THE MODULE

<b>THEME 1</b>	<b>: Nature and origin of the global environmental dilemma</b>
Learning unit 1	: Introduction to environmental affairs
Learning unit 2	: Primary environmental issues
<b>SELF-EVALUATION</b>	
<b>THEME 2</b>	<b>: Manifestation of environmental management in the international, regional and national arena</b>
Learning unit 3	: Environmental management in the international context
Learning unit 4	: Environmental management in the regional context
Learning unit 5	: Introduction to environmental management in the national context
Learning unit 6	: Environmental management: a functional perspective
Learning unit 7	: Nongovernment roleplayers and the environment
<b>SELF-EVALUATION</b>	
<b>THEME 3</b>	<b>: The pursuit of sustainable development in South Africa</b>
Learning unit 8	: Sustainable development and the Reconstruction and Development Programme
Learning unit 9	: Integrated environmental management
<b>SELF-EVALUATION</b>	

Each theme begins with key issues and concepts that will orient you with regard to what to expect in each theme. At the end of each theme you will find a number of self-evaluation

questions. These questions will give you an indication of the knowledge and skills that you should have gained in your study of a particular theme.

You are going to come across many new concepts in this study guide. The main concepts appear in the margin alongside the text where they are used. Explanations of the concepts are generally provided in the text. In cases where explanations are not given in the text itself, you can look these up in the glossary, which you will find at the end of the study guide.

## CONNECTING ONLINE TO MODULE PUB2606

Computers and the internet are becoming essential in the workplace, in life, and in education. In distance learning at Unisa the myUnisa online tools play a huge role in your study experience, because you do not attend face-to-face lectures. The internet is simply the fastest, most effective and efficient way to do that.

Why all the fuss about going online? Well, it just saves so much time. You can submit assignments or get results at the click of a button, rather than waiting for the post. By embracing computers, and by encouraging our students to use the internet, we are preparing them for the demands of the digital age. Yes, systems do go down and internet connections are lost from time to time, but for the most part, the internet is very reliable. So you can submit those assignments with confidence and check that they have been received.

### *myLife e-mail*

Registered Unisa students all get a free myLife e-mail account. Important PUB2606 announcements and notices are sent exclusively to this account. Please check it regularly to receive important communiqués from your lecturer.

### *How to register on myUnisa*

Unisa's online student portal (myUnisa) is your most important study tool for this module; it is your PUB2606 lifeline. You can start at the main Unisa website, <http://www.unisa.ac.za>, and then click on myUnisa, which will take you to the myUnisa website. When you are on the myUnisa website, click on the **Claim Unisa Login** at the left-hand side of the screen. You will then be prompted to give your student number to claim your initial myUnisa and myLife login details. Should you experience any difficulties registering your myUnisa account, consult the Study @ Unisa brochure for detailed information.

### *myUnisa tools for PUB2606*

The purpose of myUnisa is to support your learning, and you need to visit the PUB2606 web pages on myUnisa frequently. If you make a habit of regularly checking your module webpage, you can take full advantage of the myUnisa tools explained in Tutorial Letter 101.

Do not hesitate to contact us, your lecturers, if you experience any difficulties with any aspects of the module. You can contact us either via e-mail, telephone or the **Course Contact** option on myUnisa. Our contact details are available on the home page of the module site. Remember, help is just a click away.

We wish you a fascinating and satisfying journey through the learning material and trust that you will complete the module successfully.

Best regards

Lecturers

Department of Public Administration and Management

# **THEME 1**

## **NATURE AND ORIGIN OF THE GLOBAL ENVIRONMENTAL DILEMA**

# CONTENT

## OVERVIEW

Key questions  
Key concepts

## LEARNING UNIT 1: INTRODUCTION TO ENVIRONMENTAL AFFAIRS

Introduction  
The concept of environment  
Historical overview  
Environment within the field of Public Administration  
The need for environmental services  
Review

## LEARNING UNIT 2: PRIMARY ENVIRONMENTAL ISSUES

Introduction  
The population question  
Global warming  
Depletion of the ozone layer  
The use of nuclear power as a source of energy  
Soil loss  
Deforestation  
Water scarcity  
Urbanisation  
Pollution  
Loss of biodiversity  
Poverty  
Review

## SELF-EVALUATION

## OVERVIEW



### KEY QUESTIONS

---

In order to understand the nature and origin of the global environmental dilemma, it is necessary to find answers to the following questions:

- What components constitute the environment?
  - How has the relationship between people and nature changed over the last few centuries?
  - What is the relationship between the environment and public administration?
  - What does environmental management entail and who or what is the primary roleplayer in this regard?
  - On what grounds can our concerns for the environment be justified?
  - What is the extent of the global environmental dilemma and how does it influence our quality of life and physical welfare?
- 



### KEY CONCEPTS

---

To understand the nature and origin of the global environmental dilemma, you need to be able to explain the following concepts – also provided in N.sotho:

- Environment – Tikologo
  - environmental management – Taolo ya tikologo
  - ecology – Tswalano ya diphedi le tikologo ya tšona
  - cultural heritage – Bohwa bja dipopego tša bokgabo le setšo sa setšhaba
  - carrying capacity – bontšitlalo bjo bo ka swarwago
  - emography – thuto ya dipalopalo ka ga badudi
  - developing state – naga ye e hlabologago
  - developed state – naga ye e hlabotšwego
  - Third World State – Naga ya Boemo bja Boraro Lefaseng
  - Wetland – Mohlaka
  - ozone layer – llaga ya ozoune
  - chlorofluorocarbons (CFCs) – tlhakantšhetšo ya digase tša kloroflorokhapone
  - erosion - kgogolego
  - biodiversity– diphedi tše di fapanego lefaseng
  - ecosystem– tsenelelano ya diphedi le tikologo ya tšona
  - groundwater– meetse a fase ga maswika le mobung
  - urbanisation– go ata ga batho metsesetoropong
  - pollution – tšhilafatšo
-

## Key concepts in IsiZulu

---



- imvelo
  - ukuphathwa kwemvelo
  - ubudlelwano phakathi kwezinto eziphila ndawonye kanye nemvelo
  - amagugu angokwamasiko
  - umthamo wokukwazi ukuthwala
  - ukubalwa kokuzalwa nokufa nakho konke okuthinta abantu
  - izwe elisathuthuka
  - izwe eselithuthukile
  - Izwe Elisathuthukayo
  - indawo ehlala inamanzi
  - umoya otholakala kunqenqema lomhlaba odonsa ukukhanya
  - imimoya eminingi emibi ehlangene (CFCs)
  - ukuguguleka komhlabathi
  - izitshalo nezilwane okuphila ndawonye
  - ukuphila ndawonye
  - amanzi aphantsi komhlaba
  - ukufudukela emadolobheni
  - ukungcola komoya
-

# **LEARNING UNIT 1**

## **INTRODUCTION TO ENVIRONMENTAL AFFAIRS**

## TABLE OF CONTENTS

<b>1.1</b>	<b>INTRODUCTION .....</b>	<b>10</b>
<b>1.2</b>	<b>THE CONCEPT "ENVIRONMENT" .....</b>	<b>10</b>
<b>1.3</b>	<b>HISTORICAL OVERVIEW .....</b>	<b>12</b>
1.3.1	The pre-industrial period.....	12
1.3.2	Industrial period.....	13
1.3.3	Post-industrial period.....	14
<b>1.4</b>	<b>ENVIRONMENT WITHIN THE FIELD OF PUBLIC ADMINISTRATION.....</b>	<b>14</b>
<b>1.5</b>	<b>THE NEED FOR ENVIRONMENTAL SERVICES .....</b>	<b>16</b>
1.5.1	Survival.....	17
1.5.2	Welfare of people and quality of life .....	18
1.5.3	Trusteeship of the natural environment and responsibility towards future generations.....	18
<b>1.6</b>	<b>REVIEW .....</b>	<b>19</b>

# Learning Unit 1

## INTRODUCTION TO ENVIRONMENTAL AFFAIRS



### LEARNING OBJECTIVES

---

After completing this learning unit, you should be able to explain

- the concept of the environment
- environment within the field of Public Administration
- the need for environmental services



### KEY CONCEPTS

---

After studying this unit, you should be able to explain the following concepts:

- pre-industrial period
  - industrial period
  - post-industrial period
- 

## 1.1 INTRODUCTION

Our daily existence is closely interwoven with the environment in which we find ourselves. We live, work and play in the environment and thus it goes without saying that the environment has a pervasive influence on our quality of life and general welfare. To understand the influence of the environment on our daily lives, it is necessary to know what components constitute the environment. For this reason, this learning unit begins with an explanation of the concept of "environment". This is followed by an investigation into the origin of the global environmental dilemma. The current condition of the environment worldwide is not the result of events that occurred overnight, but developed gradually over the centuries as a result of people's thoughtless actions. We pay special attention to how humankind's ability to manipulate the environment led to the disturbance of harmony between man and the environment. The learning unit is concluded with a justification of the need for environmental services.

## 1.2 THE CONCEPT "ENVIRONMENT"

The environment forms the focus of this study guide and it is therefore necessary to be clear about what precisely is meant by the concept "environment". People often tend to associate the environment simply with our natural surroundings. In fact, this concept entails far more than that.



Activity 1.1

Conduct a survey amongst your friends and colleagues on what they consider to be all the things that make up or constitute the environment.

(1) How do their answers compare with the description of the environment that follows?

---



---



---



---

.....

According to the White Paper on Environmental Management Policy for South Africa 1997, the environment is described as the collection of surrounding objects, conditions and influences that have an impact on the existence, life and development of people and other organisms. In accordance with the above description, the environment is considered to consist of the following components:

- Natural environment/habitat
- Social, political, cultural and economic conditions, as well as working conditions, that may influence the natural and manmade environment
- Manmade environment

It is important to note that the various components of the environment continually interact and that there is a mutual relationship between them.

The **natural environment** or habitat consists of the earth (soil, minerals), the atmosphere, flora (plant life such as trees, shrubs and bushes), fauna (insects, birds and animals) and water – in other words, components which are essential for our survival.

An example of a **social condition** that may have an influence on the environment is the population density in a particular area. The larger the population, the greater the strain on natural resources and the greater the possibility that resources may be exhausted. Poverty is another social condition that can have an influence on the environment. In the attempt to survive, individuals or communities will not attach much value to the conservation of the natural environment but will exploit it to the full in order to provide for their basic needs.

An example of a **political situation** that may have an influence on the environment is the change in government and the accompanying policy changes. The declared policy of the government of the day when they came into power in 1994 was to improve the socioeconomic position of the disadvantaged. This policy is contained in the Reconstruction and Development Programme and implies, among other things, the construction of houses and the expansion and upgrading of infrastructure (e.g. building roads, laying pipelines). Such activities can impact forcefully on the environment (African National Congress 1994:22, 107).

The **manmade environment** refers, among other things, to the buildings, infrastructure, cultural heritage (monuments and historical sights), technological resources, sports grounds and parks.

From the above description of the environment it is clear that people transform their natural environment in order to provide for specific needs to such an extent that we can eventually refer to more than one environment. It is precisely this ability of human beings to transform their environment that has contributed to the current distressing condition of the environment. Consequently, a short historical overview follows in order to place the global environmental dilemma in perspective.

## 1.3 HISTORICAL OVERVIEW

### 1.3.1 The pre-industrial period

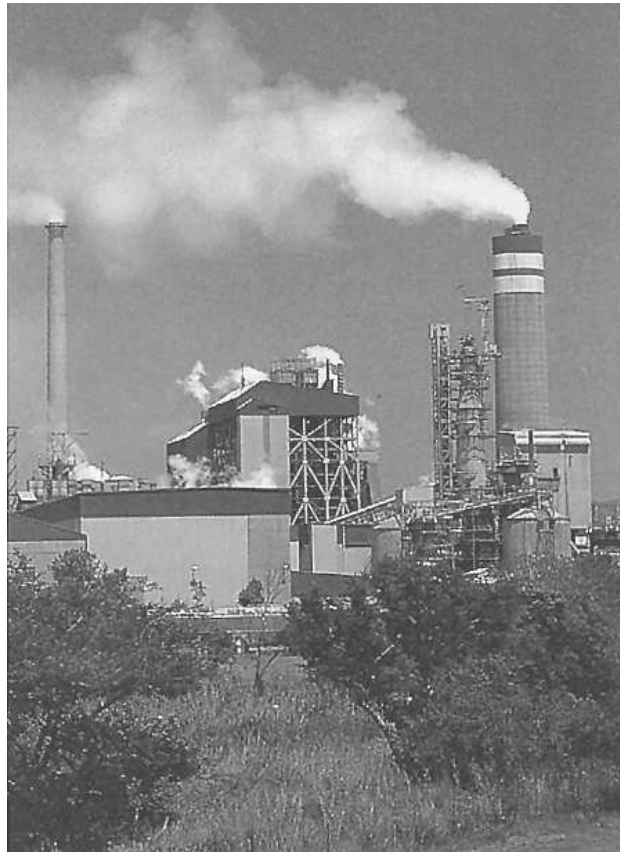
The pre-industrial period refers to the period preceding the industrial revolution. During this time, humankind's ability to manipulate and exploit the natural environment and resources was limited. This can be ascribed, among other things, to a lack of advanced technological resources. The occurrence of epidemics and natural disasters – in the absence of modern medicine and medical facilities – regulated the population growth so that no undue strain was placed on natural resources. In addition to this, either no monetary economy was practised, or it was poorly developed. The resources offered by the natural environment were not used for self-enrichment but purely for survival (Omara-Ojunga 1992:6, 7). During this period, therefore, relative harmony existed between people and the natural environment.

This learning unit sketched the background to the environmental dilemma with special reference to the influence of human activity on the environment. The key idea that we wish to convey is that we are dependent upon the environment for survival and that, as such, it should be treated with the utmost care. The government does not bear sole responsibility for environmental management. Each individual has a decisive role to play in restoring the disturbed balance between us and our environment and ensuring a better quality of life for present as well as future generations.



Activity 1.2

Study the following photograph.



- (1) What does this photo suggest about the relationship between people and the environment?

---



---



---



---

.....

**1.3.2 Industrial period**

With the advent of the industrial revolution and the accompanying development of sophisticated technological aids, a change occurred in the relationship between people and the environment. Modern technology enabled people to exploit previously unobtainable resources for commercial purposes (Omara-Ojungu 1992:8). Fierce competition in the quest for wealth and power was the order of the day and there was little concern for the depletion of natural resources and the decay of the natural environment. For example, waste matter was freely dumped in rivers and in the sea without a thought for the catastrophic ecological consequences. In addition to this, the longer life expectancy of people (due to medical breakthroughs) led to a tremendous increase in population worldwide, which placed great strain on the natural environment.

Many other factors that had (and continue to have) a negative effect on the environment could also be mentioned, but for the purposes of this historical overview these are sufficient. (For more information consult learning unit 2 concerning basic environmental issues.) The industrial revolution and humankind's ability to manipulate the natural environment led to a disturbance in the harmony between man and nature. The alienation between people and the natural environment that ensued is summarised in the words of former Indian Prime Minister Indira Gandhi:

“In his arrogance over his own increasing knowledge and ability, man has ignored his dependence on the earth and has lost his communion with it. He no longer puts his ear to the ground so that the earth can whisper its secrets to him. He has cut his links with the elements and has squandered the resources which are the heritage of millions of years of evolution – all those living or inanimate things which sustained his inner energy – earth, water, air, the flora and fauna. This loosening of his intuitive response to nature has created a feeling of alienation in him and is destructive of his heritage.”

(Weiss 1989:17)

### 1.3.3 Post-industrial period

The post-industrial period is characterised by a greater awareness of the damage that people are causing the environment. This awareness can be partly ascribed to the fact that scientists are increasingly able to determine – with the help of advanced technology – the exact extent of the destruction of the natural environment and the implications that this holds for humankind (Kromberg 1997:8). Thus, for example, it was discovered that the ozone layer that protects us from the damaging rays of the sun is in the process of diminishing, with the result that people's chances of getting skin cancer are increasing. In addition, it was found that large-scale erosion leads to a loss of fertile soil which can threaten the production of food (Sitarz 1993:2). It became clear that humankind's survival is on the line. As a result of this, especially in the second half of the 20th century, people realised that the conservation and sensible management of the environment has become necessary. This gave rise to the idea that there should be a balance between development and progress on the one hand, and the conservation of the environment on the other hand.

## 1.4 ENVIRONMENT WITHIN THE FIELD OF PUBLIC ADMINISTRATION

In your first year you learnt that there are certain services that can only be provided by the government. Particular criteria were identified on the basis of which it is decided whether the government or the private sector should provide a service.



### Activity 1.3

---

Study the criteria found in your first-year guide and measure the environmental services offered in a state according to these.

(1) What conclusions can you draw – who is responsible for the rendering of environmental services?

---



---



---

.....



FEEDBACK ON ACTIVITY 1.3

*It should be clear that environmental services should be provided by the government. For example, there is no guarantee that society will perform these services on its own or that members of society will exert the necessary self-discipline to refrain from damaging the environment. It is furthermore an important service and one that applies to everyone (after all we are dependent on the environment for our survival). A government which can enforce environmental policy is needed to provide this service, especially since not all individuals exert the necessary self-control. It is also clear that environmental services have an effect on relations between countries – prime examples being the Rio Conference on the environment held in 1992 and the World Summit on Sustainable Development held in 2002 (see learning unit 3 in this regard).*

.....

The rendering of environmental services by the government manifests in, among other things, the proclamation of a particular area with important natural life as a nature reserve. This means that such a nature reserve is under the control and protection of the government and that the latter is responsible for its upkeep and management, with the taxpayers' money. In this way the government then offers a conservation service to the public. The provision of environmental services is directed by an environmental policy in the form of legislation, regulations and by-laws drawn up with the help of public officials and eventually promulgated by legislators at national, provincial and local level. The decreed policy is implemented by officials who are employed in organisational structures (e.g. the Department of Environmental Affairs) on all three spheres of government (more details on this are provided in learning unit 6).

*“The sum total of the activities undertaken by government or the international community, and which are related to environmental affairs, are classified as environmental management for the purposes of this study guide. Beale (1980:20) describes environmental management as the management of activities (both human and natural in origin) within the limits imposed by the environment and with due consideration of ecological factors. Environmental management is therefore, also related to socioeconomic development.”*

(Beale 1980:20).

It is important to note that the government does not carry sole responsibility for optimal environmental management. Each individual and all sectors of society have a responsibility towards the environment – whether it is manmade or natural. You are perhaps wondering

why we propose that you as an individual or as the director of a company bear such a responsibility. The following section addresses the need for environmental services and should present you with reasons why each individual should become actively involved in environmental affairs.

## 1.5 THE NEED FOR ENVIRONMENTAL SERVICES

The need for environmental services arises from the fact that our survival, welfare and quality of life are closely bound up with the condition of the environment in which we find ourselves.



### Activity 1.4

Study the cartoon strip below.



(1) Why is the boy packing his bags?

---

---

---

(2) Do you think he considered this carefully before beginning to pack and do you think he knows where he wants to go?

---



---



---

(3) Why is he stumped when his virtual friend ("soft-toy") asks him where he plans to go?

---



---



---

(4) What in your opinion, is the central message conveyed through this cartoon?

### 1.5.1 Survival

The earth, as far as we know, is the only planet in the universe that possesses the ability to sustain life. Humans and all forms of life are dependent on the natural environment for their survival. For this we need, among other things:

- fresh air to breathe
- clean water to drink
- fertile soil for food production (Sitarz 1993:2).

In 1855, the headman (Chief Seattle) of an Indian tribe, in reaction to an offer from the American government to buy their land, summed up the intimate relationship and interdependence between earth and humans as follows:

“This we know: the earth does not belong to man: man belongs to the earth ... All things are connected like the blood which unites one family ... Whatever befalls the earth, befalls the sons of the earth. Man did not weave the web of life: he is merely a strand in it. Whatever he does to the web, he does to himself.”

(Weiss 1989:1)

The message that the cartoon strip is trying to convey is that, after having destroyed and exploited our natural environment, we cannot simply pack our bags and emigrate to another planet, since we would not be able to survive there. Owing to our dependence on the natural environment, we are obliged to remain here on earth and try to repair the damage that we have caused. This implies that the environment should be managed and conserved with the necessary care to restore the fine balance and harmony between people and the environment. If this does not happen, we will be heading for self-destruction.



### Activity 1.5

---

"People's welfare and quality of life is intimately bound up with the condition of the environment in which we find ourselves."

(1) Do you agree with the above statement? Give reasons for your answer.

---

---

.....

#### 1.5.2 Welfare of people and quality of life

The quality of life and welfare of people can indeed be influenced by the environment in which we live, work and play whether this is manmade or natural. A beautiful natural setting, an unpolluted, clean suburb, unspoiled beaches and well-maintained parks have a positive effect on our emotional state and create a feeling of wellbeing. In contrast, polluted rivers and dams and crowding as a result of overpopulation that cause feelings of frustration and discontentment. The state of the environment can also influence the health of individuals. Thus the depletion of the ozone layer can lead to a higher incidence of skin cancer, while air pollution can cause an increase in respiratory illnesses. The quality of life, welfare and even life expectancy of people who suffer from these illnesses are adversely affected due to their suffering (both physically and emotionally), from high medical costs and an inability to work and earn money.

In addition to the above reasons, grounds for justifying our responsibility towards the environment (and thus the provision of environmental services) also have a philosophical foundation.

#### 1.5.3 Trusteeship of the natural environment and responsibility towards future generations

God entrusted the management of his creation to humankind. This does not imply that it belongs to us. Each generation (like the previous one) is merely the trustee of the natural environment which must in turn be transferred to succeeding generations. Current generations have the right to use the resources offered by the natural environment to their advantage, but have a moral duty to preserve the environment for future generations and to pass it on in a good condition (Weiss 1989:2, 18).

The idea that we have a certain duty towards future generations is based on the fact that decisions taken in the present and activities that occur now have definite consequences for future generations (Callahan 1981:72). So, for example, the exhaustion of non-renewable natural resources (especially energy sources such as oil and coal) can mean that future generations are robbed of the opportunity to benefit from them. Present generations should already be developing alternative energy sources so that our natural resources can be preserved for posterity (Desjardins 1993:90). Dumping toxic chemicals or polluting an area with radioactive substances not only has far-reaching implications for the current

generation, but can also influence the quality of life and welfare of future generations (Weiss 1989:5). Consider, for example, the birth of deformed children in the areas surrounding Hiroshima and Nagasaki – decades after the atomic bomb.

As already mentioned, the cultural heritage forms part of the environment and we should, therefore, ensure that this heritage is also preserved and kept for future generations. The cultural heritage also runs the risk of destruction or weathering. Continued exposure of monuments and statues to the natural elements can cause erosion, while films or books that contain valuable information and knowledge may be destroyed or damaged. The result may be that future generations do not have the privilege of appreciating their cultural heritage and of understanding their origins and history, or they may have to carry the heavy costs of restoring certain cultural artefacts (Weiss 1989:13). Damage or destruction are not the only ways in which cultural heritage may be lost. Should the government forbid the construction of a statue in honour of a particular person, remove statues or undermine the use of a particular language, the perpetuation of cultural identity (and by implication, the cultural environment) is threatened.



Activity 1.6

To see whether you understand the content of learning unit 1, try the following questions:

- (1) Make a short summary of not more than 200 words indicating what you have learnt in this learning unit.

---



---

- (2) What do the things you have learnt mean to you in your personal life, in other words: have they changed your attitude towards the environment? Will what you have learnt here influence your future behaviour?

---



---

- (3) Make a list of new concepts that you have encountered in learning unit 1.

---



---

.....

## 1.6 REVIEW

This learning unit sketched the background to the environmental dilemma with special reference to the influence of human activity on the environment. The key idea that we wish to convey is that we are dependent on the environment for survival and that, as such, it should be treated with the utmost care. The government does not bear sole responsibility for environmental management. Each individual has a decisive role to play in restoring the disturbed balance between us and our environment and ensuring a better quality of life for present as well as future generations.

# **LEARNING UNIT 2**

## **PRIMARY ENVIRONMENTAL ISSUES**

## TABLE OF CONTENTS

<b>2.1</b>	<b>INTRODUCTION .....</b>	<b>22</b>
<b>2.2</b>	<b>THE POPULATION QUESTION .....</b>	<b>22</b>
	2.2.1 Demographic tendencies .....	23
	2.2.2 Impact of the population on the environment.....	23
<b>2.3</b>	<b>GLOBAL WARMING.....</b>	<b>26</b>
<b>2.4</b>	<b>DEPLETION OF THE OZONE LAYER.....</b>	<b>28</b>
<b>2.5</b>	<b>THE USE OF NUCLEAR POWER AS A SOURCE OF ENERGY .....</b>	<b>31</b>
<b>2.6</b>	<b>SOIL LOSS.....</b>	<b>33</b>
<b>2.7</b>	<b>DEFORESTATION.....</b>	<b>33</b>
<b>2.8</b>	<b>WATER SCARCITY .....</b>	<b>34</b>
<b>2.9</b>	<b>URBANISATION .....</b>	<b>37</b>
<b>2.10</b>	<b>POLLUTION .....</b>	<b>38</b>
<b>2.11</b>	<b>LOSS OF BIODIVERSITY .....</b>	<b>40</b>
<b>2.12</b>	<b>POVERTY .....</b>	<b>40</b>
<b>2.13</b>	<b>REVIEW .....</b>	<b>42</b>
	<b>SELF-EVALUATION.....</b>	<b>43</b>

# Learning Unit 2

## PRIMARY ENVIRONMENTAL ISSUES

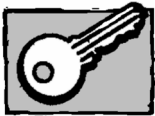


### LEARNING OBJECTIVES

---

After completing this learning unit, you should be able to explain

- the extent of the global environmental dilemma
- how the global environmental dilemma influences our quality of life and physical well-being.



### KEY CONCEPTS

---

After studying this unit, you should be able to explain the following concepts:

- biodiversity
  - deforestation
  - global warming
  - housing
  - ozone layer
  - pollution
  - population
- 

## 2.1 INTRODUCTION

The global environmental dilemma cannot be reduced to merely a few issues. The problem is far more complex. Nevertheless it is generally accepted that particular issues have reached critical levels and that – in the interests of the survival of humankind – these must be actively addressed at national level and by the international community. In this learning unit attention is given to such issues.

## 2.2 THE POPULATION QUESTION

In learning unit 1 we indicated that the environment includes not only our natural and manmade surroundings, but also conditions that may influence the environment. The size of a population and the population density have a definite impact on both the natural and manmade environment. Such an impact is related to the carrying capacity of the environment (Kirchner et al 1985:59–60). Growing populations place excessive strain and demands on resources such as land, water and the atmosphere, and ultimately impair the ability of such resources to support life (Mink 1993:19).

### 2.2.1 Demographic tendencies

Starting from the 18th century the world population – which was previously naturally controlled by natural disasters and epidemics – gradually began increasing at a rate of 0,5 percent a year. Between 1750 and 1900 the population doubled to 1,7 billion, and during the first half of the 20th century the population growth rate rose from 0,5 to 1 percent. By 1950 the growth rate was 2 percent per annum (Mink 1993:14; Kluger & Dorfman 2002:13). At present the world population stands at 6,8 billion and is growing at a rate of 1,2 percent per annum. This growth rate means that there is an approximate annual increase of 77 million in the world population. At the current growth rate, in 2042 there will be almost 9 billion people in the world. The increase in the world population since the 18th century can be largely ascribed to the discoveries and developments in the medical field which led to a longer life expectancy (Mink 1993:14).

About 70 percent of the world population live in developing states. "Developing states" refers to countries whose economy – in the absence of a strong industrial or manufacturing sector and infrastructure – is largely based on the agricultural sector and the export of unprocessed, raw materials. These countries are further characterised by low incomes per capita (income per person), poverty and illiteracy. Examples of developing countries – which are also often referred to as Third World countries – are Mozambique, India, Paraguay and Chile (Crump 1991:76). The literature often also refers to "least developed countries" (known as LDCs), also known as Fourth World states. Countries that are very poor, such as Ethiopia and Somalia, fall into this group. Projections by the United Nations (UN) indicate that the populations of developing countries will still grow considerably before they begin to stabilise. It is, for example, predicted that the population of Africa of 922 million will increase fourfold and that of India and Latin America (with approximately 1,13 billion and 569 million people respectively) twofold before stabilising later in the 21st century (McMichael 1993:118, 119).

According to the most recent estimate (of 2010) the population of South Africa is currently 49,9 million, with an average negative growth rate of –0,05% (Population Reference Bureau; South Africa).

### 2.2.2 Impact of the population on the environment

It goes without saying that growing populations place a great strain on the natural and manmade environments in the sense that they imply greater demands for food, work, housing, education, municipal services and natural resources (Sitarz 1993:44). If the environment cannot accommodate the growing population, the result is unemployment, the appearance of squatter camps (owing to a lack of housing), social evils such as crime and alcoholism, and deterioration of the environment which is evident in, among other things, an increase in air pollution and littering. To illustrate the influence of the population on the environment, we pay particular attention to the heightened demand for food as a result of growing populations.

Research has shown that modern agricultural practices such as irrigation, fertilising and pest control have contributed greatly over the past decades to satisfying the food needs of a growing world population. Between 1965 and 1990 grain production grew by 90

percent, while the population increased by 60 percent (Mink 1993:20). In Africa south of the Sahara the grain production of 60 percent could, however, not keep pace with the population increase of 105 percent and famine and food shortages were the order of the day. This can be ascribed to, among other things:

- Poor agricultural methods that contribute to soil erosion and a decrease in the ability of the soil to produce adequate food.
- Droughts.
- Wars and political conflict.
- Refugees that cross borders as a result of wars and add to the strain on the resources of neighbouring states (Min 1993:20–21).

Up to now, global food production (except in Africa) has amply exceeded the growth of the world population, but there are indications that this trend will not continue. Loss of soil fertility as a result of soil erosion and the depletion of groundwater and other water sources for irrigation purposes may mean that, in future, food production will not be sufficient to provide for the growing demand. If existing cultivated land does not deliver the necessary crops, farmers will be obliged to expand agricultural practices to, for example, fertile forested areas and wetlands. This will lead to the destruction of the natural habitat of a wide variety of plants and animals and their subsequent extinction (Mink 1993:20; Kirchner et al 1985:75). (See also the negative consequences of deforestation later in this learning unit.)

There is no doubt that population growth must be controlled to relieve the pressure on the natural and manmade environment. Before we can focus on programmes and activities that have been put forward by the international community and individual governments to curb population growth, we must turn our attention to the influence that AIDS could have on demographic trends. The following excerpt from Lampley et al (2002:3) offers a view on the problem of AIDS and HIV infection:

“We are entering the third decade of what may be the most devastating epidemic in human history: HIV/AIDS. The disease continues to ravage families, communities, and countries throughout the world. In addition to the 20 million people who have already died of AIDS, most of the 40 million people now living with HIV are likely to die a decade or more prematurely. Each day, approximately 14,000 people – 12,000 adults and 2,000 children – become infected with HIV. At least 95 percent of these new infections occur in LDCs; more than 50 percent being women and young adults. Unless the international community launches a coordinated and massive response to the epidemic, there will be 45 million new HIV infections by 2010.”



### Activity 2.1

---

The following table shows the demographic influence that HIV/AIDS could have on the population growth of the worst affected states.

- (1) Study the table and identify the five African states whose population growth will drop the most as a result of HIV/AIDS.

(2) Then, indicate the countries that you have identified on the map of Africa.

---



---



---



---



---



---



---



---



---



---

COUNTRY	POPULATION GROWTH RATES	
	WITH AIDS	WITHOUT AIDS
Burkina Faso	2.4	3
Burundi	2.7	3.4
Cameroon	1.7	2.4
Democratic Republic of the Congo	2.9	3.2
Ivory Coast	1.8	2.7
Kenya	0.5	1.8
Malawi	1.9	3.2
Rwanda	1.6	2.7
Tanzania	1.9	2.6
Thailand	0.7	0.8
Zambia	1	2.6
Zimbabwe	0	2.3

**Table 2.1: Demographic effect of HIV/AIDS by 2010**



**Figure 2.1: Map of Africa**

### 2.2.2.1 Activities and programmes to control population growth

Worldwide concern over population growth culminated in a population conference in 1994 which was held in Cairo, Egypt, under the guidance of the UN. The primary goal of the conference was to find solutions to control the growth in world population effectively and successfully (Linden 1994:44). Proposals made by the UN in this regard drew strong opposition from certain groups.

## 2.3 GLOBAL WARMING

Since the advent of industrialisation, the number of gases released into the atmosphere – especially carbon dioxide, methane, nitrogen and chlorofluorocarbons (CFCs) – have increased dramatically. These gases form what could be compared to a glass panel in the atmosphere, which, just like the glass in a greenhouse, allows sunlight through but prevents the heat that is radiated from the earth from being released into the outer atmosphere – hence the reference to the greenhouse effect (Huntley et al 1989:25; Schwella et al 1996:315–316).

Coal burning, exhaust fumes from cars and waste products from chemical and industrial manufacturing processes produce gases which are released into the atmosphere; however, these are merely a few of the factors that contribute to the greenhouse effect (Gauteng: preliminary report on the state of the environment 1997). In addition to this, deforestation exacerbates the problem. Plants and trees use carbon dioxide and, through photosynthesis, transform it into starch which serves as a source of energy. Oxygen is released into the atmosphere as a result of this process (Grant & Hawkins 1995:181). The destruction of plants and trees means that greater amounts of carbon dioxide are building up in the atmosphere since less plant growth exists to transform it into oxygen (Huntley et al 1989:26).

Developed countries are responsible for the release of approximately half the carbon dioxide found in the atmosphere. Eastern Europe and the densely populated Third World countries (especially Brazil, Chile and India) are each responsible for a quarter of the total amount of carbon dioxide in the atmosphere (McMichael 1993:139).

The main consequence of the greenhouse effect is that it can cause a change in climate. It has already been found that the average global temperature between 1900 and 1990 increased by 0,6 degrees Celsius (Sunter 1996:20). Predictions indicate that a rise in temperature of 1 degree can be expected by the year 2025 and that the temperature by the end of the 21st century could show an increase of 2,5 to 3 degrees (McMichael 1993:141). Climate changes of this nature have far-reaching consequences. Heightened temperatures can lead to the melting of glaciers (ice masses) and the layer of ice which covers the polar regions which will result in the elevation of the sea level (Sunter 1996:20; Wilkinson, 1980:93). A rising sea level will mean that islands in the Pacific Ocean and low-lying countries such as Bangladesh and the Netherlands will disappear under the sea, while coastal towns will be flooded and water and soil will become salty. There are also indications that global warming can lead to an increase in natural disasters such as droughts, floods and fierce storms. Regular droughts and soil too salty for the cultivation of crops can profoundly affect agriculture, which can eventually impact negatively on the total economy of a particular country (Seager 1990:99). Warmer weather can also lead to an increase in illnesses such as malaria, bilharzia, flu and cholera. This could place great pressure on medical services and impair the quality of life and the life expectancy of affected people in fundamental ways (McMichael 1993:152–159).

The best way to combat global warming and prevent these doomsday scenarios is by curtailing the amount of harmful gases released into the atmosphere. This requires an adaptation in lifestyle that the average individual and the manufacturing and industrial sector are not always prepared to accept. Such an adaptation in lifestyle requires, among other things, the following:

- The use of lead-free fuel.
- The manufacturing and use of battery-driven cars.
- The use of natural gases instead of coal and oil by industries (The former generate far less carbon dioxide.)
- The use of energy derived from the sun, water and wind instead of electricity
- The acquisition of energy-saving equipment. (Lemonick 1997:14)

In December 1997, an international summit was held in Kyoto, Japan, to address the question of global warming. The proceedings culminated in an international treaty – the Kyoto Protocol – which stipulates that the average global release of gases that trap heat should be reduced by 5, 2 percent by the year 2012 (measured against 1990 levels). The Protocol also determines that the European Union must reduce gas emission by 8 percent, Japan by 6 percent and the United States of America (USA) by 7 percent. Developing countries are not expected to reduce gas emissions – in spite of the fact that countries such as China and India play a large role in air pollution and the release of harmful gases (Lemonick 1997:13–15). Before the Protocol could come into force, it had to be signed by 55 percent of the world's greatest polluters. This implementation suffered a setback when the USA (the largest producer of greenhouse gases) indicated that it would not be signing the Protocol for fear that the American steel industry would be harmed (Malan 2002:10). During the World Summit for Sustainable Development, which took place in Johannesburg from 26 August to 4 September 2002, the ratification of the Kyoto Protocol was raised once again. The USA maintained its standpoint but the ratification of the Protocol by various other states (including Thailand, Canada and Russia) resulted in the required implementation quota being achieved. According to the Kyoto Protocol: Status of Ratification, 191 states had signed and ratified the protocol as of July 2010. Australia, under former Prime Minister Kevin Rudd, ratified the treaty but has thus far not implemented legislation to bring itself into compliance.

## 2.4 DEPLETION OF THE OZONE LAYER

The ozone layer is situated in the atmosphere between 10 and 50 kilometres above the surface of the earth. It is not a static layer since ozone is constantly formed. Oxygen molecules come into contact with ultraviolet rays in the atmosphere and undergo a certain reaction to transform into ozone. The ozone layer serves an important function in the sense that it absorbs the damaging ultraviolet rays of the sun so that they do not reach the earth. Ozone is continually formed, but at the same time, it is exposed to destructive gases and chemical substances that are released into the atmosphere as a result of human industry (Grant & Hawkins 1990:175–176). It has been found that CFCs are chiefly responsible for the destruction of ozone molecules. Chloride emitted by CFCs can remain active for 75 years during which time their damaging effect continues (Huntley et al 1989:33–34).

From this it appears that a dynamic process of formation and destruction of the ozone layer is continually underway. In recent decades the rate at which ozone is destroyed has exceeded the rate at which it is formed, resulting in a gradual depletion of the ozone layer (Grant & Hawkins 1990:176). Concern over the depletion of the ozone was voiced for the first time in 1974. Analysis of satellite data over the period between 1978 and 1990 has shown that the amount of ultraviolet radiation over cities such as Sydney, Buenos Aires and Durban has increased by 5 percent per decade, and by 15 percent over the poles – unquestionable proof of the depletion of the ozone layer (McMichael, 1993:179).

The depletion of the ozone layer holds many negative implications for the health of people. Exposure to harmful ultraviolet rays could lead to an increase in skin cancer and cataracts. It has also been found that greater exposure to ultraviolet rays impedes the

production of cells that are essential for the maintenance and optimal functioning of the body's immune system. This makes people more susceptible to illness (McMichael 1993:194).

A November 2010 report by scientists at the Institute of Zoology in London found that whales off the coast of California show a sharp rise in sun damage, and these scientists "fear that the thinning ozone layer is to blame". The study photographed and took skin biopsies from over 150 whales in the Gulf of California and found "widespread evidence of epidermal damage commonly associated with acute and severe sunburn", namely, cells which form when the DNA is damaged by UV radiation. The findings suggest "rising UV levels as a result of ozone depletion are to blame for the observed skin damage, in the same way that human skin cancer rates have been on the increase in recent decades".

Greater quantities of ultraviolet rays reaching the earth can also upset the chemical processes in plants, both on land and in the sea. This can threaten the growth and continued existence of plant life. Research has shown that crops such as beans, peas, maize, rice and sunflowers are extremely sensitive to greater amounts of ultraviolet radiation and that this may inhibit their growth. Such a state of affairs could severely affect the agricultural sector and lead to a decrease in food production (McMichael,1993:195).

In 1987, the international community took the first step in their attempt to decrease the levels of destructive chemical substances and CFCs in the atmosphere. The Montreal Protocol, was signed by 48 states (including South Africa) in 1989, and determined that the signatories must reduce their production and use of CFCs by 50 percent by 1999. Developing states were permitted a further decade to bring about a reduction in CFC use (Huntley et al 1989:341). The Montreal Protocol was considered inadequate in the struggle against the destruction of the ozone layer and calls have been made for a total ban on the production of CFCs. In reaction to this, the Montreal Protocol was revised in 1990 to make provision for a total phasing out of the production and use of CFCs by developed countries by the year 2000. Developing countries have been given until 2010 to reach the same target (McMichael, 1993:180). Since the manufacture of replacements for CFCs is far more expensive, developed countries have created a fund of \$240 million to help the poorer developing countries in changing over to ozone-friendly products (Myers 1993:168).

Since the signing of the treaty in 1989 in Helsinki, it has undergone seven revisions: in 1990 (London), 1991 (Nairobi), 1992 (Copenhagen), 1993 (Bangkok), 1995 (Vienna), 1997 (Montreal) and 1999 (Beijing). It is believed that if the international agreement is adhered to, the ozone layer should recover by 2050 (Speth 2004:95).

Due to its widespread adoption and implementation it has been hailed as an example of exceptional international cooperation, with Kofi Annan quoted as saying that "perhaps the single most successful international agreement to date has been the Montreal Protocol". It has been ratified by 196 states ([http://ozone.unep.org/Ratification status/](http://ozone.unep.org/Ratification%20status/)).



## Activity 2.2

---

Speak to friends/colleagues to determine their feelings about and experiences of the following:

- (1) Do they feel that the sun shines more fiercely than it did a few years ago?

---

---

---

---

---

---

---

- (2) Do they burn more easily and painfully on the beach than they did previously?

---

---

---

---

---

---

---

- (3) Has the incidence of skin cancer/cataracts increased amongst your acquaintances and relatives over the past decade?

---

---

---

---

---

---

---

- (4) Explain the function of the ozone layer to your friends/colleagues and talk to them about what the government should be doing to prevent the further destruction of the ozone layer.

---

---

---

---

---

---

---




---



---

## FEEDBACK ON ACTIVITY 2.2

---

*I am sure that you could reply in the affirmative to all three of these questions. Our explanation of the importance of the ozone layer should give you the key to why you answered these questions as you did. Using the information on the preceding page as a point of departure, explain to your friends what the ozone layer is, and why it is necessary to prevent it from being depleted.*

---

To prevent further destruction of the ozone layer (DEA roles and responsibilities), government should, *inter alia*,

- ensure that international obligations (as set out in international treaties) are met
- ensure that South African legislation makes provision for protecting the ozone layer
- train and educate society about how they may counteract the further destruction of the ozone layer
- promote energy-efficient programmes and encourage the use of renewable sources of energy
- encourage continual research and fact-gathering about the condition of the ozone layer in the Southern African region

In 2009, 13 to 14 percent of the world's electricity came from nuclear power (World Nuclear News 2010.)

## 2.5 THE USE OF NUCLEAR POWER AS A SOURCE OF ENERGY

Coal, oil, natural gases and the sun are among the most widely known energy sources. A further source of energy is nuclear power. However, nuclear-rich materials such as uranium must first be subjected to a splitting process to release energy. This process takes place in a nuclear reactor and can be used to manufacture nuclear weapons or to generate electricity (Wilkinson 1989:87). In 2009, 13 to 14 percent of the world's electricity came from nuclear power (World Nuclear News, 2010). The main advantage of the generation of energy by nuclear reactors is that not as many harmful substances are released into the atmosphere as when oil and coal are burnt, so this process does not contribute to the greenhouse effect (Seager 1990:112). However, there are certain controversial issues surrounding the nuclear industry. No doubt the most important of these is the issue of radioactive waste products and how and where they should be disposed of. Seager (1990:112) summarises the dilemma up as follows:

“Over the next 30 years, more than 25,000 cubic metres of high level waste will be generated by the top ten nuclear countries alone. There is literally no place to

safely dispose of radioactive waste, and there are fewer and fewer places to store it. Until 1983, Belgium, the Netherlands, Switzerland and the UK dumped low-level radioactive waste at sea. This practice was halted by an international moratorium under the London Dumping Convention. With the ban on ocean disposal, there are no places anymore where low-level radioactive waste can be disposed. Most nuclear states are building up huge stockpiles of nuclear waste that no one wants and no one knows how to get rid of."

There is also the danger that a nuclear reactor might explode or that leakages might occur, releasing radioactive material with catastrophic consequences for both people's health and the environment. Such an explosion occurred in 1986 in Chernobyl in the Ukraine. The explosion was ascribed to the fact that the nuclear reactor in use there did not comply with international safety standards. Certain shortcomings were also identified in the design of the reactor (Chernobyl status, April 1997). The following excerpt, obtained from the Internet, gives an indication of the traumatic consequences of the explosion:

"Radioactive fallout contaminated the immediate area and prevailing winds carried the deadly air to the north and west, affecting areas as far north as Norway. Crops and milk in Poland, Germany, Austria, Hungary, and Ukraine were so contaminated they had to be destroyed. Reindeer carcasses in the Baltic states had to be disposed of and the casualties among humans is even more poignant: 187 people suffered from acute radiation sickness, 30,000 of the 400,000 who worked to bury the disaster have fallen ill. The immune systems in many of those exposed have been compromised. This resulted in increased rates of leukaemia, malignant tumors and pneumonia. Thyroid cancer among the children exposed is now on the rise. Many men are now plagued with impotence and sperm abnormalities. Complications of pregnancy are affecting women. There has been a 10 to 15 fold increase in the incidents of neuropsychiatric disorders among children. Many towns have been abandoned leaving 167,000 people homeless. The area around the blast (30km radius) is a dead zone. The destruction has been the equivalent of that which could be produced by a mid-sized nuclear weapon." (Environmental Science update 1997).

Nuclear power is also inevitably associated with nuclear weapons. Although a number of countries have signed the Nuclear Non-proliferation Treaty which forbids the continued manufacture of nuclear weapons, there are countries who continue to make them. Thus, the danger still exists that nuclear weapons might be used by unstable regimes in armed conflict. The possibility also still exist that nuclear weapons or nuclear technology might fall into the hands of terrorist groups who could use them for terrorist deeds – with far-reaching implications (Wilkinson, 1980:88). Nuclear testing presents the same threat. In certain cases, islands in the Pacific Ocean have been rendered uninhabitable for thousands of years due to radioactive pollution after being used for decades for nuclear testing by, in particular, France, the USA and Britain. The inhabitants of such islands were obliged to flee to seek a life elsewhere (these people are called "nuclear refugees") (Seager 1990:120).

It is clear that the use of nuclear power – for either making weapons or generating of energy – can exact a high price. Governments are faced with a special challenge in this

regard: they can either place a total ban on the use of nuclear power or they can regulate its use in such a way that it presents no threat to the environment or present and future generations. In addition to this, investigations and research should be undertaken without delay into ways of disposing of radioactive waste.

## 2.6 SOIL LOSS

The annual loss of soil in South Africa is estimated at between 300 and 400 million tons. The rate at which soil is lost far exceeds the rate at which it is formed (less than 0,1 ton of soil is formed per hectare each year) (Huntley et al, 1989:38). Soil loss is not a problem restricted to South Africa but is experienced globally. In Australia, for example, for every six tons of soil lost on the surface, one ton of crops are produced, while in the USA a third of agricultural land is affected by erosion (Seager 1990:106).

Soil erosion is a natural process, but is dramatically exacerbated by human actions. Intensive planting of the same crops on the same land (without a break to give the soil a chance to recover), inappropriate farming methods and continued chemical treatment of the soil to generate maximum yields deplete natural substances found in the soil. This renders the soil infertile and results in the surface drying out, so that the soil eventually becomes dust, which is blown or washed away (Wilkinson 1989:205–206). Removal of plant matter, deforestation and overgrazing make the problem worse since, obviously, erosion occurs far more easily when there is nothing to stabilise the soil (Seager 1990:106).

All of the above factors can lead to desertification – an irreversible decline in the ability of soil to produce crops, which is accompanied by a loss in biodiversity and natural ecosystems (McMichael 1990:206).

## 2.7 DEFORESTATION

Of the 6 to 7 billion hectares of natural forests that once covered the earth, only about 4 billion hectares remain. This is due to large-scale destruction of the forests which peaked between 1950 and 1990 (Schwella et al, 1996:313). This devastation can, among other things, be ascribed to the following:

- The use of wood for commercial purposes (e.g. furniture manufacturing).
- Making land available for crop planting to feed growing populations.
- Making space for mining operations, road or dam construction.
- The gathering of firewood, especially by poor populations in developing countries who, owing to a lack of electricity, are dependent on firewood for energy and cooking.
- Large herds of cattle that graze on natural plant matter.
- Veld fires (McMichael 1993:252; Schwella et al 1996:313).

The destruction of tropical forests in particular has caused great concern worldwide. These forests cover only about a fifteenth of the earth's surface but are home to about two-thirds of the earth's plant and animal species. Destruction of these forests thus goes hand in hand with the extinction of the rich number of species that inhabit these forests (McMichael 1993:253). At the current rate of destruction, all the remaining tropical forests

will disappear within 40 years. Tropical forests in developing countries such as the Ivory Coast, Nigeria, India and Thailand are especially vulnerable. By exposing the forests to development and commercial ventures, the necessary funds are generated to pay off debts, create work for poor populations and space is created to accommodate growing populations (McMichael 1993:255; Seager 1990:102).

Underlying the destruction of natural forests is a general lack of understanding and knowledge about the advantages and value attached to trees and plant growth in general. As already indicated, plants counteract soil erosion and prevent the build-up of large amounts of carbon dioxide in the atmosphere, which contribute to the greenhouse effect. The point of departure in addressing the problem of deforestation should be the creation of education and awareness programmes to inform farmers, the commercial sector, ethnic groups and individuals regarding the value of natural forests. In addition, strong measures should be introduced to protect the forests against exploitation, veld fires, pests and pollution (Sitar, 1993:96–97).

## 2.8 WATER SCARCITY

Fresh water – which is essential to maintaining life on earth – is not present in unlimited quantities. Only a small amount of the world's water is suitable for human use and this fact alone renders water a scarce resource. Population growth and economic development have led to the tenfold increase in water use in the 20th century. The agricultural sector worldwide places the greatest strain on water resources with more than two-thirds of the water from rivers, dams and lakes being used for irrigation. Industries are responsible for about a quarter of the global water use, while the rest is utilised in households and for leisure and livestock (McMichael 1993:226).

The already limited amount of water available for human use is sometimes rendered unusable by the dumping of industrial and toxic waste in rivers and the presence of fertilisers and pesticides in groundwater. The wasting and irresponsible use of water further exhaust water resources and lead to water scarcity. How many times have you come across a running or dripping tap? People are inclined to accept water as a given without thinking twice about where it comes from or whether there will still be enough of it in the future. Each individual has a responsibility to ensure that water is used optimally and saved where possible. We are, after all, dependent on it for survival.

Fresh water is not found in equal quantities everywhere. Some countries experience greater water shortages (due to climate, rainfall and location, among other things). Third World countries in particular suffer from serious water shortages. Rural communities must travel long distances to fetch water, while residents of cities such as Jakarta (Indonesia), Abidjan (Ivory Coast) and Lima (Peru) are obliged to buy their water from water traders at high prices. Water shortages occur in some cases as a result of sporadic rainfall, but can sometimes also be ascribed to a lack of money, technological knowledge and resources that prevent actions such as laying more pipes to make water more accessible. In Madagascar, the average water usage per person is about 5, 4 litres compared to the 500 litres of water per person that is used on a daily basis in the USA. To maintain a reasonable standard of living, about 80 litres per person per day is needed (Seager 1990:102).

Water is a strategic resource over which countries are even prepared to go to war. This is especially true of countries that have to share their water resources with other states. The Middle East is an excellent example of an area where water resources are shared:

- Turkey, Syria and Iraq are dependent on the Euphrates and Tigris rivers.
- Jordan and Israel are dependent on the Jordan River.
- A large number of countries, including Egypt, Ethiopia and Sudan, obtain most of their water from the Nile.

Conflict can arise whenever one country diverts the course of the river(s) or dams so that the water flow cannot reach neighbouring states. Israel's decision to go to war with the surrounding Arab states (Syria, Jordan and Egypt) in 1967 can be partly ascribed to the threat to divert the flow of the Jordan River away from Israel. Disputes over water have also occurred between India and Pakistan (over the Indus River) and between India and Bangladesh (over the Ganges) (Myers 1993:18, 38, 43–47). The conflict that can arise around water led to the formation of the Helsinki rules. According to these rules, every state which shares water resources has a right to an equal share of the water and should use it without inconveniencing any other country (South Africa, Department of Water Affairs and Forestry 1997). The existence of these rules does not, however, mean that countries will abide by them, and so the possibility of conflict over water cannot be dismissed.

South Africa does not have an abundance of water. Rather, it is a dry country which implies that the available water should be managed with the greatest circumspection and in responsible ways. The Department of Water Affairs and Forestry published the White Paper on a National Water Policy for South Africa in 1997, which serves as a policy framework for the management of water and water resources. The essence of the policy is expressed as follows by the former Minister of Water Affairs and Forestry:

“The new water policy embodies our national values of reconciliation, reconstruction and development so that water is shared on an equitable basis, so that the needs of those without access to water in their daily lives are met, so that the productive use of water in our economy is encouraged and so that the environment which provides us with water and which sustains our life and economy is protected.” (South Africa, Department of Water Affairs and Forestry 1997).

From the above quote it appears that we are striving to maintain a balance between the need for water, economic development and the conservation of the environment and water.



### Activity 2.3

You are the director of Communication Services in the Department of Water Affairs and Forestry. You have just attended a meeting at which concern was expressed over the perception of the public that there is an abundance of water as a result of the good rainfall over the past two years, and that, therefore, it is not necessary to save water. You have been given the task of changing this perception by embarking on a national campaign to

inform the public about the necessity of always saving water. Tips on how to save water must be made available to the public at the same time.

(1) What communication media would you use to perform this task?

---

---

---

---

(2) What kind of information would you make available to the public to impress the seriousness of the situation upon them and to implore them to save water?

---

---

---

---

(3) What water-saving tips would you give to the public?

---

---

---

---

(4) Some people did not have access to water during the apartheid era and now feel that they have a right to use as much water as they like to make up for this period. How would you persuade these people to save water?

---

---

.....



### FEEDBACK ON ACTIVITY 2.3

---

*You have probably thought of the following methods to encourage people to save water: distributing pamphlets and posters at schools, clinics and community centres; radio advertisements or talks; information programmes on television and information sessions at schools.*

*See section 2.8 of this study guide for the type of information that should be given at schools, for example: fresh water is extremely scarce and yet necessary for maintaining life, and such a valuable resource should be treated with the necessary respect.*

*How to save water:*

- *Shower, rather than bath.*

- *If you need to run the water while waiting for it to warm up, collect the water and pour it into the kettle.*
- *Turn off dripping or running taps immediately.*
- *Use the dishwasher or the washing machine only if full of dishes or washing.*
- *Collect rain water.*
- *Turn off the tap while brushing your teeth.*
- *Bath several small children at the same time.*
- *Report burst water pipes to your local authority immediately.*

*Tell those who think that because in the past water may not have been readily accessible they now have the right to use as much water as they wish that that is precisely the reason why water should be used with care. Such people, even more than others, should realise what a valuable resource water is. Also emphasise the fact that South Africa does not have an abundance of water and that a lack of water can hamper economic growth (and in effect job creation and welfare).*

.....

## 2.9 URBANISATION

Urbanisation is a worldwide trend and refers to a dynamic process by which the concentration of people in cities increases owing to:

- migration of people from rural to urban areas
- the natural population growth in cities

Urbanisation also refers to the process whereby rural areas expand in such a way that, subject to certain requirements, they are reclassified as urban (Kok & Gelderblom 1989:27).

Urbanisation in developed countries reached a peak between 1955 and 1960, during which time an annual growth rate of 2,5 percent was experienced. Since then the growth rate has gradually declined so that it stabilised at 0,8 percent in 1990. In contrast, urbanisation in developing countries has increased at a very rapid rate in recent decades. The highest annual urbanisation growth rate (4,6 percent) was measured between 1980 and 1985. Between 1985 and 1990 the rate of urbanisation in developing countries gradually began to decrease (United Nations 1991:2). In spite of the worldwide decline in urbanisation, it has nevertheless been estimated that by the year 2030, 60 percent of the world's population will reside in cities (compared to 15 percent in 1900) (Population Reference Bureau).

Urbanisation has a definite influence on both natural and manmade environments. Growing urban populations place a strain on the natural environment in the sense that additional space is constantly required for activities such as the building of infrastructure and housing. In the process valuable agricultural land is lost, natural habitats such as forests and wetlands are destroyed, pollution increases and scarce water resources are exploited to the full (McMichael 1993:259; Seager 1990:107). The manmade environment is equally affected by the fact that existing infrastructure (water provision, roads, refuse removal, housing) and available resources cannot keep pace with the continual increase in city dwellers. As a result, large numbers of people often live on the outskirts of cities in atrocious

conditions which present serious health risks. Poverty and unemployment exacerbate the problem and give rise to social evils such as crime (Sitarz 1993:183; McMichael 1993:267).

In South Africa, the issue of urbanisation was closely related to the policy of apartheid. Segregation in cities was maintained by making provision for separate residential areas for whites, blacks, coloureds and Indians (Smit & Booysen 1981:75). The principle was further entrenched with the homelands policy. To implement the idea that Blacks should express their political rights in homelands, they had to be settled in these homelands as far as possible. One of the ways in which blacks were established in homelands was through forced removals – black residential areas in towns and cities which were situated close to homelands were cleared out and rebuilt in the neighbouring homelands. In this way, for example, Nelspruit's black area was moved to KaNgwane and Pietersburg's was moved to Lebowa (Kok & Gelderblom 1989:27). The implementation of the apartheid policy in general and the handling of the urbanisation issue in particular had a profound effect on the natural and manmade environment (see study unit 4 for more details).

## 2.10 POLLUTION

People initially thought that the environment was so vast that the waste products generated by human activity and our complex needs could easily be absorbed. Over time it has become clear that the generation of waste products has increased to such an extent (due in part to the increase of the number of people who inhabit the earth) that it has exceeded the environment's ability to absorb such waste (Fyfe 1990:21). This state of affairs not only presents a risk to people's health, but also threatens ecosystems.

Waste products are generated by households, industries and the agricultural sector. Household waste (plastic, bottles, food, paper, etc.) was, until recently, discarded on open pieces of land, buried or burnt (Fyfe 1990:21; Seager 1990:108). Not all forms of such waste (e.g. batteries and plastic) are biodegradable – which means that they do not decompose as a result of the action of bacteria or other organisms – with the result that poisonous substances are absorbed into groundwater, making agricultural land infertile and destroying plant and animal life (Fyfe 1990:21; Grant & Hawkins 1995:42). Burning as a method of disposing of waste products is equally damaging to the environment because it pollutes the air. The burning process also produces toxic residues which must then also be discarded. Recycling – the process whereby waste matter is made useable again – appears to be the most successful and effective way of processing waste matter without damaging the environment. It is also cheap and creates an alternative source of income. In Third World countries many people support themselves by collecting recyclable articles and selling them to recycling companies (Seager 1990:108–109).

Pollution of the environment with solid waste also occurs as a result of the devil-may-care attitude of individuals who drop cold drink cans, cigarette butts, sweet wrappers and plastic bags without thinking of the far-reaching implications of their actions. Littering is unsightly and, as such, has a disturbing effect on the human psyche.



Activity 2.4

---

The opinion is often expressed that the South African government should pass strict laws to clamp down on littering and to punish transgressors severely.

(1) Do you agree? Give reasons for your answer.

---



---



---

(2) What kind of punishment would you suggest transgressors should receive?

---



---



---

(3) Describe the role that you as a member of the public can play in changing attitudes and perceptions concerning littering.

---



---



---

.....



FEEDBACK ON ACTIVITY 2.4

---

*Travelling overseas you may have marvelled at the cleanliness of some of the cities and states you visited. Overseas, littering is often against the law and subject to a fine.*

*The comparatively high degree of littering encountered in South Africa will then probably prompt you to agree that strict measures (e.g. fines and community service) should be imposed to discourage people from littering – the problem, however, being how to enforce such measures. Perpetrators should be caught in the act – and that is not always possible.*

*Also, South African courts have to deal with such an overload of serious crimes that a "minor" offence such as littering may receive little consideration. We should, therefore, all refrain from littering and urge our friends, acquaintances and colleagues not to litter either, explaining to them why they should not do so.*

.....

Dumping in rivers, lakes and the ocean is another popular way of getting rid of waste. Untreated sewage and industrial waste which are dumped in water resources, as well as chemical fertilisers and pesticides which land up in water resources, all have catastrophic consequences – for example, the quality of drinking water is affected, while fish and other organisms die as a result of poisoning, with the eventual destabilisation of water ecosystems (Fyfe 1990:21,25; McMichael 1993:229).

Air pollution can be attributed to the release of gases (e.g. carbon dioxide, sulphur dioxide and nitrogen) and other particles (like dust) into the atmosphere. The burning of waste products, veld fires, exhaust emissions and industrial and manufacturing processes are the biggest causes of air pollution (Gauteng: preliminary state of the environment, 1997). Air pollution affects both people's health and the environment. In the long run, continued exposure to high levels of air pollution can give rise to respiratory illnesses such as bronchitis, asthma and even lung cancer (Seager 1990:110). As far as the ecological impact is concerned, the following issues stand out:

- Air pollution contributes to the greenhouse effect.
- Accumulation of polluting gases in the atmosphere lead to an unusually high level of acid content in rain, hail or snow. This can
  - inhibit the growth of plants and trees
  - affect the quality of the soil (which threatens food production)
  - destroy animal life (especially aquatic organisms)
  - negatively influence the quality of drinking water (McMichael, 1993:98–101).

## 2.11 LOSS OF BIODIVERSITY

The loss of biodiversity (plant and animal species) can be primarily ascribed to the loss of natural habitat and disturbance of ecosystems as a result of

- continued expansion of urban areas
- destruction of forests and the draining or destruction of wetlands
- the toxic effects of pollution
- the negative effect of global warming and the depletion of the ozone layer (McMichael, 1993:240).

Another reason for the loss of biodiversity is the illegal trade in animals, plants and related products (e.g. ivory). It is an industry that earns smugglers millions of Rand each year. Animals such as rhinoceros and elephants are being wiped out on a large scale for their tusks and horns. In the last 30 years elephant numbers in Africa have dropped from an estimated 1,3 million to less than 600 000, while less than 1 000 black rhinos remain on the continent (De Swardt 1997:9).

## 2.12 POVERTY

One out of every five people in the world live in a state of absolute poverty, that is, such people are not able to feed, clothe or house themselves in a way that promotes health and human dignity. Further characteristics of people who live in absolute poverty are that they do not have access to clean water or health and education services (with the result that the mortality and illiteracy rates are unacceptably high among these people) (Miller, 1995:127). Poor people, of whom many are unemployed and without housing, are found in developed countries (Sitarz 1993:32).

In spite of the fact that poverty is found worldwide, a broad distinction is drawn in the international context between the so-called rich North and the poor South. The North

refers to developed or industrialised countries such as the USA, Japan, Britain and France. Australia and New Zealand are also considered to form part of the North – even though they are situated in the southern hemisphere. The South refers to the developing or Third World countries which are situated primarily in the southern hemisphere, for example the African and Latin American countries (Welsh & Butyrin 1990:919). In study unit 3, attention is given to the North-South debate and the ways in which it influences the management of global environmental affairs.

The relationship between poverty and the environment is twofold in nature: poverty can, on the one hand, be the result and, on the other hand, the cause of the degradation in the environment. In cases where the health of people are affected by the condition of the environment so that they are hindered from leading a productive life, the degradation of the environment contributes directly to poverty (Tham 1992:26–27). Poor people do not escape the damaging effects of environmental decay since they are compelled to live in areas which are detrimental to their health. The only available living areas are often situated close to industries where the air and water are polluted. Residents in such areas are thus especially vulnerable to respiratory and other infectious illness such as cholera and diarrhoea. Poverty forces people to accept work that involves serious health risks. In an attempt to make a living, people have to tolerate high noise levels and the risk of accidents, while in other cases people are exposed to toxic gases (Gaudiness 1995:108–109). Poverty can also be brought about by the condition of the environment in indirect ways. Soil erosion, deforestation and pesticides found in irrigation water negatively influence the ability of the soil to produce food and can cast into poverty those who rely on farming for a living (Tham 1992:226–27).

As indicated already, poverty can also be a cause of environmental decay, as a result of the following factors:

- Poor countries do not possess the financial means to implement environmentally friendly technology, with the result that out-dated methods, which negatively affect the environment, have to be used.
- Overpopulation and the consequent lack of land for agriculture mean that ecologically sensitive areas are used for planting crops.
- Illiteracy and a lack of knowledge prevent adaptations in traditional methods and hinder the establishment of a culture of meaningful environmental management and conservation.
- In an attempt to survive, people are driven to extreme actions such as trading illegally in rare plants or animals and in related products such as ivory and rhino horn. In other cases, wildlife is wiped out to satisfy nutritional needs, agricultural land is exhausted in a desperate attempt to produce adequate food and, because there is no electricity, trees are chopped down for firewood (Tham, 1992:30; Gaudiness 1995:109).

Because of the interrelatedness of poverty and the global environmental dilemma, it is necessary to address both issues. Sitarz (1993:33) states this as follows:

“Any development policy which focuses mainly on increasing production without concern for the long-term potential of the resources on which such production is based will sooner or later run into problems. An effective and sustainable strategy to tackle the

joint problems of poverty and environmental degradation should simultaneously focus on resources, production and people.”

## 2.13 REVIEW

It is clear that the environmental issues described in this study unit have far-reaching implications for our health, quality of life and survival. It is therefore necessary that active steps should be taken by the international community, national governments and each individual to prevent the further decay of both the natural and manmade environment. In theme 2, we will turn our attention to the role that the international community fulfils in this regard, while environmental management on a national level is analysed with specific reference to the South African situation.

# SELF-EVALUATION

1. Give a description of the term "environment" and illustrate this with examples.
  2. Define the following terms:
    - environmental management
    - cultural heritage
    - urbanisation
    - biodiversity
    - ecosystem
  3. Distinguish between Public Administration and public administration and explain the relationship between the environment and public administration.
  4. Analyse the change in the relationship between people and the environment with reference to people's ability to manipulate the environment.
  5. The need for environmental services arises from ...  
Complete the sentence and give an expanded description of the factors that give rise to the need for environmental services.
  6. Distinguish between developing countries and developed countries.
  7. Explain the twofold meaning of "government".
  8. Analyse the impact that people and their activities have on the environment. In your answer, refer to poverty, population growth and global warming as environmental issues and their impact on:
    - the natural and manmade environment
    - people's health, mental wellbeing and quality of life
- Note:** You may also be expected to answer question 7 with reference to any other issues described in study unit 2.
9. Various opinions have been voiced about attempts to control population growth. Indicate the main grounds for the opposition to population control.
  10. What factors cause deforestation?
  11. Analyse the twofold relationship between poverty and the environment.
  12. What is the importance of biodiversity according to Kirchner et al?

13. Write a paragraph on the problem of littering as you experience it in your immediate living and working environment, and indicate what you think the role of the government should be in this regard.
14. Debate the pros and cons of the use of nuclear power.
15. Explain what you understand the "greenhouse effect" to be and indicate how planting trees can help to combat the problem.
16. Describe the actions taken by the international community to prevent the further depletion of the ozone layer.

## **THEME 2**

### **MANIFESTATION OF ENVIRONMENTAL MANAGEMENT IN THE INTERNATIONAL, REGIONAL AND NATIONAL ARENAS**

# CONTENT

## OVERVIEW

Key questions  
Key concepts

## LEARNING UNIT 3: ENVIRONMENTAL MANAGEMENT IN THE INTERNATIONAL CONTEXT

Introduction  
Historical development and highlights of international environmental management  
International treaties as an environmental management mechanism  
Obstacles to international environmental management  
Review

## LEARNING UNIT 4: ENVIRONMENTAL MANAGEMENT IN THE REGIONAL CONTEXT

Introduction  
Establishment of the Southern African Development Community (SADC)  
The Southern African Development Community and the environment  
The Lesotho Highlands Water Scheme  
Trans-border parks  
Review

## LEARNING UNIT 5: INTRODUCTION TO ENVIRONMENTAL MANAGEMENT IN THE NATIONAL CONTEXT

Introduction  
Environmental management in South Africa: A historical overview  
The legacy of apartheid  
Review

## **LEARNING UNIT 6: ENVIRONMENTAL MANAGEMENT: A FUNCTIONAL PERSPECTIVE**

Introduction  
Constitutional framework  
Environmental management in South Africa  
Implementation of environmental legislation by executive institutions  
Enforcement of environmental legislation by executive institutions  
Obstacles to optimal environmental management  
Intergovernmental relations and environmental management  
Review

## **LEARNING UNIT 7: NON-GOVERNMENTAL ROLEPLAYERS AND THE ENVIRONMENT**

Introduction  
The role of individuals  
The private sector interest groups  
Traditional communities  
Review

## **SELF-EVALUATION**

## OVERVIEW

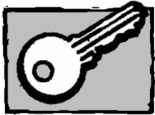


### KEY QUESTIONS

---

An understanding of theme 2 requires answers to the following questions:

- What does international environmental management entail?
  - Through which mechanisms does international environmental management occur?
  - What are the problems associated with international environmental management?
  - What institutions and structures are entrusted with environmental management within the southern African context?
  - What are the main objectives that shape environmental management in southern Africa?
  - What environmentally related programmes have been undertaken in southern Africa with a view to achieving the identified objectives?
  - How has the practice of environmental management developed in southern Africa?
  - Which government levels are responsible for the environmental management function in South Africa?
  - What role and functions are fulfilled by the various government levels responsible for environmental issues?
  - Does government have an obligation to deliver environmental services?
  - What other roleplayers are involved in environmental management?
- 



### KEY CONCEPTS

---

The following concepts (also provided in N.sotho) are important in the study of theme 2:

- international environmental management – Taolo ya ditiragalo ditikolong tša bodithabathaba
  - sustainable development– Tšwetšopele ye e swarelelago
  - North – Leboa
  - South – Borwa
  - Sovereignty - Boipušo
  - international treaties – Dikwano gare ga dinaga tše pedi goba go feta
  - Local Agenda 21 – *Agenda 21* ya selegae
  - land development – tlhabollo ya naga
  - supranational mechanism – mokgwataolo wo o amago dinagantši
  - conservation – Pabalelo
  - development – tšwetšopele/tlhabollo/kgodišo
  - national government level/sphere – boemong bja mmušo wa bosetšhaba
  - provincial government level/sphere – boemong bja mmušo wa profense
  - local government level/sphere – boemong bja mmušo wa selegae
  - intergovernmental relations – dikamano dikarolong tše di fapanego mebušong
  - private sector – lekala leo le sa laolwego ke mmušo
-

## Key concepts in IsiZulu

---



- ukuphathwa kwemvelo ngamazwe omhlaba
  - intuthuko eqhubekayo
  - Inyakatho
  - Iningizimu
  - ukuzibusa; ukuzimela
  - izivumelwano zamazwe omhlaba
  - Uhlelo Lwendawo Lokuzithandela Lokuqhuba Intuthuko Eqhubekayo Ngokwe-United Nations
  - ukuthuthukiswa komhlaba
  - supranational mechanism
  - ukomngiwa kwemvelo
  - intuthuko
  - izinga likahulumeni kazwelonke
  - izinga likahulumeni wesifndazwe
  - izinga likahulumeni wendawo/wasekhaya
  - ubudlelwano phakathi kohulumeni
  - umkhakha ozimele; umkhakha wangasese
-

# **LEARNING UNIT 3**

## **ENVIRONMENTAL MANAGEMENT IN THE INTERNATIONAL CONTEXT**

## TABLE OF CONTENTS

<b>3.1</b>	<b>INTRODUCTION .....</b>	<b>52</b>
<b>3.2</b>	<b>HISTORICAL DEVELOPMENT AND HIGHLIGHTS OF INTERNATIONAL ENVIRONMENTAL MANAGEMENT .....</b>	<b>53</b>
3.2.1	Stockholm Conference .....	53
3.2.2	Brundtland Report .....	53
3.2.3	Rio Conference .....	54
3.2.4	World Summit on Sustainable Development.....	55
<b>3.3</b>	<b>INTERNATIONAL TREATIES AS AN ENVIRONMENTAL MANAGEMENT MECHANISM .....</b>	<b>57</b>
<b>3.4</b>	<b>OBSTACLES TO INTERNATIONAL ENVIRONMENTAL MANAGEMENT .....</b>	<b>58</b>
3.4.1	Sovereignty of states.....	58
3.4.2	North-South polarisation.....	59
<b>3.5</b>	<b>REVIEW .....</b>	<b>60</b>

# Learning Unit 3

## ENVIRONMENTAL MANAGEMENT IN THE INTERNATIONAL CONTEXT

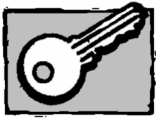


### LEARNING OBJECTIVES

---

After completing this learning unit, you should be able to explain

- environmental management in the international context



### KEY CONCEPTS

---

After studying this unit, you should be able to explain the following concepts:

- international environmental management
  - international treaties
- 

### 3.1 INTRODUCTION

The influence of issues such as global warming, the depletion of the ozone layer, population growth and poverty transcends national boundaries. It goes without saying that it would be futile for national governments to try to deal with such issues on an individual basis. International cooperation is necessary to address communal problems and the accompanying threat to the environment and our survival. Thus, environmental management should not be seen as a function that occurs only within the national boundaries of countries, but rather, as including a definite international dimension. In learning unit 3, we turn our attention to the highlights in international environmental management with reference to international institutions, conferences and treaties as mechanisms through which international environmental management occurs. In conclusion, we analyse certain aspects such as the sovereignty of states and North-South polarisation, which impede successful and effective environmental management in the international arena.

## 3.2 HISTORICAL DEVELOPMENT AND HIGHLIGHTS OF INTERNATIONAL ENVIRONMENTAL MANAGEMENT

International environmental management refers to the sum total of activities related to the environment that are undertaken by the international community (e.g. conferences, conclusion of treaties and other forms of cooperation).

Four highlights in the development of international environmental management can be distinguished, namely, the Stockholm Conference (1972), the Brundtland Report (1987), the Rio Conference, otherwise known as the Earth Summit (1992) and the World Summit on Sustainable Development (2002).

### 3.2.1 Stockholm Conference

Environmental issues first featured on the international agenda in 1972 when the UN Conference on Environment and Development was held in Stockholm, Sweden (Klingner 1994:232). During the conference, the Stockholm Declaration on the Human Environment and the Action Plan for the Human Environment were accepted. The former consists of 26 principles that set out the most important environmental and related issues (e.g. natural resources, pollution, urbanisation, education and socioeconomic development), while the Action Plan contains 109 recommendations for programmes and actions to be undertaken to address environmental issues. The importance of the conference lies in the fact that international awareness about environmental issues was stimulated and that, after the conference, a number of governments started developing a national environmental policy and created state departments to implement the policy (Grubb et al 1993:5). A further outcome of the conference was the establishment of the United Nation's Environmental Programme (UNEP). The role and functions of this structure, which is based in Nairobi, Kenya, include the following:

- The promotion of international cooperation regarding environmental issues.
- The monitoring of the condition of the global environment.
- The provision of guidance on the formulation of environmental policy.

UNEP is also entrusted with the task of bringing environmental issues of global importance to the attention of national governments and ensuring that they receive the necessary attention (Imber 1994:73, 75; Barrett et al 1992:12). Priority areas focused on by the UNEP include the containment of deforestation and desertification, conservation of biodiversity and the promotion of quality of life (Grant & Hawkins 1995:234).

### 3.2.2 Brundtland Report

Since the Stockholm Conference, various initiatives regarding environmental and developmental issues have been launched. Many international agreements concerning issues of global importance have been signed (more on this later). In spite of this, large-scale destruction of the environment – especially in developing countries – continues. By the 1980s, poverty in these countries and growing international debt had assumed critical

proportions and development was dealt a sharp blow. It became increasingly evident that environmental issues were inextricably bound up with socioeconomic development and that the one could not be addressed without taking the other into consideration (Grubb et al 1993:6).

In 1983, the World Commission on Environment and Development was established to investigate critical environmental and developmental issues and to come up with innovative and realistic recommendations on how to deal with them. The commission was led by the then Norwegian premier, Gro Harlem Brundtland, and therefore became commonly known as the Brundtland Commission. In 1987 the work of the commission was published in the form of a report titled "Our common future" (Grubb et al 1993:7; Von Weizsäcker 1994:99). The report was based on an investigation which focused on the socioeconomic and environmental problems of the world and the interaction between them. The commission's main recommendation was that human activities should be geared towards sustainable development. Sustainable development was defined by the commission as "meeting the needs of the present without compromising the ability of future generations to meet their own needs". The concept implies that socioeconomic development should be integrated with environmental conservation to bring about a better future for all people (International Mission on Environmental Policy 1995:14).

The Brundtland Report was presented at the General Meeting of the UN and was a decisive factor in the acceptance of resolution 44/228 in 1989 to hold a conference on the environment and development. This conference, which was mandated to set up a programme of action on the environment and development would be held in Rio de Janeiro (Brazil) in 1992 (Von Weizsäcker 1994:100).

### 3.2.3 Rio Conference

The Conference on Environment and Development held in Rio de Janeiro in 1992 was one of the largest conferences organised by the UN. The large number of heads of state, ministers, representatives of nongovernmental organisations and journalists who attended the conference was indicative of the worldwide concern about the condition of the environment.

Two documents of great importance were accepted during the conference and were signed by the various delegates of national governments, namely the Rio Declaration on Environment and Development and Agenda 21. These documents are not legally binding agreements, but – given the global environmental dilemma – rely on the good faith of participating governments to uphold the principles and recommendations stipulated in the documents (Grubb et al 1993:16).

#### 3.2.3.1 Rio Declaration

Like the Stockholm Declaration, the Rio Declaration contains certain principles that serve as guidelines in the management of environmental affairs. The biggest difference between the two declarations is that the Rio Declaration places greater emphasis on development than the Stockholm Declaration did (Grubb et al 1993:95).

The principles of the Rio Declaration can be grouped and classified under several headings. The declaration focuses on

- the necessity of preventing and reversing any further degradation of the global environment
- the relationship between environmental and developmental issues (the idea of sustainable development)
- international cooperation
- the important role that national governments should play with regard to environmental affairs
- Special needs of developing countries and related issues

### 3.2.3.2 *Agenda 21*

Agenda 21 is a plan of action aimed at bringing about sustainable development in the 21st century. It implies a global partnership between countries based on communal interests, needs and shared responsibility. The document contains 40 chapters and, in essence, addresses the following:

- Socioeconomic issues such as poverty, population growth, housing and health.
- The conservation and management of biodiversity, ecosystems and certain resources (e.g. water).
- The role that certain groups (e.g. women, the youth, trade unions, scientists and farmers) should play in society with regard to sustainable development.

Agenda 21 also contains recommendations and guidelines on programmes and activities that should be launched to address specific issues. Aspects that relate to the implementation of such programmes and activities such as financing, legislation, technology and international cooperation are also addressed (Barrett et al 1992:19–20). A Commission on Sustainable Development was set up in 1992 by the UN General Assembly to ensure that Agenda 21 would be implemented (Grubb et al 1993: xiv).

Many of the issues and solutions identified in Agenda 21 have their origin at local government level. Local governments are thus in an ideal position to give expression to the objectives of Agenda 21. The role that local government should play in this regard is set out in Chapter 28 of this document. Thus, each local government is expected, for example, to enter into discussions with residents, local organisations and the private sector to draw up a "Local Agenda 21" (Sitarz 1993:274–275) (more about this in learning unit 6).

In addition to conferences and the documentation they produce, there is another mechanism through which international environmental management takes place, namely, treaties.

### 3.2.4 **World Summit on Sustainable Development**

The World Summit on Sustainable Development was, as was the case with the Rio Conference, organised by the UN. The most important objectives of the Summit, which took place in Johannesburg from 26 August to 4 September 2002, were the following:

- To evaluate the progress that individual states have made in the implementation of Agenda 21.
- To identify new matters which have arisen since the Rio Conference and to come up with action plans for dealing with them.
- To set concrete targets and due dates in order to achieve meaningfully the aims of Agenda 21 and those contained in the proposed new action plan.

Key issues that were focused on during the Summit included water and sanitation, poverty relief, energy, health, agriculture, biodiversity and the management of ecosystems (Annan 2002:3). The outcomes of the Summit are contained in two documents, the Political Declaration and the Plan of Implementation.

#### *3.2.4.1 Political Declaration*

The Political Declaration essentially represents the participating states' renewed commitment and dedication to sustainable development. It also contains an undertaking by the states involved to execute the Plan of Implementation and to monitor the progress made on a regular basis. In terms of this document, particular attention should be given to situations that pose a threat to sustainable development, for example, chronic diseases (e.g. HIV/Aids and tuberculosis), armed conflict, famine, natural disasters, corruption, drug dealing and terrorism. The Declaration concludes with a reaffirmation of the necessity for international cooperation in dealing with environmental, developmental and related aspects (The Johannesburg Declaration on Sustainable Development 2015).

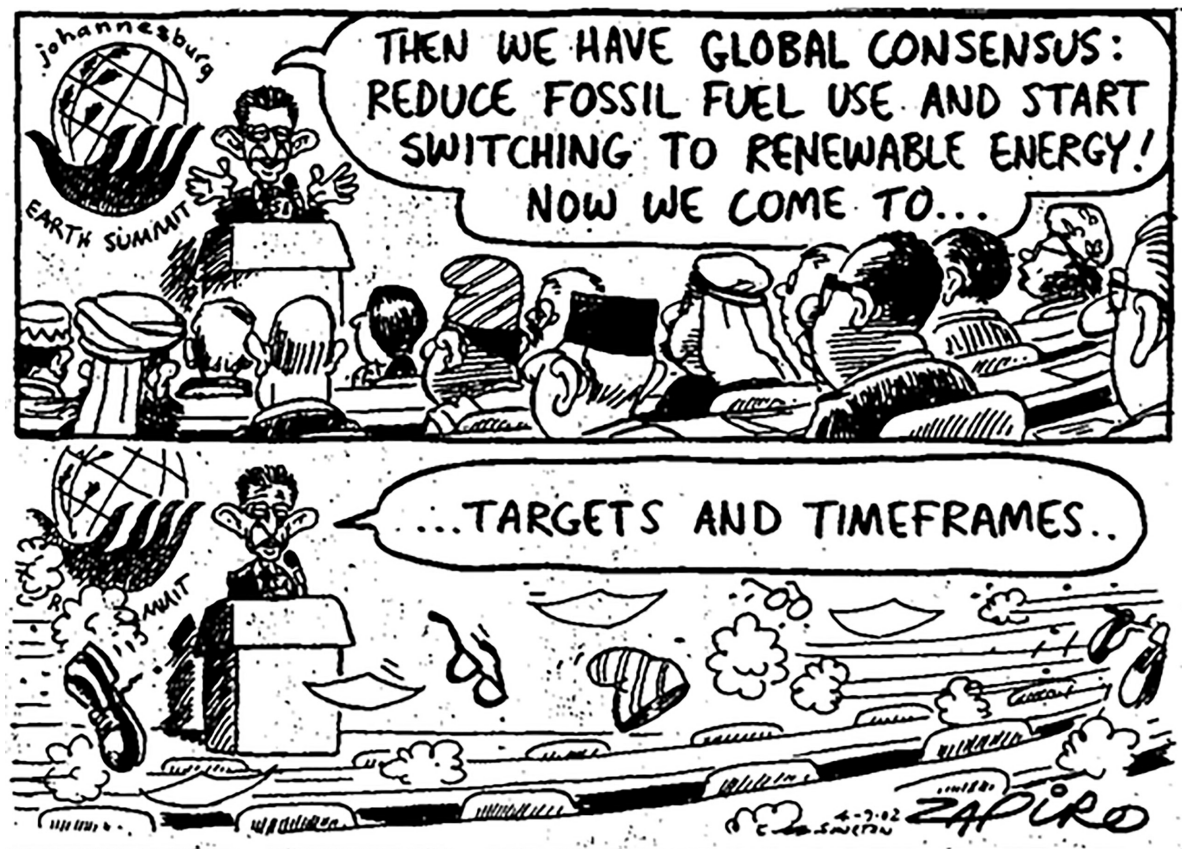
#### *3.2.4.2 Plan of Implementation*

The Plan of Implementation gives guidelines for and an indication of the activities that states, collectively and individually, should undertake to achieve the objective of sustainable development. It is important to note that the Plan does not replace Agenda 21 but supplements it and proposes new ways of facilitating its implementation. One of the salient features of the Plan of Implementation is that concrete targets and due dates have been identified for achieving particular key objectives. Requirements include that

- the number of people without basic sanitation be halved
- the loss of biodiversity be reversed
- depleted fish stocks be restored
- the use of chemical products that have a detrimental effect on the environment and on people's health be phased out
- reliable, cheap and environmentally-friendly energy services be supplied to 35 percent of households in Africa

The determination of targets with regard to these matters was widely praised, but disappointment was expressed over the fact that the use of renewable energy sources (e.g. sun and wind power) was not dealt with in a similar way. The European Union was one of the strongest proponents of the establishment of global targets and time frames to direct and promote the use of renewable energy sources. As a result of opposition from the USA, however, supported by the Organisation of Petroleum Exporting Countries

(OPEC), Canada, Japan and Australia, it was decided not to set such targets or due dates. Instead, a vaguely worded passage was included that simply encourages states to increase significantly the implementation of renewable energy sources (Clarke 2002). The cartoon below by Zapiro gives a humorous illustration of events surrounding the debate on renewable energy sources.



Source: Sowetan: 4 September 2002.

### 3.3 INTERNATIONAL TREATIES AS AN ENVIRONMENTAL MANAGEMENT MECHANISM

Although treaties governing environmental issues of global importance existed even before the Stockholm Conference in 1972, these increased sharply after the conference. Examples of treaties which were concluded after 1972 include the following:

- International Convention on the Prevention of Pollution from Ships, 1974.
- Convention on International Trade in Endangered Species (CITES), 1973.
- Montreal Protocol on Substances that Deplete the Ozone Layer, 1987.
- Basel Convention on the Trans-boundary Movements of Hazardous Wastes and their Disposal, 1989.
- Framework Convention on Climate Change, 1992.
- Convention on Biological Diversity, 1992 (Grubb et al 1993:6; Grant & Hawkins 1995:37, 644, 138, 160)

The treaties usually contain certain rules and obligations with which signatories (national governments) must comply. You should keep in mind that the decision to sign an international treaty and to comply with its stipulations is voluntary. States are sovereign, that is the government within the borders of the country is recognised as the only legal authority that makes the final decisions. No institution or government from outside those borders can prescribe to that government. Sovereignty, therefore, implies that no punishment can be administered to a country if it does not comply with the stipulations of a treaty. We now look at the obstacles to successful and effective international environmental management in greater detail.

### 3.4 OBSTACLES TO INTERNATIONAL ENVIRONMENTAL MANAGEMENT

The main obstacles which hinder optimal international environmental management emanate from the sovereignty of states and North-South polarisation.

#### 3.4.1 Sovereignty of states

It has already been indicated that certain environmental issues of global importance require international cooperation. Such cooperation often demands that countries must put national and economic interests aside in favour of environmental interests (Klinger 1994:230). This is easier said than done. In the anarchistic and fragmented international state system, where there is no overarching legal authority to which national governments are subject, countries tend to put national interests ahead of any others. We live in a world characterised by competition; as far as the environment is concerned, this means that individuals and countries tend to exploit scarce resources before their competitors can, in order to further their own interests. This is especially true with regard to what are called "global commons" – ecological resources that fall outside the jurisdiction of individual countries and must necessarily be shared (e.g. the seabed and the atmosphere) (Wapner 1995:50, 54). In certain cases, competition over scarce resources provides sufficient reason to go to war.

From the above it is clear that countries attend to national interests (rather than global ones) under the "protection" offered by sovereignty. This state of affairs often causes countries to simply ignore the rules and regulations of international treaties without significant pangs of conscience (Klinger 1994:230). Iceland, for example, contravened the moratorium on commercial whaling of the International Whaling Commission for years under the guise of doing research (Wapner 1995:48).

The problem of sovereignty and the associated tendency of countries to place national interests ahead of environmental ones led to the idea that there should be a supranational environmental mechanism that could make and enforce decisions concerning environmental issues (Wapner 1995:55). This idea was based on the premise that the environment can only be preserved against further destruction through coercion.

### 3.4.2 North-South polarisation

In learning unit 2 (section 2.12), a distinction was made between the North and the South. Reread the relevant section to refresh your memory before studying the following section. As far as environmental issues are concerned, the North-South polarisation can be traced back to 1972 when environmental issues came under the international spotlight for the first time. The South viewed the events surrounding the Stockholm Conference with animosity, suspicion and indifference. It was labelled the latest "fad" of the North – an issue that threatened to draw attention away from the developmental problems of the South. As a result, the South insisted that the relationship between development and environmental conservation be addressed at the conference (Beale 1980: ix–x).

Over the decades it became clear that fundamental differences existed between the ways in which the North and the South approached environmental issues. Whereas the North emphasised environmental conservation, developmental programmes enjoyed priority in the South. The latter believes that its developmental programmes will be hampered if it gives preference to environmental conservation. The South is fully aware of the dangers inherent in the degradation of the environment, but feels that there are more urgent issues to be addressed, such as combating poverty and reducing international debt (Von Weizsäcker 1994:166). Natural resources are partly used to address developmental issues. In some instances, chopping down rainforests is approved because exporting the wood generates money for the country concerned.

The polarisation between the North and the South is characterised by back-and-forth accusations of who should bear the blame for the global environmental dilemma. Opinions also differ about the solutions to the problem. As you can see in the table below, the opinions of both groups have merit. For example, the South cannot see why it should make sacrifices to remedy the environmental situation for which the North is chiefly to blame. The North is indeed responsible for 90 percent of the carbon dioxide that is released into the atmosphere and contributes to the greenhouse effect, and also for the release of 98 percent of CFCs, which lead to the depletion of the ozone layer. In addition to this, the South does not possess the resources to implement energy-saving measures and to manufacture environmentally friendly technology and replacements for CFCs (Von Weizsäcker 1994:166).

The table below provides a summary of the viewpoints of the North and the South as to the causes of and solutions to the environmental dilemma.

	<b>CAUSES OF ENVIRONMENTAL DILEMMA</b>	<b>SOLUTIONS</b>
<b>SOUTH</b>	Poverty in the South, the latter's huge debt burden, imbalances in trade relations between North and South	Sustainable growth in the South, debt relief, fair and balanced trade relations
<b>NORTH</b>	Overpopulation in the South, mismanagement and lack of technology	Birth control, evaluation of the impact of developmental projects on the environment, debt relief in exchange for environmental programmes, development of management skills and transfer of technology

**Source:** Von Weizsäcker (1994:167)

In an attempt to reconcile the divergent viewpoints of the North and the South, the idea of sustainable development took root. The idea behind this is that economic growth and development need not necessarily clash with environmental conservation. In spite of attempts at reconciliation, the North and the South still cannot agree at conferences on certain environmental issues and states often refuse to sign international treaties. The majority of developing states, for example, have not yet signed the Montreal Protocol on the protection of the ozone layer. The North is also guilty in this respect: the USA, for instance, refused to sign the Convention on Biological Diversity at the Rio Conference (Klinger 1994:234–235). This is an obstacle to efficient and effective international environmental management.

A further characteristic of North-South polarisation is that the South is beginning to use the environment as a weapon in negotiations to achieve certain benefits or to exert pressure on the North. One of the major issues the South exploits is the reigning concern in the North over the destruction of rainforests in countries such as Brazil, Burma, Indonesia, Columbia and Thailand. As a result, the practice known as "debt-for-nature swaps" developed. In terms of this practice, countries with rainforests undertake to conserve the forests and, as a "reward", a part of their debt is written off by the North. In this way, conservation objectives are realised in a way that immediately benefits developing countries. Between 1987 and 1994, 22 such agreements were concluded (Klinger 1994:237).

### 3.5 REVIEW

International cooperation is indispensable in addressing environmental issues effectively and efficiently. Through cooperation between states – by means of conferences, treaties, declarations or other mechanisms – an international environmental service is indeed delivered. The provision of such a service is, however, hindered by the sovereignty of states, the tendency of national governments to pursue national interests to the detriment of the environment, and North-South polarisation.

# **LEARNING UNIT 4**

## **ENVIRONMENTAL MANAGEMENT IN THE REGIONAL CONTEXT**

## TABLE OF CONTENTS

<b>4.1</b>	<b>INTRODUCTION .....</b>	<b>63</b>
<b>4.2</b>	<b>ESTABLISHMENT OF THE SOUTHERN AFRICAN DEVELOPMENT COMMUNITY (SADC) .....</b>	<b>63</b>
<b>4.3</b>	<b>THE SOUTHERN AFRICAN DEVELOPMENT COMMUNITY AND THE ENVIRONMENT .....</b>	<b>65</b>
<b>4.4</b>	<b>THE LESOTHO HIGHLANDS WATER SCHEME.....</b>	<b>67</b>
<b>4.5</b>	<b>TRANS-BORDER PARKS.....</b>	<b>69</b>
<b>4.6</b>	<b>REVIEW .....</b>	<b>69</b>

# Learning Unit 4

## ENVIRONMENTAL MANAGEMENT IN THE REGIONAL CONTEXT



### LEARNING OBJECTIVES

---

After completing this learning unit, you should be able to explain

- environmental management in the regional context



### KEY CONCEPTS

---

After studying this unit, you should be able to explain the following concepts:

- regional
  - Southern African Development Community
  - trans-border parks
- 

## 4.1 INTRODUCTION

Environmental management is also undertaken at the regional level in order to address unique problems experienced in a particular area. In this learning unit, we investigate environmental management in the southern African context with particular reference to the role that the Southern African Development Community plays in this regard.

## 4.2 ESTABLISHMENT OF THE SOUTHERN AFRICAN DEVELOPMENT COMMUNITY (SADC)

The Southern African Development Coordination Conference (SADCC) was established on 1 April 1980 under the Lusaka Declaration. The primary objective of the SADCC was to reduce economic dependency of the member states on South Africa and to promote economic cooperation and development in the various countries by coordinating economic and development programmes. Angola, Botswana, Lesotho, Malawi, Mozambique, Swaziland, Tanzania, Zambia and Zimbabwe were the founder members of the SADCC. Namibia became a member in 1990. In time a need for greater economic integration arose and the Southern African Development Community (SADC) was founded on 17 August 1992. South Africa and Mauritius joined the SADC in 1994 and 1995 respectively. The Democratic Republic of the Congo joined SADC in 1997. The Seychelles also joined in

September 1997, but dropped out in July 2004, and then rejoined in 2008. Madagascar's membership is currently suspended.

The following are some of the main objectives of the SADC:

- Development and economic growth
- Poverty relief
- Improvement in the quality of life of the populations of southern Africa
- The promotion of peace and security
- Sustainable utilisation of natural resources and conservation of the environment
- Development and transfer of technology (Southern African Development Community ELMS, 1994; SADC Environment and Land Management Sector, 1996)



#### Activity 4.1

---

The following questions relate to the objectives described above. See if you can answer them.

- (1) Is there, in your opinion, a connection between the promotion of peace and security on one hand and the conservation of the environment on the other hand? If you feel that such a link exists, describe it in a short paragraph.

---

---

---

- (2) Can you think of any more examples to illustrate the influence of armed conflict on the environment? Also think in terms of what armed conflict does to the manmade environment.

---

---

---

.....



#### FEEDBACK ON ACTIVITY 4.1

---

Read the following excerpts to determine if the viewpoint you expressed in question (1) is correct.

*“The worst damage has been in Angola and Mozambique where wildlife populations in protected areas have been killed both for meat and to finance the war. In Angola, estimates indicate that declines of up to 90 percent occurred in the large mammal populations in protected areas between the mid-1970s and 1992.*

*In South-East Angola, trees have been cut down to facilitate war. Many were burnt, others uprooted to construct roads for military vehicles, and others deliberately felled. More recently, there has been uncontrolled exploitation and smuggling of diamonds from Unita-controlled areas to pay for weapons and fuel to sustain their post-elections conflict.”*

*(Southern Africa Research and Documentation Centre 1994:259).*

*It should be clear to you that a very close relationship exists between the promotion of peace and security and conservation of the environment. Acts of war detrimentally affect sensitive ecological areas and the natural habitat of fauna and flora, which in turn may cause the scarcer species to decrease in number, or to become extinct.*

*The use of chemical and biological weapons and fires caused by explosions give rise to water and air pollution – the latter, together with deforestation activities (for the building of roads and bridges), contributing to a dilemma known as global warming. Wildlife is destroyed to provide food, and non-renewable resources (e.g. minerals) are often exploited to finance warfare. The above may lead to a premature depletion of such resources, depriving future generations of their benefit, and of the pleasure of seeing scarce fauna and flora in their natural habitat.*

*As far as the man-made environment is concerned, culture-historic elements (e.g. statues, monuments, unique buildings, films and artefacts) of perhaps up to thousands of years old are destroyed, thus also depriving future generations of enjoying their cultural heritage and understanding their origins and history.*

*If you study the other objectives of the SADC you will notice that not one of them can really be considered in isolation from the others. The objectives link up with each other, indicating that a holistic approach to environmental management (in the international, local and national arena) should be adopted.*

### 4.3 THE SOUTHERN AFRICAN DEVELOPMENT COMMUNITY AND THE ENVIRONMENT

From the outset the institutional framework of the SADCC (and later the SADC) made provision for a structure for dealing with environmental issues. The Soil and Water Conservation and Land Utilisation sector, which has functioned under the leadership of Lesotho since 1981, initially had a limited mandate, as the name indicated. In 1987 the responsibility of the sector was expanded to include the development and management of water resources. Since 1990, its mandate has been further extended to the coordination of all environmental affairs within the SADC. The name of the sector was accordingly changed and it is now known as the Environment and Land Management Sector (Southern African Development Community ELMS 1994). In August 1996 the management of water resources became a separate sector, also under the leadership of Lesotho (SADC Environment and Land Management Sector 1996).

The Environment and Land Management Sector developed a long-term environmental policy and strategy, which formed the basis for the implementation of Agenda 21 in the southern African context. This policy and strategy are based on the main common environmental problems faced by the SADC member states, namely

- an increase in populations and the associated strain on natural resources
- soil erosion
- desertification
- insufficient water
- a decrease in biological diversity
- air and water pollution (Southern African Development Community ELMS 1994)

Certain factors have a negative influence on the ability of member states to give their full attention to the problems set out here. Some of these main factors are

- limited financial and technological resources
- a lack of experts and training facilities
- insufficient research on and monitoring of environmental issues
- insufficient information programmes and poor public participation (Southern African Development Community ELMS, 1994)

With reference to the above problems and limitations, the following objectives are contained in the environmental strategy and policy for the Environment and Land Management Sector:

- To improve the health of the people in southern Africa and the environment in which they live.
- To improve the lot of the poor who are the majority.
- To preserve the natural heritage, biodiversity and ecosystems of southern Africa.
- To promote economic development in the area in a sustainable manner to the advantage of present and future generations.
- To strengthen analytical, decision-making and technological abilities with a view to attaining sustainable development.
- To establish an effective legal and institutional framework through which sustainable development can be pursued.
- To increasingly launch information and educational programmes about environmental and developmental issues and to promote public participation in these areas.
- To promote integration and global cooperation in environmental and resource management (SADC Environment and Land Management Sector 1996).



#### Activity 4.2

---

Study the above objectives of the Environmental and Land Management Sector of the SADC and prioritise these objectives in order of urgency from most necessary to less necessary, where

- 1 = urgent
- 2 = necessary
- 3 = reasonably important, but not necessary
- 4 = less important

See how your priorities compare with those set out in the environmental policy and strategy of the SADC, which appear below. Your prioritisation will not be identical to those indicated in the official policy, since the priorities in the environmental policy were based on a refined version of the above objectives. You will nevertheless be able to see whether your priorities correspond more or less to the official list.

.....

In pursuing the above objectives, certain priorities were identified within the SADC. Some of these are indicated below:

- Management of communal water resources.
- Improvement of the quality of water in the region.
- Access to water and sanitation.
- Economic growth.
- Access to affordable housing.
- Control over the transport and disposal of dangerous waste products.
- Development of alternative energy sources. (Southern African Development Community ELMS, 1994)

To allow for the practical execution of the objectives and priorities set out above, various programmes have been undertaken by the Environment and Land Management Sector. Training in things like conservation and farming, land use planning and desertification is offered to limit or prevent damaging agricultural practices, while research on environmental and related issues is undertaken on an on-going basis with a view to sustainable development.

Another project was proposed, namely, the establishment of an Environmental Information System to coordinate information on the environment and development in the region and to facilitate the storage and exchange of such information between member states. The Water Resources Sector has embarked on programmes which aim, among other things, to train people in the technical aspects of water provision and to address the lack of equipment. Another project of this sector is the development and implementation of an integrated water management plan for communal water resources (e.g. the Zambezi River) to ensure that all the countries that depend on these for water draw maximum benefit from them. The programmes and activities of the Environmental and Land Management Sector and those of the Water Resources Sector are financed by member states and foreign donors such as the UN Development Programme, the Norwegian Agency for Developmental Cooperation, the Danish International Developmental Agency and the German Agency for Technical Aid (SADC Environment and Land Management Sector 1996).

#### 4.4 THE LESOTHO HIGHLANDS WATER SCHEME

The Lesotho Highlands Water Scheme is an excellent example of cooperation between two member states of the SADC, namely Lesotho and South Africa.



##### Activity 4.3

---

Read the following section from a report on the Lesotho Highlands Water Scheme and answer the questions that follow.

In accordance with the treaty (between South Africa and Lesotho), water from the water-rich Senqu-Orange River system in Lesotho is pumped to the water-poor Vaal river system in South Africa. In the process, hydroelectricity is generated for Lesotho, while

water is transported to six provinces, but especially to Gauteng, where about 42 percent of South Africa's city dwellers will live by the year 2000. In this way, Lesotho becomes self-sufficient in its electricity needs and, over and above this, receives money from the royalties which South Africa pays for the necessary water and which is obtained from water consumers. The water from Lesotho will eventually increase the flow of the Vaal river by 70 cub m/s. Phase 1A ensures an increased flow of 18 cub m/s and phase 1B 26,9 cub m/s. In preparation for the large amount of water from Lesotho, the Department of Water Affairs and Forestry has allocated R52 million for a project to build higher bridges in the Vaal River system.

(Beeld, 29 January 1998, own translation)

- (1) Mention the ways in which the economies of South Africa and Lesotho will benefit from the project.

---

---

---

- (2) Evaluate the project in terms of the objectives and priorities of the SADC, which were stipulated earlier in the learning unit. What conclusion can you draw?

---

---

---

- (3) What does the term "royalties" mean?

---

---

---

.....

From the section on the previous page it is clear that South Africa's economy benefits from the Lesotho Highlands project in that six of the country's provinces, including the densely populated province of Gauteng, get their water from that project. Water is a scarce resource and is not only necessary for survival and sanitation, but also essential in the manufacturing sector and the mining industry. If water is readily available it facilitates the task of these sectors and ensures economic stability, and also enhances the quality of life of the inhabitants, thus realising the aims of the Reconstruction and Development Programme (RDP).

Lesotho also benefits from the project by being able to supply its own (hydro-) electricity and thus no longer being dependent on surrounding states in this respect, which also saves them money. South Africa, on the other hand, must pay royalties for the water that is channelled to its provinces, thus giving Lesotho an extra income. "Royalties", also called "tantièmes", is money paid by South Africa [that is, part of the profit generated by charging users of that water in that country] to Lesotho [who supplies the water].

## 4.5 TRANS-BORDER PARKS

A further phenomenon that illustrates cooperation in environmental matters in the Southern African context is trans-border parks. A trans-border park refers to two or more conservation areas that extend over national borders and are managed as a whole (i.e., as if there were no borders). All manmade obstacles, such as fences, are removed so that the animals can move freely. The intention is to restore ecosystems and the historical migration patterns of animals that have been disrupted by the erection of fences. Underlying the concept of trans-border parks is the idea that nature knows no boundaries (Department of Environmental Affairs and Tourism 2002:88, 94).

The various authorities of the bordering areas are not the only ones involved in this form of cooperation. The private sector, nongovernmental organisations (NGOs) and local communities are also involved. The private sector and NGOs, for example, help with funding, while the local communities are used, among other things, for the development of infrastructure (e.g. the erection and upgrading of rest camps). Job creation brings about socio-economic upliftment and so the ideals of conservation and development are reconciled – in accordance with the vision of SADC and the New Partnership for African Development (Nepad). Examples of trans-border parks are the Ai-Ais/Richtersveld Park (South Africa and Namibia), the Kgalagadi Park (South Africa and Botswana) and the Limpopo-Shashe Park (South Africa, Botswana and Zimbabwe) (Department of Environmental Affairs and Tourism 2002:88, 90, 92).

## 4.6 REVIEW

In this learning unit we saw that there are certain environmental and related issues unique to a particular region and which, as such, should be addressed at regional level. In the southern African context, the Southern African Development Community (and more specifically the Environmental and Land Management Sector and the Sector: Water Resources) offers the institutional framework within which environmental management at regional level takes place. The critical issues which must be addressed at regional level are reflected in the objectives of the SADC and the relevant sectors.

# **LEARNING UNIT 5**

## **INTRODUCTION TO ENVIRONMENTAL MANAGEMENT IN THE REGIONAL CONTEXT**

## TABLE OF CONTENTS

<b>5.1</b>	<b>INTRODUCTION .....</b>	<b>72</b>
<b>5.2</b>	<b>ENVIRONMENTAL MANAGEMENT IN SOUTH AFRICA: A HISTORICAL OVERVIEW .....</b>	<b>73</b>
<b>5.3</b>	<b>THE LEGACY OF APARTHEID.....</b>	<b>77</b>
<b>5.4</b>	<b>REVIEW .....</b>	<b>79</b>

# Learning Unit 5

## INTRODUCTION TO ENVIRONMENTAL MANAGEMENT IN THE NATIONAL CONTEXT

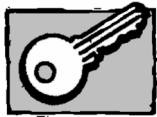


### LEARNING OBJECTIVES

---

After completing this learning unit, you should be able to explain

- environment management at the national sphere in South Africa



### KEY CONCEPTS

---

After studying this unit, you should be able to explain the following concepts:

- apartheid
  - environmental impact assessments
  - environmental management
  - national
- 

## 5.1 INTRODUCTION

In the previous two learning units we investigated environmental management in the international and regional arenas. In learning unit 5 and in subsequent learning units the focus shifts to environmental management at national level as it takes place in South Africa.

The environmental service provided by the South African government can be traced back as far as the 17th century. The service was initially limited in scope in the sense that the emphasis fell largely on conservation. In time, it was realised that a more encompassing approach to environmental issues was needed and the role of the government gradually expanded to include other dimensions of the environment. In this learning unit, we look at highlights in the development of environmental management in South Africa. We also investigate shortcomings that impede successful and effective environmental management in this country.

## 5.2 ENVIRONMENTAL MANAGEMENT IN SOUTH AFRICA: A HISTORICAL OVERVIEW

The historical development of environmental management in South Africa has followed more or less the same route as in other countries. The focus of government was initially strongly directed towards the conservation of plant and animal species, although gradually a more encompassing approach to the environment was adopted. In time, attention was also given to the conservation of ecosystems as a whole and the meaningful management of both the manmade and natural environments with a view to the satisfaction of developmental needs (Schwella & Müller 1992:72).

Within the first five years after the arrival of Jan van Riebeeck at the Cape (in 1652) the first "placaaten" (legislative measures) were issued to regulate 62 environmental affairs. Measures were instituted to protect gardens, soil and trees against destruction, to prevent the pollution of drinking water and to ensure the conservation of wildlife (Rabie & Fuggle 1992:13, 14).

During the period 1800 to 1900 further legislation was passed to protect trees, conserve animal species and control veld fires. The environmental conservation function of the government was formally institutionalised with the establishment of the Cape Department of Forestry in 1875. In 1894 the first game reserve was established through legislation, namely, the Pongola Nature Reserve (Rabie & Fuggle 1992:14, 15).

The period 1919 to 1969 was characterised by an expansion of the environmental function of the government. In addition to passing laws on the conservation of plant and animal species, legislation was adopted concerning, among other things, air pollution (1965), water pollution (1912 and 1956), land use planning (1947) and the control of pesticides (1947) (Rabie & Fuggle 1992:16–18). In 1964 the Department of Planning was created. This department was responsible for the coordination of legislation that related to the control of pollution and the conservation of natural resources (Schwella & Müller 1992:73; Rabie & Fuggle 1992:19).

In the 1970s worldwide concern about the environment reached a climax which resulted in the UN Conference on the Human Environment, held in Stockholm in 1972. Likewise, at the national level, a greater awareness of environmental issues developed – 1970 was, for example, officially declared "water year". The seriousness with which environmental issues were regarded was demonstrated in 1971 when a cabinet committee was appointed to investigate the pollution of the environment. In 1972, a permanent Cabinet Committee on Environmental Conservation was appointed with the Minister of Planning as chairperson. A non-statutory Committee on Environmental Conservation was created with the aim of advising the cabinet committee. The non-statutory committee, which was renamed the Council for the Environment in 1975, consisted of, amongst others, representatives of government departments that were involved in environmental issues. In 1973 the name of the Department of Planning was changed to the Department of Planning and the Environment (Rabie & Fuggle 1992:18–19; Schwella & Müller 1992:73). After various name changes, the Department is presently known as the Department of Environmental Affairs.

During the period 1980 to 1990 the emphasis fell on the establishment of a national environmental policy and conservation strategy (Schwella & Müller 1992:73). In 1980 the White Paper on a National Policy regarding Environmental Conservation was published in which the government's environmental policy was set out. The policy statement indicated that at all times a balance must be maintained between development and environmental conservation with a view to harmonious co-existence between people and the environment and the satisfaction of social, economic and other needs (South Africa, Department of Environmental Affairs, 1993). The promulgation of the Environment Conservation Act 100 of 1982 was one of the first steps towards putting into practice the government's policy as stipulated in the White Paper. According to this Act, the Council for the Environment became a statutory body, which would advise the Minister of Environmental Affairs on the subject of environmental issues (Schwella & Müller 1992:74). In 1984 the President's Council published two reports on the environment. In its Report on Priorities in Development and Conservation, one of the recommendations was that all governmental institutions, at all levels, should accept conservation and development as components of environmental management aimed at maintaining a balanced relationship between people and the environment (South Africa, Department of Environmental Affairs, 1993). In 1989 the Environment Conservation Act 73 of 1989 – which repealed the 1982 Act – was promulgated in an attempt to create an umbrella policy for the utilisation and protection of the environment (Rabie & Fuggle 1992:20, 23).

In time it became clear that environmental issues should be managed in an integrated way, yet a successful and effective management model to put this into practice was lacking. In 1989, the President's Council was requested to initiate an investigation and put forward recommendations on "a policy on a National Environmental Management System with special reference to its ecological, economic, social and legal implications". In its report the President's Council confirmed the idea that environmental conservation was not a goal in itself, but that the environment should be managed according to the principle of sustainable development in order to serve as a habitat for fauna and flora on the one hand, and, on the other hand, to provide a resource basis for economic development (South Africa, Department of Environmental Affairs, 1993). In the current dispensation, environmental management is indeed based on the principle of sustainable development, in accordance with section 24 of the Constitution of the Republic of South Africa of 1996. Other important policy documents that currently govern environmental management in South Africa are the Reconstruction and Development Programme (RDP) (1994) and the White Paper on an Environmental Management Policy for South Africa (1997).

In 1998 the National Environmental Management Act 107 of 1998 was adopted. The broad objectives of this piece of legislation are explained in the Act as follows:

To provide for cooperative environmental governance by establishing principles for decision-making on matters affecting the environment, institutions that will promote co-operative governance and procedures for co-ordinating environmental functions exercised by organs of state; and to provide for matters connected therewith.

This Act does not repeal the Environmental Conservation Act of 1989 in its totality, but only certain sections of the latter Act. Some of the sections that have been repealed are

sections 4 to 14C which made provision for the Council for the Environment and the Committee for Environmental Co-ordination and which contained stipulations about their structure and activities. In terms of section 3 of the National Environmental Management Act 107 of 1998 the Council for the Environment is replaced by a National Environmental Advisory Forum. The functions of this Forum are, among other things, to inform the Minister of Environmental Affairs

- of the viewpoints of interest groups on environmental affairs and
- to advise him/her on aspects of environmental management and control.

The Committee for Environmental Co-ordination was reinstated in terms of section 7 of the National Environmental Management Act and now functions in accordance with the stipulations contained in the latter Act. The overall objective of the Committee is to promote the co-ordination of environmental activities performed by government institutions.

On 4 December 2014, Regulations pertaining to environmental impact assessments were gazetted under sections 24(5) and 44 of the National Environmental Management Act of 1998. The purpose of these Regulations is to regulate the preparation, evaluation, submission, processing and consideration of applications for environmental authorisations for the commencement of activities that are subjected to environmental impact assessment. Activities that require environmental authorisations are also identified. These activities are listed in Listing Notice 1 of 2014; also gazetted on 4 December 2014.

The Environmental Impact Assessment Regulations of 2014 consists of the following chapters:

<b>CHAPTER</b>	<b>DESCRIPTION</b>	<b>● CONTENT OUTLINE</b>
<b>Chapter 1</b>	<b>Interpretation and purpose of regulations</b>	<ul style="list-style-type: none"> <li>● Interpretation</li> <li>● Purpose of Regulations</li> </ul>
<b>Chapter 2</b>	<b>Time frames</b>	<ul style="list-style-type: none"> <li>● Time frames</li> <li>● Notification of decision on application</li> </ul>
<b>Chapter 3</b>	<b>General requirements for applications</b>	<ul style="list-style-type: none"> <li>● Where to submit application</li> <li>● Part 1: Duties of competent authority</li> <li>● Part 2: Duties of proponents and applicants</li> </ul>
<b>Chapter 4</b>	<b>Application for environmental authorisation</b>	<ul style="list-style-type: none"> <li>● Part 1: General</li> <li>● Part 2: Basic Assessment</li> <li>● Part 3: Scoping and environmental impact reporting process</li> <li>● Part 4: Environmental authorisation</li> </ul>

<b>CHAPTER</b>	<b>DESCRIPTION</b>	<b>● CONTENT OUTLINE</b>
<b>Chapter 5</b>	<b>Amendment, suspension, withdrawal and auditing of compliance with environmental authorisation and environmental management programme</b>	<ul style="list-style-type: none"> <li>● Part 1: Amendments where no change in scope or a change of ownership occurs</li> <li>● Part 2: Amendment where a change in scope occurs</li> <li>● Part 3: Auditing and amendment of environmental authorisation, environmental management programme and closure plan</li> <li>● Part 4: Other amendments of environmental management programme or closure plan</li> <li>● Part 5: Suspension and withdrawal of environmental authorisation</li> </ul>
<b>Chapter 6</b>	<b>Public participation</b>	<ul style="list-style-type: none"> <li>● Activity on land owned by person other than proponent</li> <li>● Purpose of public participation</li> <li>● Public participation process</li> <li>● Register of interested and affected parties</li> <li>● Registered interested and affected parties entitled to comment on reports and plans</li> <li>● Comments of interested and affected parties to be recorded in reports submitted to competent authority</li> </ul>
<b>Chapter 7</b>	<b>General matters</b>	<ul style="list-style-type: none"> <li>● Failure to comply with requirements for consideration of applications</li> <li>● Resubmission of similar applications</li> <li>● Assistance to people with special needs</li> <li>● Offences</li> </ul>
<b>Chapter 8</b>	<b>Transitional arrangements and commencement</b>	<ul style="list-style-type: none"> <li>● Definitions</li> <li>● Continuation of actions undertaken and authorisations issued under previous ECA regulations</li> <li>● Pending applications and appeals (ECA)</li> <li>● Continuation of actions undertaken and authorisations issued under previous NEMA regulations</li> <li>● Pending applications and appeals</li> <li>● Continuation of regulations regulating authorisations for activities in certain coastal areas</li> </ul>

These Regulations repealed the Environmental Impact Assessment Regulations of 2010, except for Chapter 5 and Chapter 7.



### Activity 5.1

---

Summarise the development of environmental management in South Africa by listing the most important dates and events. Your summary must not be longer than half a page.

---



---



---



---

## 5.3 THE LEGACY OF APARTHEID

It often happens that the political policy pursued at a certain time has a far-reaching influence on the environment. This was the case in South Africa with its apartheid policy. To understand the present critical position of the environment in South Africa, it is necessary to investigate the ways in which apartheid affected the environment.



### Activity 5.1

---

Read the following section carefully and answer the questions that follow.

For the majority of people in South Africa, both urban and rural, the system of racial separation distorted relations with nature in a profound way. By allowing residence and land use in only certain places demarcated for "non-Whites", apartheid created overcrowding and made dangerous and environmentally destructive practices necessary for ordinary people trying to satisfy their basic needs for shelter, water, sanitation, and income. In rural areas this took place in two principal ways. As tenants and workers on White-owned farms and ranches, insecurity of tenure for "non-Whites" and low incomes precluded all but the most modest self-built or self-financed improvements in housing, sanitation, landscaping, and dooryard gardening. In the many fragments of territory collectively known as the homelands ... sheer population density usually interfered with the maintenance of sustainable land management. Pastures in these former homeland areas are today overgrazed, forests are decimated, stream flow reduced, and soil erosion is extreme.

In urban South Africa, conditions are similar for related reasons. Under apartheid only certain so-called townships were designated as residential zones for "non-Whites". ... Houses and home compounds in these townships were subdivided to allow space for others coming to the city to work. Infrastructure and services in the townships were always rudimentary ... Urban waterways were polluted and often narrowed by the disposal of solid waste. Housing was closely packed, blocking natural drainage lines and precluding the conservation of trees. Open spaces were rare and usually even heroic efforts to maintain vegetation were thwarted by sheer weight of usage. Waste water rutted roads and collected where disease vectors could breed. The air was often polluted with the smoke of thousands of mineral coal braziers, the principal source of heat for cooking and warmth in winter. Density of dwellings, narrow and poorly aligned and maintained streets and lanes created conditions for frequent injuries of pedestrians, often children, from passing vehicles (Wisner 1995:261, 262).

- (1) Briefly summarise the effect that apartheid had on the manmade and natural environments in the following two columns.

EFFECT OF APARTHEID ON THE MANMADE ENVIRONMENT	EFFECT OF APARTHEID ON THE NATURAL ENVIRONMENT

- (2) We have already indicated in earlier learning units that people's quality of life and the conditions of the environment in which they live are closely linked. Identify the things mentioned in the above quotation that could affect people's quality of life and physical and mental health and indicate how quality of life is affected.

---



---



---

- (3) Apartheid was not conducive to the development of an attitude of conservation and the fostering of an awareness of environmental issues. Why not? Explain your answer.

---



---



---

- (4) What – in your opinion – should be done to redress the situation referred to in question 3?

---



---



---

.....

It should be clear that the legacy of apartheid in the environment presents particular challenges to the government. The Reconstruction and Development Programme (RDP) makes provision for redressing the environment-related injustices that some South Africans had to endure during the apartheid era. According to the RDP, resources should be utilised in sustainable ways so that all South Africans – present and future generations – can maintain a reasonable quality of life. In order to implement this, the RDP stipulates that government should strive towards equal access for everyone to natural resources, safe and healthy living and working conditions

- participatory decision making in environmental affairs (community participation)
- empowerment of communities so that the environments in which they live can be sensibly managed (African National Congress 1994:39)

## 5.4 REVIEW

In this learning unit we saw that the idea of a holistic approach to environmental management did not take root in South Africa overnight, but developed gradually. It also became clear that environmental management is a complex process that requires a variety of factors to be taken into consideration. In addition, environmental issues which resulted from the apartheid policy should be actively addressed in order to establish a manmade and natural environment which promotes the physical and mental wellbeing of all South Africans.

# **LEARNING UNIT 6**

## **ENVIRONMENTAL MANAGEMENT: A FUNCTIONAL PERSPECTIVE**

## TABLE OF CONTENTS

<b>6.1</b>	<b>INTRODUCTION .....</b>	<b>82</b>
<b>6.2</b>	<b>CONSTITUTIONAL FRAMEWORK.....</b>	<b>82</b>
<b>6.3</b>	<b>ENVIRONMENTAL MANAGEMENT IN SOUTH AFRICA .....</b>	<b>84</b>
6.3.1	Environmental management at the national level of government.....	84
6.3.2	Environmental management at the provincial level of government.....	86
6.3.3	Environmental management at local government level.....	88
<b>6.4</b>	<b>IMPLEMENTATION OF LEGISLATION BY EXECUTIVE INSTITUTIONS .....</b>	<b>91</b>
6.4.1	Performance of direct environmental functions.....	92
6.4.2	Establishment of control measures.....	92
6.4.3	Authorisation of actions.....	92
6.4.4	Granting of rights .....	93
6.4.5	Exemptions.....	93
6.4.6	Quasi-judicial functions.....	93
<b>6.5</b>	<b>ENFORCEMENT OF ENVIRONMENTAL LEGISLATION BY EXECUTIVE INSTITUTIONS .....</b>	<b>93</b>
6.5.1	Notices.....	94
6.5.2	Suspension or cancellation of authorisation .....	94
6.5.3	Detention of property as security .....	94
6.5.4	Search and seizure .....	94
6.5.5	Enforcement of court orders .....	95
<b>6.6</b>	<b>OBSTACLES TO OPTIMAL ENVIRONMENTAL MANAGEMENT.....</b>	<b>95</b>
<b>6.7</b>	<b>INTERGOVERNMENTAL RELATIONS AND ENVIRONMENTAL MANAGEMENT .....</b>	<b>97</b>
<b>6.8</b>	<b>REVIEW .....</b>	<b>98</b>

# Learning Unit 6

## ENVIRONMENTAL MANAGEMENT: A FUNCTIONAL PERSPECTIVE



### LEARNING OBJECTIVES

---

After completing this learning unit, you should be able to explain

- the constitutional framework for environment management in South Africa
- environment management in South Africa
- the implementation and enforcement of environment legislation by executive institutions
- obstacles to optimal environmental management
- intergovernmental relations and environmental management



### KEY CONCEPTS

---

After studying this unit, you should be able to explain the following concepts:

- constitutional
  - environmental management
  - intergovernmental relations
- 

## 6.1 INTRODUCTION

In learning unit 3 we saw that optimal international environmental management is hampered by various factors. Although it is accepted that although international cooperation is both necessary and desirable, the primary responsibility for environmental management lies with national governments. Although factors such as sovereignty hinder international cooperation, they in fact put national governments in an ideal position to implement environmental management effectively and efficiently within the borders of a country. In learning unit 6 we investigate the functional ways in which the South African government fulfils its role in relation to environmental issues.

## 6.2 CONSTITUTIONAL FRAMEWORK

The Constitution of the Republic of South Africa of 1996 is invested with the highest authority in the country and, as such, provides the framework in which all governmental activities – including those that apply to environmental issues – should occur. The

main provisions applicable to the environment are contained in section 24 of the 1996 Constitution:

24. Everyone has the right

- (a) to an environment which is not harmful to their health or wellbeing and
- (b) to have the environment protected for the benefit of present and future generations through reasonable legislative and other measures that
  - (i) prevent pollution and ecological degradation;
  - (ii) promote conservation; and
  - (iii) secure the ecologically sustainable development and use of natural resources, while promoting justifiable economic and social development.



Activity 6.1

---

Certain obligations are laid down in section 24 of the 1996 Constitution, quoted above, both for the government and for us as individuals. Make a list of these obligations.

(1) Obligations of the government

---



---



---

(2) Obligations of the individual

---



---



---

.....



FEEDBACK ON ACTIVITY 6.1

---

Compare your list with the one that follows:

*Section 24 imposes the following obligations, among others, on the government (at either national, provincial or local sphere):*

- *The protection of ecosystems, natural beauty and biological diversity.*
- *The development, conservation and sustainable utilisation of natural resources.*
- *The protection of the environment against damage, unnecessary disturbance and destruction as a result of human activities.*
- *The establishment and maintenance of a manmade and natural environment which ensures a high quality of life for all the inhabitants of South Africa.*
- *The conservation of resources for present and future generations.*
- *The reconciliation of the objectives of development and conservation.*
- *Compensation for the injustices of the past by improving or restoring the quality of the environment.*

- *The passing of legislation to enforce the right contained in section 24 of the Constitution (South Africa, Council for the Environment 1989).*

*The obligations imposed on the government actually embrace all of the activities concerning environmental affairs that should be addressed by government (environmental management).*

*In order to understand the obligations placed on individuals under the Constitution, it is important to note that rights are not absolute. This means that each one of us also has certain obligations which are inextricably tied up with the rights that we possess. As such, section 24 lays down obligations to*

- *keep the natural and manmade environment clean*
- *not enter into practices that can damage the environment and so negatively affect the quality of life of others*
- *honour legislation passed by the government pertaining to environmental affairs*

Next we investigate the ways in which the government carries out the environmental management function (in accordance with the obligations stipulated in the Constitution).

## 6.3 ENVIRONMENTAL MANAGEMENT IN SOUTH AFRICA

The environmental management function in South Africa takes place in three government spheres (three levels of government), namely, the national, provincial and local government spheres. Environmental management at any level of government requires both a policy (in the form of legislation) according to which functions must be undertaken and organisational structures through which the stated policy may be carried out. In the following section we investigate

- the regulations of the Constitution affecting the policy-making (legislative) powers of the government at national, provincial and local level
- the roleplayed by the executive in environmental affairs

### 6.3.1 Environmental management at the national level of government

The national government plays a leading role in environmental management. For this reason, we need to look at the environmental management function as it manifests at national level.

#### 6.3.1.1 Role of Parliament

Parliament has the power to adopt legislation on any issue, including matters on which Parliament and the provincial legislatures have concurrent (simultaneous) legislative powers (as contained in Schedule 4 of the Constitution). Issues dealt with in Schedule 4 (Part A) relating to the environment are the following: housing, population development, administration of indigenous forests, pollution control, land conservation, cultural issues and nature conservation (excluding national parks, national botanical gardens and marine resources).

Part B of schedule 4 covers local government issues over which Parliament and the provincial legislatures have legislative powers. Environment-related aspects that fall into this category include air pollution and the disposal of domestic waste water and sewerage.

### 6.3.1.2 Executive authority

The Department of Environmental Affairs, which functions under the leadership of the Minister of Environmental Affairs, is the main executive institution charged with environmental matters at the national level of government. This department is certainly not the only department entrusted with environmental issues, but as it is the primary roleplayer, we examine its roles, functions and organisational structure in detail. (Although tourism forms part of this department's portfolio, we will not investigate this aspect in this study guide.) The following can be seen as the main, overall functions of the Department of Environmental Affairs (DEA):

- Establishing national norms and standards for environmental affairs.
- Developing a national environmental policy.
- Monitoring the activities of the different executive institutions involved in environmental affairs.
- Implementing international environment conventions and treaties of which South Africa is a member.
- Coordinating the activities of government institutions entrusted with environmental issues.
- Guiding and providing leadership for government institutions, companies, individuals and other roleplayers in striving towards fulfilling environment-related objectives.
- Undertaking research and providing specialised advice on environmental affairs.
- Implementing national legislation, such as the Environment Conservation Act 73 of 1989 and the National Environment Management Act 107 of 1998 (Rabie & Fuggle 1992:77; South Africa, Department of Environmental Affairs 1995).

The core focus areas of the Department of Environmental Affairs are the following:

- Climate change and air quality
- Chemicals and waste management
- Legal, authorisation, compliance and enforcement
- Biodiversity and conservation
- Oceans and coasts
- Environmental programmes (Department of Environmental Affairs (b), 02 July 2015)

Legislation administered by the DEA includes the following: National Environmental Management Act of 1998, Air Quality Management Act of 2004, Waste Management Act of 2009, Integrated Coastal Management Act of 2009, National Environmental Management Biological Diversity Act of 2004 and Protected Areas Act of 2003 (South Africa, Department of Environmental Affairs, 2009).

There are a number of statutory councils and institutions that support the Minister and the Department in carrying out their duties. The National Environmental Advisory Forum, which functions according to the National Environmental Management Act 107 of 1998, advises the Minister of Environmental Affairs on environmental management, and any

matter referred by the minister to the Forum or any aspect that the Forum may consider necessary. The National Parks Board is responsible for the management of national parks, while the National Biodiversity Institute is entrusted with the conservation and management of South Africa's biodiversity. The South African Weather Service carries out research and makes forecasts about weather patterns. The Greater St Lucia Wetlands Authority manages the St Lucia wetlands area (which has been proclaimed a world heritage site) (South Africa, Department of Environmental Affairs & Tourism 2005: 60, 64, 72, 77).

A lack of coordination is one of the factors that hamper optimal environmental management in South Africa (see section 6.6). To ensure better coordination between governmental institutions charged with environmental affairs, and to enable the DEA to fulfil its task of coordinating in an effective and efficient manner, the Committee for Environmental Co-ordination was created in terms of the National Environmental Management Act of 1998 (see section 5.2). The Committee can institute ad hoc and permanent subcommittees to assist it in performing its activities.

As a lead agency, the DEA has a central role in mainstreaming environmental management throughout government, both vertically between national, provincial and local government, and laterally through other government departments that have environmental responsibilities as part of their key objective.

Given the realignment of the DEA under the recent departmental rationalisation, where Tourism has been reformed into a new department, fisheries management has been merged into the new department of Agriculture, Forestry and Fisheries and Water affairs shares a Ministry with Environmental Affairs, it is inevitable that a transitional phase occurs as far as the management of this realignment is concerned.

### **6.3.2 Environmental management at the provincial level of government**

All provincial governments in South Africa are entrusted with environmental issues under the Constitution.

#### *6.3.2.1 Role of the provincial legislatures*

The provincial legislatures are authorised to pass legislation concerning those issues over which Parliament and the provincial legislatures have concurrent legislative powers – as contained in Schedule 4 of the Constitution (for more details see discussion above where the role of Parliament is described). In addition to this, the provincial legislatures have exclusive legislative power concerning issues contained in Schedule 5 of the Constitution; in other words, Parliament cannot ordinarily adopt legislation on such matters. Parliament can only pass legislation concerning issues contained in Schedule 5 in exceptional cases when it is necessary to:

- maintain national security
- maintain economic unity
- maintain essential national standards
- set minimum standards required for the rendering of services

- prevent unreasonable actions by a province that are detrimental to that province or to the country as a whole (South Africa 1996, section 44 (2)).

With due allowance for the above provisos, the provincial legislatures have exclusive legislative power over the following environment-related matters (contained in Part A of Schedule 5):

- provincial cultural issues
- archives (except for national archives)
- libraries (except for national libraries)
- museums (except for national museums)
- provincial recreation and facilities

In addition to the above, provincial legislatures have exclusive legislative powers over a number of local government matters (contained in Part B of Schedule 5). Such matters include the following environment-related issues:

- noise pollution
- refuse removal
- refuse dumps
- solid waste disposal
- municipal parks and recreation
- beaches and amusement facilities

### 6.3.2.2 Provincial executive authority

There are departments in all nine provincial administrations that are entrusted with environmental affairs and are responsible for the execution of environment related legislation adopted by the respective provincial legislatures. It is impossible to list the organisational structures and duties of all nine departments in this study guide. Consequently, we only look at the Gauteng Department of Agriculture and Rural Development to give you an idea of the activities that are undertaken at the provincial level.

The functional activities of the Gauteng Department of Agriculture and Rural Development are divided into three main branches, i.e. Agriculture, Conservation and Rural Development.

**Source:** <http://www.gdard.gpg.gov.za/Pages/default.aspx> (Accessed on 18 May 2015).



#### Activity 6.2

The above section provides particulars on the Gauteng Department of Agriculture and Rural Development. Research the names of the various departments concerned with environmental affairs in the other eight provinces, and in each case give the name of the Member of the Executive Committee (MEC) who is entrusted with environmental affairs.

---



---

---

---

---

---

---

### 6.3.3 Environmental management at local government level

There is an increasing awareness of the major role that local government plays in environmental management. South Africa is no exception in this regard and it is, therefore, necessary to look at the ways in which environmental management is undertaken at local government level.

#### 6.3.3.1 Role of local (municipal) councils

Local councils have the authority to promulgate by-laws in terms of section 156 (1) and (2) of the Constitution on issues contained in Part B of Schedule 4 and Part B of Schedule 5 of the Constitution. (The environmental issues relevant here have already been mentioned above.)

#### 6.3.3.2 Local executive authority

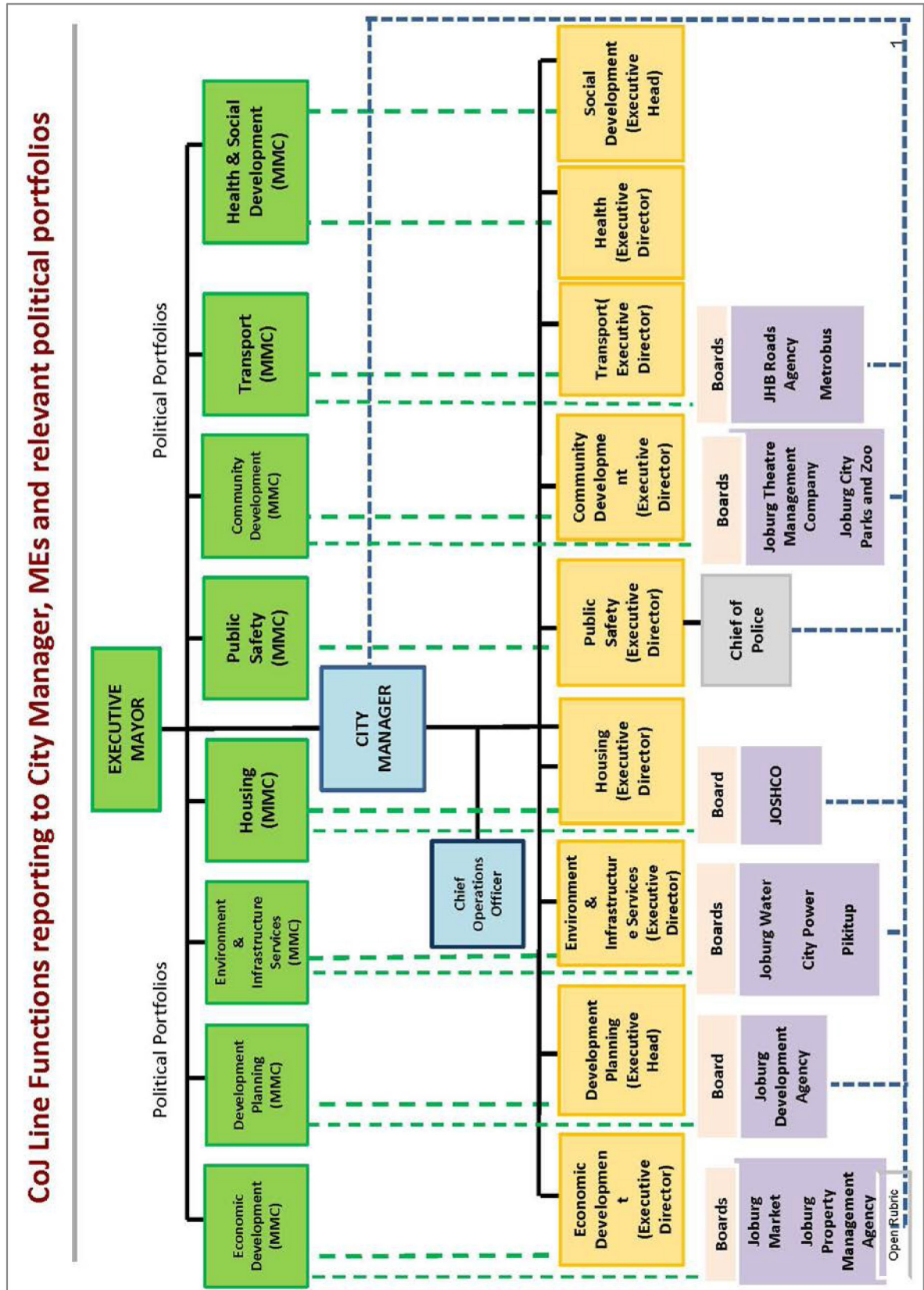
Section 156(4) of the Constitution stipulates that the national and provincial government must assign the administration of any matter contained in Part A of Schedule 4 and Part A of Schedule 5 (and which pertain to local government) to local government if

- such a matter can be best administered at local level
- the local government has the capacity to administer such a matter

Environmental matters that are traditionally referred to local government are noise pollution, littering, the management of solid waste and the management of local nature reserves (Rabie & Fuggle 1992:78; South Africa, Department of Environmental Affairs, 2015).

There are directorates or departments at local government level that are entrusted with environmental affairs. These directorates or departments are responsible for the administration (or the execution) of issues that have been entrusted to them by the national and provincial government, and also for the implementation of by-laws promulgated by the local council. In the City of Johannesburg, for example, the department entrusted with environmental affairs is called the Department of Environment and Infrastructure Services (see the diagram on the following page).

Figure 6.1: City of Johannesburg – Organogram of overall structure



Source: <http://www.joburg.org.za> (Accessed on 18 May 2015)

Local authorities are also responsible for the development and implementation of a local programme of action (Local Agenda 21) in accordance with chapter 28 of Agenda 21, which was accepted at the Rio Conference. The aim of the programme of action is to implement sustainable development in the 21st century at local government level. Local government is expected to enter into discussions with the community, the private sector, interest groups and local organisations to obtain information that will enable it to come up with an appropriate strategy. Such a strategy should be aimed at

- reconciling the conflict between socioeconomic development and the conservation of the environment
- improved service delivery
- evaluation and monitoring of the progress made with sustainable development
- job creation

Local Agenda 21 cannot be considered in isolation from the other activities of local government. Within the framework of Local Agenda 21 attention has to be given to, for example, financial issues and economic and social problems (Municipal Conservation Association).

Local Agenda 21 is closely associated with the Reconstruction and Development Programme that aims among other things to

- meet the basic needs of residents by delivering certain minimum services and providing infrastructure
- bring about economic development
- improve the quality of life of residents
- develop human resources (African National Congress, 2014)
- Local government (as the form of government closest to residents) is, in practice, in an excellent position to pursue the objectives of Local Agenda 21 and the RDP. The emphasis that falls on development at local government level is reconfirmed through the idea of integrated development planning. The latter refers to the process through which a development plan must be formulated for the short, medium and long term by individual local governments. The objective is to find ways to satisfy needs in a sustainable way and to improve the quality of life of the inhabitants in cooperation with the community (The Ministry for Provincial Affairs and Constitutional Development, South Africa). When development plans are compiled the principles contained in the Development Facilitation Act 67 of 1995 should be taken into account. The Act stipulated measures to facilitate and accelerate the implementation of RDP projects related to land development. Land development refers to changes in the use of land for the purpose of using the land for residential, industrial, business, small-scale farming, community or similar purposes. The objective is to promote effective and integrated land development through, among other things:
  - The correction of historically distorted spatial patterns of settlement.
  - Optimising the use of existing resources and infrastructure.
  - Establishment of more compact towns and cities (South Africa 1995, art 3(1)).

In terms of the Development Facilitation Act, local governments are required to set land development objectives. Section 28 of the Act stipulates that the objectives should relate to the following:

- Access to and the standard of services (including public transport and water, health and education facilities).
- Local demographic circumstances and prevailing spatial patterns with due consideration of
  - integration of areas occupied by low-income communities into the relevant area as a whole
  - the sustained utilisation of the environment
  - the planning of transportation
  - the provision of bulk infrastructure for the purpose of land development
  - the density of settlements
  - the coordination of land development in consultation with other authorities
  - land-use control
  - the optimum utilisation of natural resources
- Development strategies of the local authority concerned and related issues (eg the involvement of sectors of the economy, access to finance for land development and administrative structures to deal with land development in the area concerned).

It goes without saying that land development will have a significant influence on the environment. It is, therefore, important that environmental impact studies be undertaken on a continuous basis to determine the effect of a certain land development project on the environment. Measures should then be taken to minimise such effect (see learning unit 9 for further details on environmental impact studies).

In the previous section, we identified the general functions of the institutions involved in environmental management and the form the structures of such institutions take. The focus in Public Administration falls on the executive and therefore more attention will be given to the functions of the political executive (the relevant ministers) and the administrative executive institutions (state departments, provincial administrations, statutory institutions, local government and other public institutions).

## 6.4 IMPLEMENTATION OF LEGISLATION BY EXECUTIVE INSTITUTIONS

The functions of executive institutions regarding the implementation of environmental policy can be broadly divided into

- the performance of direct environmental functions
- the establishment of control measures for environmental matters
- authorisation of actions
- granting of rights
- exemptions
- quasi-judicial functions (Rabie et al 1992:120–125)

#### 6.4.1 Performance of direct environmental functions

The direct environmental functions performed by executive institutions can be best understood by looking at those functions and powers that relate to land owned by the government (e.g. national parks and state forests). Under section 12 of the National Parks Act 57 of 1976, the relevant executive institutions are authorised to construct roads, bridges, buildings, fences and related structures that are considered necessary for the control, management and maintenance of parks. The Forest Act 122 of 1984 (which in the meantime has been repealed) stipulated that the executive institutions are responsible for

- the restoration of ecologically disturbed habitats
- the prevention and combating of soil erosion
- the prevention and combating of veld, forest and mountain fires
- research and education (South Africa 1984, section 15(3)).

Authority is usually granted to the executive to implement any measures considered necessary to put into action the functions stipulated in the Act (Rabie et al 1992:121).

#### 6.4.2 Establishment of control measures

It is important to note that the legislatures (at all levels of government) often delegate the power to pass legislation to the executive institutions. This means that the minister concerned or a member of a provincial executive council (MEC) can consult with expert officials in a particular institution to promulgate regulations, proclamations and so on to regulate and control environmental affairs. The Environment Conservation Act 73 of 1989, for example, grants the Minister the authority to promulgate regulations concerning waste management, noise control and the enforcement of international conventions and agreements.

In terms of section 77 of the Marine Living Resources Act 18 of 1998 the Minister can make regulations on, among other things:

- Imposition of larger fines on offenders
- Fisheries management and conservation aspects
- Licensing of fishing vessels that are used for fishing purposes

#### 6.4.3 Authorisation of actions

In certain cases, and in accordance with legislation, executive institutions have the authority to authorise specific actions or activities which would otherwise be forbidden. Authorisations take the form of permits and licences (Rabie et al, 1992:123). Section 20 of the Environment Conservation Act stipulates, for instance, that no one may establish, provide or operate a waste disposal site without a permit issued by the Minister of Water Affairs. In terms of the Nuclear Energy Act 131 of 1993, a licence is required for the establishment or use of nuclear installations and for the possession, use, production, storage and processing or transport of radioactive material (South Africa 1993, section 51).

#### 6.4.4 Granting of rights

Environmental legislation often empowers executive institutions to grant certain rights – which are potentially damaging to the environment – to individuals or companies (Rabie et al 1992:124). Section 18 of the Marine Living Resources Act of 1998, for example, stipulates that the minister involved can grant someone the right to undertake commercial or subsistence fishing or to operate a fish processing establishment.

#### 6.4.5 Exemptions

Executive institutions can also exempt people from legislative provisions with which they would normally have to comply (Rabie et al 1992:124). Under section 25 of the Prevention and Combating of Pollution of the Sea by Oil Act 6 of 1981, the minister may exempt a ship/class of ships or a tanker/class of tankers from the provisions of the Act. Section 81 of the Marine Living Resources Act stipulates that, if valid grounds exist, the minister can, in writing and under certain conditions, exempt any person, group of persons or government institution from the requirements of the Act.

#### 6.4.6 Quasi-judicial functions

Executive institutions that are entrusted with environmental affairs also fulfil a quasi-judicial function. A quasi-judicial function is a discretionary action by which the rights, privileges and liberties of an individual may be affected (Cilliers 1979:2). Decisions concerning the granting of permits or licences can be considered to be quasi-judicial in nature. Quasi-judicial functions can be performed by a minister, a high-placed official in the institution concerned, or a board or commission appointed by the minister. An example of a council endowed with quasi-judicial functions is the Council for Nuclear Safety, which considers applications for licences for the construction and use of nuclear installations and for the possession, use and production of radioactive material, and so on (South Arica 1993, section 51). If individuals are dissatisfied with the decisions of an executive body, they may appeal, after which the case will be reconsidered. Under section 35 of the Environment Conservation Act, a person whose application to operate a waste disposal site is turned down may appeal to the Minister of Water Affairs. The initial ruling can then be confirmed, set aside or amended (Rabie et al 1992:125).

In the above description, you will notice that repeated references are made to the role and functions of the relevant Minister. This does not mean that the Minister personally carries out all the functions entrusted to him or her by law. Legislation authorises the Minister to delegate certain functions to officials in national government departments, provincial administrations or local government.

### 6.5 ENFORCEMENT OF ENVIRONMENTAL LEGISLATION BY EXECUTIVE INSTITUTIONS

The existence of legislation and regulations governing environmental affairs does not automatically mean that they will be obeyed. It is thus necessary to put mechanisms in

place to ensure that laws are complied with. The enforcement of legislation is actually the responsibility of the courts, but in certain cases, executive institutions also have the authority to ensure that laws are obeyed (Rabie et al 1992:126). Various methods exist by which executive institutions can perform their enforcement function. We now examine such methods.

### **6.5.1 Notices**

Executive institutions may be authorised to serve a notice on a person or company whose activities are causing pollution or some other damage to the environment. Such a notice can, for example, contain an order to stop or control the pollution or to prevent it from getting worse. Refusal to obey constitutes a criminal offence. If the recipient neglects to conform to the instructions in the notice, the relevant executive institution can take the necessary steps itself and then reclaim the costs of such repair from the transgressor. The Atmospheric Pollution Prevention Act 45 of 1965 makes provision for such a procedure (Rabie et al 1992:126).

### **6.5.2 Suspension or cancellation of authorisation**

If the conditions under which a permit or licence is issued are not fulfilled, the authorisation granted may be withdrawn or suspended by the executive institution (Rabie et al 1992:127).

According to section 28 of the Marine Living Resources Act an authorised right, licence or permit can be suspended, withdrawn or reduced if

- the set conditions are contravened
- the conditions are not complied with
- the stipulations of the Act are contravened
- a person is found guilty of an offence in terms of the Act

### **6.5.3 Detention of property as security**

Under certain circumstances, some executive institutions can detain objects involved in damaging the environment until the costs (of the damage to the environment and the costs of repairing the damage) are paid by the person responsible (Rabie et al 1992:127). Section 19 of the Prevention and Combating of Pollution of the Sea by Oil Act makes provision for the detention of a vessel until the required costs are paid.

### **6.5.4 Search and seizure**

Officials are usually authorised to enter property or to seize vessels or vehicles and to search them if any irregularities are suspected. People can be interrogated and any object that could serve as proof of the transgression can be seized (Rabie et al 1992:127).

In terms of section 51 of the Marine Living Resources Act, fish, fish products, equipment, stocks or the fishing vessel can be confiscated if it is suspected that the Act has been transgressed.

### 6.5.5 Enforcement of court orders

In certain cases, executive institutions themselves can take action against a person who is sentenced for damaging the environment and who does not obey a court order. Section 29(7) of the Environment Conservation Act 73 of 1989, for instance, stipulates that a court of law can order a person who has been found guilty to repair the damage they have caused to the environment as a result of their transgression. Should that person neglect to do this, the executive institution can take the necessary steps to repair the damage and reclaim the costs from the transgressor (Rabie et al 1992:127).

## 6.6 OBSTACLES TO OPTIMAL ENVIRONMENTAL MANAGEMENT

Successful and effective environmental management in South Africa is hampered by various factors. One of the main problems is that South Africa has a very large number of environment-related acts. This state of affairs hampers their effective implementation and enforcement. In the interest of optimal environmental management the existing acts should be rationalised and reduced to a coherent whole. At present, the responsibility for environmental management rests with multiple government institutions at various levels of government. This leads to fragmentation and a lack of coordination so that the conservation and exploitation of resources are often assigned to the same institution (e.g. the Department of Mineral and Energy Affairs and the Department of Agriculture). This results in conflicting interests within such institutions. Until recently, environmental management in South Africa was not considered a national priority. Institutions that were charged with environmental management therefore did not have the necessary political status to practise environmental management efficiently and effectively. In addition to this, adequate funds were not made available in the budgets of national, provincial and local government to make optimal environmental management possible (Schwella & Müller 1992:79; African National Congress 1994:40, 41). Local government bodies experience serious financial problems, which means that essential services, such as water, are given priority over environmental affairs.

In view of this situation consideration should be given to alternative sources of income to finance environmental services/projects. Proposals that have been made in this regard include the following:

- Introduction of airport tax for tourists.
- Allocation of part of the income from casinos or lotteries to the national and provincial departments that are responsible for environmental affairs.
- Providing incentives to members of the public to make financial donations to environmental institutions (e.g. that such donations should be tax-deductible).

In addition to inadequate financial resources, there are also not enough personnel to properly implement and enforce the multitude of acts. Another obstacle is the lack of participation and involvement by the public.

The enforcement of environmental legislation by the courts is equally problematic. In many cases legislation has already laid down certain fines, which means that the courts have no discretion and that they are thus prevented from imposing higher fines or other appropriate punishments on transgressors. Fines are the most common punishment for environment-related transgressions, but are not particularly effective in deterring people. Transgressors are often wealthy companies for whom even very high fines are not particularly problematic. Imprisonment and community service are alternative punishments that should be considered (Rabie et al 1992:130).



### Activity 6.3

---

Below is a list of several Departments at national government level. Mark those that you think are entrusted with environmental affairs or whose duties are related to environmental affairs.

- Department of Education
- Department of Housing
- Department of Water Affairs and Forestry
- Department of Health
- Department of Agriculture

---

---

---

---

---

.....

You should have marked all the departments listed above since all of their activities reflect a certain environmental dimension. The Department of Education, for example, is involved in the education of learners in environmental affairs, while the Department of Transport is responsible for the prevention of pollution at sea and so on. See if you can determine the environmental dimensions in the activities of the other departments mentioned above.

It is the distinct aim of the present government to address the abovementioned obstacles in order to make comprehensive, effective and efficient environmental management possible in South Africa. Indeed, solutions to the abovementioned problems are addressed in the White Paper on an Environmental Management Policy for South Africa. With a view to the integration and coordination of environmental management, the Department of Environmental Affairs and Tourism has been appointed as the leading agent accountable for

- the development and implementation of an integrated and holistic environmental management system
- the coordination and supervision of environmental functions of all governmental institutions at all levels of government

- compliance with and enforcement of national norms and standards regarding environmental issues
- the development of integrated legislation on the environment

Certain initiatives have already been undertaken to bring about better coordination and integration. For the purposes of the study guide we look at one project, namely, pollution control, in more detail. Pollution control is a good example of an aspect for which multiple acts exist and which is managed in a fragmented manner. The responsibility for the implementation of legislation on pollution control and the management of waste rests with various government institutions at all three levels of government. At the national level alone, the Departments of Environmental Affairs and Tourism, Water Affairs and Forestry, Health and Agriculture are involved. In addition, no effective mechanisms exist to monitor the application of the policy in a continual, integrated and holistic way. In 1992, a project headed by the Department of Environmental Affairs and Tourism was undertaken to develop a National Holistic Policy on Integrated Pollution Control for South Africa. The main aim of the project was to integrate all legislation and regulations concerning water and air pollution, soil toxification and waste management into a comprehensive whole in order to protect the environment against damaging practices, as well as to ensure sustainable exploitation of water, air and soil (South Africa, Department of Environmental Affairs, 2015). This project illustrates the dedication of the government to establish a comprehensive, coordinated environmental system.

## 6.7 INTERGOVERNMENTAL RELATIONS AND ENVIRONMENTAL MANAGEMENT

Because all three levels/spheres of government in South Africa are concerned with environmental affairs, it is important that a healthy relationship and cooperation exist between the levels of government. The Constitution lays down certain principles relating to cooperation and inter-government relations. Under section 41, all government institutions at all levels of government must work together in mutual trust and good faith by

- fostering friendly relations
- assisting and supporting each other
- informing each other and consulting each other on matters of common interest
- coordinating their actions and legislation
- adhering to agreed procedures
- avoiding legal proceedings against each other

The success with which environmental management in South Africa is undertaken will largely be determined by the degree of cooperation, support and coordination between the various levels of government. It is, therefore, essential that the above principles are observed, which in essence underscore the approach to holistic and integrated environmental management.

As you saw in the previous section, Parliament and the provincial legislatures have concurrent legislative powers with regard to issues contained in schedule 4 of the Constitution (e.g. pollution control, population development, housing and cultural issues).

The possibility thus exists that national and provincial legislation on functional issues in schedule 4 may conflict. What happens in such a case?

Section 146 of the Constitution provides clarity in this regard. National legislation prevails over provincial legislation if

- national legislation deals with a matter that cannot be properly regulated by provincial legislation
- national legislation deals with an aspect that must be treated in a uniform manner in the Republic
- national legislation is necessary for, among other things, the maintenance of national security, economic unity, the promotion of economic activities across provincial boundaries and the conservation of the environment

## 6.8 REVIEW

Environmental management is not a simple task. This should be clear to you from the number of levels of government and institutions involved in the environmental management function in South Africa. The government, however, is not the only roleplayer involved in environmental affairs. In learning unit 7 we investigate nongovernmental institutions that play a vital role in environmental affairs.

# **LEARNING UNIT 7**

## **NON-GOVERNMENTAL ROLEPLAYERS AND THE ENVIRONMENT**

# TABLE OF CONTENTS

<b>7.1</b>	<b>INTRODUCTION.....</b>	<b>101</b>
<b>7.2</b>	<b>THE ROLE OF INDIVIDUALS .....</b>	<b>101</b>
	7.2.1 Environmental education .....	104
<b>7.3</b>	<b>THE PRIVATE SECTOR.....</b>	<b>104</b>
<b>7.4</b>	<b>INTEREST GROUPS .....</b>	<b>106</b>
<b>7.5</b>	<b>TRADITIONAL COMMUNITIES .....</b>	<b>106</b>
<b>7.6</b>	<b>REVIEW.....</b>	<b>107</b>
	<b>SELF-EVALUATION.....</b>	<b>108</b>

# Learning Unit 7

## NON-GOVERNMENTAL ROLEPLAYERS AND THE ENVIRONMENT

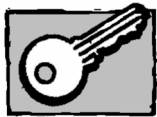


### LEARNING OBJECTIVES

---

After completing this learning unit, you should be able to explain

- nongovernment roleplayers and the environment



### KEY CONCEPTS

---

After studying this unit, you should be able to explain the following concepts:

- nongovernment
  - nongovernmental roleplayers
  - private sector
- 

## 7.1 INTRODUCTION

Efficient and effective environmental management requires a partnership between government and individuals, the population at large, the private sector and interest groups. In learning unit 7 we look at the role that these groups play with regard to environmental issues and the contributions that they make to the environmental management function of government.

## 7.2 THE ROLE OF INDIVIDUALS

We are not only dependent on the environment for survival, but our mental and physical welfare as well as the quality of our lives is to a large extent determined by the condition of the environment in which we live. In view of this, it can be argued that we have certain obligations towards the environment – both manmade and natural. In addition to this, we all have a share – however small – in the degradation of the environment, which places us under a further obligation to stop or try to repair the damage we have done. In learning unit 6 brief mention was made of the obligations relating to the environment that go hand in hand with the rights contained in the Constitution. In the following description we elaborate on the contribution that individuals – as partners of government – can make to fulfil their obligations towards the environment.

Many of our daily activities have a definite influence on our environment – although we do not always realise this. By becoming aware of this, we can perform such activities in such a way that the environment will benefit from them, or that at least it will not be exposed to further damage.



### Activity 7.1

Jot down a few things that you can do in the ordinary course of your life to benefit the environment.

(1) In the house

---

---

---

(2) In the garden

---

---

---

(3) Transport wise

---

---

---

(4) In the community

---

---

---

.....

Did you notice that there are many things that you can do in the interests of a better environment? You could, for example, do the following:

- Keep bottles and paper for recycling rather than discard them.
- Plant a tree.
- Buy environment-friendly products when shopping.
- Begin a lift club and so help to reduce the release of greenhouse gases into the atmosphere.
- Draw up petitions and hand them over to companies whose practices harm the environment.

Do not believe that the actions of an individual are too insignificant to make a difference. Look at what Wendell Berry (in Wilkinson 1980:341) says in this regard:

"The real work of planet-saving will be small, humble and humbling and ... pleasing and rewarding. Its jobs will be too many to count, too many to report, too many to be publicly noticed or rewarded, too small to make anyone rich or famous."

Individuals can also influence the environmental management function of the government in various ways. Letters can be sent to politicians or newspapers to object to a certain decision or a proposed act or even to make a contribution during the drawing up of policy. The White Paper on an Environmental Management Policy for South Africa is, for example, the product of inputs received from a wide variety of roleplayers (governmental institutions, interest groups, the private sector and individuals) during the Consultative National Environment Policy Process (CONEPP).



### Activity 7.2

---

(1) Read the following excerpt and do the activity that follows:

The proposed pipeline through the Kruger Park is a clear prediction of the increasing pressure that developers are going to be placing on South Africa's best-known natural asset and ecotourist attraction in the near future.

The Industrial Development Corporation (IDC) announced this week that in collaboration with the Phalaborwa Mining Company and Foscor, it is planning the construction of a pipeline to transport magnetite (magnetic iron ore), which has been piling up in Phalaborwa (about 200 million tons which is increasing by 7 million annually), to Maputo. Two routes are being considered for the pipeline: through the game reserve or around the southern point. Mr Harold Braak, head of the game reserve, is quite frank about his opposition to the project. His fear is twofold: the immediate impact of the pipeline on the environment and the "snowball effect" that this could have.

"In principle we are against the idea because it would in effect divide the park in two. The construction process and its maintenance could have an enormous impact."

Even if it is underground, the pipeline will also influence the natural migration patterns of animals since a road will be necessary for maintenance. Mr Braak is also concerned about the effect of trucks and the implications of possible leaks. He believes tourism will eventually be adversely affected. The R6 million per year that the developers are prepared to pay cannot justify the possible effects, he says.

(Beeld, 15 March 1997, own translation)

(2) Write a letter to the Minister of Environmental Affairs in which you object to the proposed pipeline through the Kruger National Park. Clearly indicate the grounds on which your objections are founded.

---



---



---



---

**NOTE:** Your objections and arguments must be strong enough to persuade the Minister that the economic advantages that the pipeline will bring (e.g. work opportunities and trade relations with Mozambique) will not justify the damage to the Park and the tourism industry.

.....

### 7.2.1 Environmental education

To enable individuals to fulfil their responsibility towards the environment (and to become actively involved in environmental issues), it is necessary that they are thoroughly informed and educated about all facets of the environment. The White Paper on Environmental Education (1989) summarises the overall aim of environmental education as follows:

“To stimulate education processes that develop responsible life-styles in harmony with the environment as a whole, on the part of all the inhabitants of the RSA, and to make them aware of the fact that an acceptable quality of life is dependent on their judicious utilisation of the environment.”

The White Paper furthermore identifies the following principles with which environmental education should comply:

- The environment in its totality (natural and manmade) must be taken into consideration and the interrelationship between it and social, political, cultural and economic conditions must be emphasised.
- Environmental education must occur on a lifelong basis; it should begin at preschool level and continue in the formal education sector as well as on an informal basis.
- An interdisciplinary approach must be followed.
- Active participation by learners must be encouraged.
- Key issues should be addressed in an international, local, national, provincial and local context.
- The focus must fall on the immediate environment as well as the culture of learners.
- Individual responsibility towards the environment must be emphasised by referring to the necessity of individual and collective participation and involvement in environmental issues (South Africa, Department of Environmental Affairs 1989).

### 7.3 THE PRIVATE SECTOR

The activities of the private sector (e.g. mining companies and industries) often receive the most blame for the degradation of the environment – think about the disposal of industrial waste into rivers and the sea, air pollution, the build-up of toxic materials in the soil and noise pollution. Owing to the tremendous impact that private sector activities have on the environment, the participation of the private sector is a prerequisite for successful and effective environmental management. While the government regulates the actions of the private sector through legislation (e.g. by making environmental impact studies compulsory – see learning unit 8), the results obtained by voluntary cooperation (rather than coercion) are so much better.

Initially, pro-environment groups' demands and calls to stop damaging practices were received with antagonism from the private sector. Their argument was that it is expensive to follow environmentally friendly practices and that their profits would be negatively affected. As environmental issues started to enjoy more prominence worldwide, the private sector gradually came to realise that they have a social responsibility towards the environment. They have also realised that practising environmentally friendly methods need not occur at the expense of profit-making. In this regard, the experience of a car company in the USA can be mentioned. This company had to throw away 35 000 wooden loading boards weekly that they used for shipping purposes. Later they changed to loading boards made of, among other things, recycled corrugated cardboard. This resulted in a saving of \$100 000 and an additional daily income of \$40 000 – earned by returning the cardboard for recycling (Baer-Brown & Rhein 1995:143).

Each company should develop an individual strategy in accordance with its specific industry and the special circumstances in which it functions. Nevertheless, certain underlying ethical principles, which every private sector company should follow, can be identified. The Coalition for Environmentally Responsible Economies (CERES) has laid down ten such principles:

- Protection of the biosphere (the atmosphere, water and the earth).
- Sustainable utilisation of natural resources.
- Reduction of waste by recycling (in cases where waste cannot be recycled, it should be disposed of in a safe and responsible manner).
- Responsible use of energy.
- Reduction of health and safety risks for employees and communities.
- Marketing of environment-friendly products.
- Acceptance of responsibility for damage done to the environment (by paying compensation to those who are affected and by making all possible efforts to repair the damage).
- Transparency – publicising all practices that are damaging to the environment and which hold certain safety and health risks.
- Commitment to ethical principles and the enforcement of these
- Evaluation – to determine progress with regard to the implementation of these principles (Baer-Brown & Rhein 1995:157–159).

The underlying significance of these principles for the companies that accept them is summed up by Baer-Brown and Rhein (1995:157) as follows:

“The principles indicate that the adopting company publicly affirms its belief that corporations and their shareholders have a direct responsibility for the environment. Adopting corporations also recognize that they must conduct business as responsible stewards of the environment and seek profits only in a manner that leaves the earth healthy and safe. Finally, the corporations must not compromise the ability of future generations to sustain their needs.”

## 7.4 INTEREST GROUPS

Worldwide, there are a large number of interest groups whose primary objectives are environment related. Some examples of groups whose activities are internationally based and coordinated are Greenpeace, Earthwatch and Friends of the Earth. Locally, there are, for example, the South Africa Wildlife and Environment Society, Earthlife Africa, the National Heritage Programme and Trees for Africa (South Africa, Department of Environmental Affairs, 1996). The roleplayed by these groups (better known as non-governmental organisations or simply NGOs) is indispensable to environmental management. They influence decision-making through

- protest actions and petitions
- writing letters to politicians and officials (directly or via the press)
- using communication media such as television, radio and the press to make their viewpoint known
- lobbying
- providing policy makers with expert advice

Interest groups mobilise communities to get involved and participate in projects that relate to the environment, are involved in fundraising and, in some cases, help with environmental education. In addition to this, they form global connections and coalitions to promote international cooperation over a wide spectrum of environmental matters (Schwella et al 1996:268; Cities and sustainable development 1994:18).



### Activity 7.3

Next time you read the newspaper, listen to the radio or watch television, make a point of identifying interest groups and notice what role they play. Add to the list of interest groups that appears above.

---

---

---

---

---

.....

## 7.5 TRADITIONAL COMMUNITIES

Traditional communities in outlying rural areas do not always have the necessary information and knowledge about environmental issues. It is thus possible that, out of complete ignorance, they maintain certain practices that are damaging to the environment. Environmental education should be undertaken in these communities to foster an understanding of environmental problems and to introduce them to environmentally

friendly practices. This should take place while keeping in mind the culture, traditions, values and norms of that community.

## 7.6 REVIEW

Optimal environmental management without the active participation of all sectors in society is a hopeless task. In this learning unit, we saw how people and organisations can help prevent further degradation of the environment in which we live. Apathy and complacency, however, hamper participation. These factors can only be overcome if there is a fundamental change in attitude to environmental issues.

# SELF-EVALUATION

1. Make a summary of 300 words of the highlights in the development of international environmental management.
2. Explain the following terms:
  - sustainable development
  - sovereignty
  - conservation
3. Evaluate the value of international treaties as an environmental management mechanism.
4. What is the primary focus of the Rio Declaration?
5. Discuss the Political Declaration and plan of implementation that were accepted during the World Summit on Sustainable Development in 2002.
6. Describe the differing viewpoints of the North and the South with reference to the causes of and solutions to the environmental dilemma.
7. Explain the obstacles to environmental management.
8. Identify the alternatives to the state system as contained in Wapner (The state and environmental challenges: a critical exploration of alternatives to the state-system) and evaluate whether they are practical to implement.
9. What are the significance and objectives of Local Agenda 21?
10. Provide an historical overview of the establishment of the Southern African Development Community and the Environment and Land Management Sector.
11. Describe the main environmental issues within the SADC, as well as the factors that influence the ability of member states to attend to such problems.
12. Explain the link between the promotion of peace and security and the conservation of the environment.
13. Evaluate the objectives, priorities and activities of the Environment and Land Management Sector of the SADC.
14. Indicate how the Lesotho Highlands Water Scheme and trans-border parks give effect to the objectives of the SADC and the Environment and Land Management Sector.

15. Provide an historical overview of the development of environmental management in South Africa.
16. Explain the shortcomings that hinder efficient and effective environmental management in South Africa and refer to initiatives that have been undertaken to correct such shortcomings.
17. Analyse the influence of the apartheid policy on the manmade and natural environments of those who were affected by this policy.
18. Explain the obligations of the government and the rights and obligations of individuals regarding the environment as set out in the Constitution.
19. Describe the manifestation of environmental management at national, provincial and local levels of government.
20. Describe the implementation and enforcement of environmental legislation by executive institutions.
21. Describe the provisions of the Constitution aimed at ensuring a healthy relationship and cooperation between all levels of government in South Africa.
22. Efficient and effective environmental management requires a partnership between the government on one hand and all sectors of society on the other. Discuss this statement by explaining the role played by individuals, the private sector and interest groups in the interest of a better environment.
23. Evaluate the importance and value of environmental education.

## **THEME 3**

### **THE PURSUIT OF SUSTAINABLE DEVELOPMENT IN SOUTH AFRICA**

# CONTENT

## OVERVIEW

Key questions  
Key concepts

## LEARNING UNIT 8: SUSTAINABLE DEVELOPMENT AND THE RECONSTRUCTION AND DEVELOPMENT PROGRAMME

Introduction  
Sustainable development  
The Reconstruction and Development Programme (RDP)  
Review

## LEARNING UNIT 9: INTEGRATED ENVIRONMENTAL MANAGEMENT

Introduction  
Meaning and objectives of integrated environmental management (IEM)  
Phases of IEM  
Review

## SELF-EVALUATION

## GLOSSARY

## LIST OF SOURCES

## OVERVIEW



### KEY QUESTIONS

---

An understanding of theme 3 requires answers to the following questions:

- What is sustainable development?
  - What does the Reconstruction and Development Programme (RDP) entail?
  - What are the main objectives of the RDP?
  - Is there a connection between the RDP and sustainable development?
  - In what ways can the RDP exert an influence on the environment?
  - What are the meaning and objectives of Integrated Environmental Management (IEM)?
  - What are the phases of IEM?
  - What do environmental impact studies entail?
- 

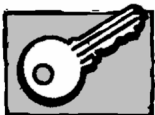


### KEY CONCEPTS

---

The following concepts (also provided in N.sotho) are important in the study of theme 3:

- sustainable development – Tšwetšopele ye e swarelelago
  - Reconstruction and Development Programme – Lenaneo la Kagoleswa le Tlhabollo
  - integrated environmental management – Taolo ye e akaretšago ya tikologo
  - environmental impact assessment – Tekolo ya ditlamorago tikologong
- 



### Key concepts in IsiZulu

---

- intuthuko eqhubekayo
- Uhlelo Lokwakha Kabusha kanye Nentuthuko
- ukuphathwa kwezemvelo okuhlangene
- ukuhlolwa kwemithethelela kwezemvelo

# **LEARNING UNIT 8**

## **SUSTAINABLE DEVELOPMENT AND THE RECONSTRUCTION AND DEVELOPMENT PROGRAMME**

## TABLE OF CONTENTS

<b>8.1</b>	<b>INTRODUCTION .....</b>	<b>115</b>
<b>8.2</b>	<b>SUSTAINABLE DEVELOPMENT.....</b>	<b>115</b>
<b>8.3</b>	<b>THE RECONSTRUCTION AND DEVELOPMENT PROGRAMME (RDP).....</b>	<b>117</b>
	8.3.1 The Working for Water (WfW) programme.....	118
	8.3.2 The Working on Fire (WoF) programme.....	119
<b>8.4</b>	<b>REVIEW.....</b>	<b>120</b>

# Learning Unit 8

## SUSTAINABLE DEVELOPMENT AND THE RECONSTRUCTION AND DEVELOPMENT PROGRAMME



### LEARNING OBJECTIVES

---

After completing this learning unit, you should be able to explain

- what is meant by sustainable development
- the Reconstruction and Development Programme



### KEY CONCEPTS

---

After studying this unit, you should be able to explain the following concepts:

- development
  - reconstruction
  - Reconstruction and Development Programme
  - sustainability
  - sustainable development
- 

## 8.1 INTRODUCTION

In earlier learning units you were introduced to the concept of sustainable development and you saw that this is accepted as the basis for environmental management in South Africa. In this learning unit we take a closer look at the meaning of sustainable development and investigate the link between sustainable development and the Reconstruction and Development Programme.

## 8.2 SUSTAINABLE DEVELOPMENT

The Brundtland Report of 1987 gave international prominence to the idea of sustainable development and as such laid the foundation for environmental management in the 21st century. What does sustainable development mean? According to Yeld (1997:12), sustainable development implies "the wise use of natural resources over generations, and

not only for the good of single lifetimes". However, sustainable development includes another dimension:

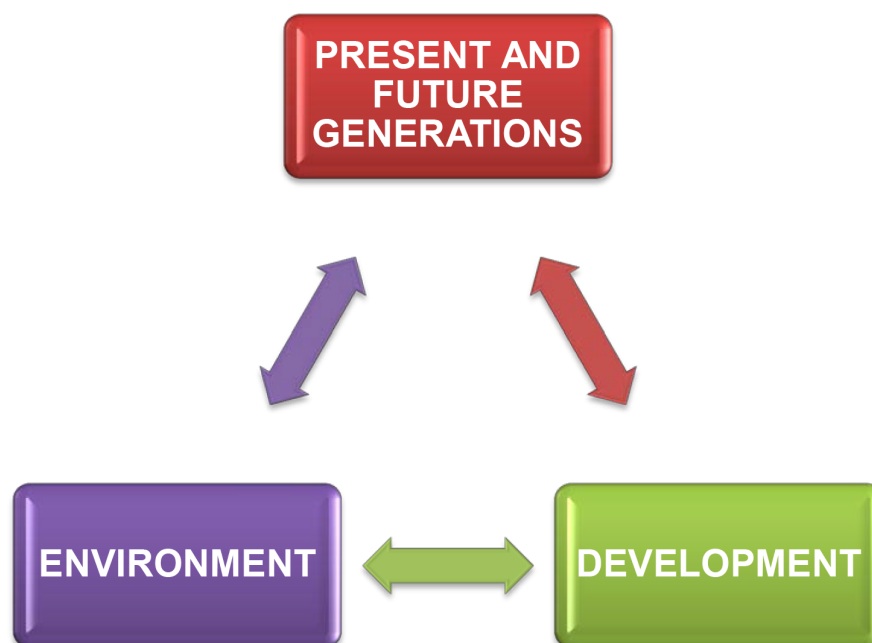
"Also, sustainable development emphasises that the international goal of conservation cannot be achieved without development to alleviate the poverty and misery endured by so many people throughout the world. Development is essential to raise living standards, to allow people everywhere to reach their human potential and enjoy healthy and dignified lives, and to ensure the welfare of both present and future generations" (Yeld 1997:13).

In short, sustainable development refers to the improvement of the quality of life of people on a global basis with due regard for ecological limitations (Yeld 1997:8).

In 1991, the World Conservation Union, the World Wide Fund for Nature and the United Nations Environmental Programme jointly published a document entitled "Caring for the earth: a guide to sustainable living". This document (like Agenda 21 which was accepted during the Rio Conference) is in fact a strategy for applying the principle of sustainable development in practice. According to this, the achievement of sustainable development requires, among other things, that

- quality of life is improved
- the exhaustion of non-renewable resources is prevented
- the carrying capacity of the earth is respected
- attitudes and practices are changed
- a global alliance is formed
- development and conservation are integrated within a national policy (Yeld 1997:8, 9).

Sustainable development can be schematically illustrated in the following way:



**Figure 8.1:** Schematic portrayal of sustainable development

Adapted from: Jeppe & Van Baalen (1995:29)

### 8.3 THE RECONSTRUCTION AND DEVELOPMENT PROGRAMME (RDP)

The RDP is an integrated socioeconomic policy framework that was adopted by the government in 1994. It is aimed at eliminating the legacy of apartheid and the establishment of a democratic, non-racist and non-sexist society (African National Congress, 1994:1). The following are the main overarching objectives of the RDP:

- satisfaction of basic needs (e.g. housing and water)
- development of human resources (through education and training)
- economic development
- democratisation of society

Closer inspection of the objectives of the RDP reveals that they correspond to a large extent with the principles on which sustainable development is based.

The implementation of the RDP places special demands on the environment. For example, it requires large-scale exploitation and use of natural resources such as water, land and energy, while it stresses the environment's ability to absorb and recover from pollution and waste. The challenge which the South African government faces is to implement the RDP in such a way that damage to the environment is minimised. This is especially important in view of the fact that the apartheid policy has already inflicted heavy damage and thus largely undermined the environment's ability to endure further onslaughts. If the limitations of the environment are not taken into account during the implementation of the RDP, this could have catastrophic consequences. The environment provides the resource basis for socioeconomic development and if it is irreparably damaged, no further development can occur (International Mission on Environmental Policy 1995:3, 13, 15).



#### Activity 8.1

Indicate how job creation and housing projects of the RDP can influence the environment. How can the impact of these projects on the environment be minimised?

(1) Job creation

---



---



---



---

(2) Housing

---



---



---



---

.....

Natural resources are indispensable for the performance of all forms of work. Food production, mining and forestry, for example, all require land and water, while the manufacturing sector needs large amounts of energy (in addition to water). To prevent a negative effect on the environment, water and land should be used with care and renewable sources of energy (e.g. solar energy) should be used. Job creation is not irreconcilable with the environment. Wildlife and nature reserves, which protect our plant and animal life, serve as job creators. In addition, they attract tourists to South Africa, which presents people with the opportunity to sell self-made products and indigenous artworks. In this way the economy is also stimulated (see the explanation of ecotourism in the glossary). Work and an income can also be provided by the recycling industry – both formally by working in industry or through the collection of tins, bottles and paper for remuneration (International Mission on Environmental Policy 1995:4, 7). The impact of housing projects on the environment can be reduced by ensuring that these do not occur in ecologically sensitive areas or on land that could be used for crop farming. Trees should be planted around newly built houses and provision should be made for green spaces (parks, sports fields, recreation centres). In this way, a natural dimension is incorporated into the manmade environment (International Mission on Environmental Policy 1995:5, 7).

Two other objectives of the RDP, namely, economic development and development of human resources, also have implications for the environment. The impact of economic development on the environment can be reduced if companies are required to undertake environmental impact studies (more about this in learning unit 9) before development is commenced. Recycling, sensible waste management and using environmentally friendly technology can also ensure that the environment does not suffer for the sake of economic development. Development of human resources also implies education in environmental matters. It goes without saying that the environment will benefit from an informed society that is aware of its responsibilities towards the environment.

The White Paper on an Environmental Management Policy for South Africa and the RDP acknowledge the fact that socioeconomic development cannot take place at the expense of the environment. The White Paper firmly states that integrated and sustainable management of the environment forms the basis for sustainable development. In terms of the RDP, environmental considerations must be built into every decision. To achieve this, procedures must be put in place so that decision makers are required to take environmental aspects into account when planning projects (African National Congress 1994:39, 40). In learning unit 9, we investigate the procedures that must be followed to ensure that environmental considerations are integrated into the development process.

Next, we examine certain programmes launched by government that eminently illustrate how the pursuance of the objectives of the RDP and sustainable development may be meaningfully integrated with environmental management.

### **8.3.1 The Working for Water (WfW) programme**

The WfW programme was launched by government in 1995 to tackle the problem of invasive alien plants and reduce unemployment among unskilled people. Invasive plants such as the black wattle absorb large quantities of water and are inclined to block the flow

of rivers and streams, causing an imbalance in natural ecosystems and possibly causing weeds and insect pests to proliferate. Such plants should, therefore, be eradicated and replaced with indigenous plants that are not detrimental to the environment and natural resources (e.g. water).

The WfW programme, therefore, aims to enhance water security, improve ecological integrity, restore the productive potential of land and promote the sustainable use of natural resources. Over one million hectares of land were cleared of invasive alien plants in the first eight years of operation. So successful, in fact, is the programme that it has been presented with 38 national and international awards (Smith 2006:235–236; Müller 2007:49).

As indicated by the name of the programme, the focus is on job creation in support of an important ecosystem service (the protection of water supplies threatened by invasive alien plants). The programme provides training and employment opportunities for more than 20 000 people drawn from the most marginalised sectors of South African society, such as rural women, the disabled, those from single-parent households, those fostering orphans, military veterans, former inmates and others in need of poverty-relief support. Such people are then trained in work-related aspects (including the operation of machines and equipment, supervision, teamwork and personal-financial-management and business-management skills) and general life skills (including first aid, sexual education and driving) (Müller, 2007:49).

WfW is a multi-departmental initiative managed jointly by the Department of Water Affairs and Forestry, the Department of Environmental Affairs and the Department of Agriculture.

### 8.3.2 The Working on Fire (WoF) programme

Veld and forest fires regularly devastate South Africa's landscapes; uncontrolled fires affect natural ecosystems, endanger life and ruin man-made structures. Despite this, though, fire performs a necessary natural function, for example: many species, including the Cape 'fynbos', are fire-adapted and actually need fire for their survival. In terms of the National Veld and Forest Fire Act 101 of 1998, the responsibility for dealing with veld fires rests with the individual "land users". The Act also promotes the formation of fire-protection associations or groups of landowners who work together to mitigate the risks of fire. Despite these measures it soon became clear that co-ordinated and integrated national fire management was needed (Müller 2007:52–53).

The WoF programme was launched in 2003 as a joint national-government and commercial-forestry-section project. Other partners in the programme include conservation agencies, local authorities and other firefighting agencies. Underpinned by the National Veld and Forest Fire Act 101 of 1998 and the Disaster Management Act 57 of 2002, the programme (Müller 2007:53) envisions the following:

- Promotion of sound land-management principles to combat the repeated occurrence and impact of undesirable veld and forest fires.
- Job creation and skills development in the field of veld-firefighting.

- Pooling of available resources in order to reduce the costs of maintaining an efficient and effective veld-firefighting service.

Within the first year of operation, 40 fire-fighting bases were established, each with a 22-person hand-firefighting crew in place. Dispatch and co-ordinating centres were also established in each of the regions of the country most prone to veld and forest fires. When a hand crew or aircraft is dispatched to a fire, it is reported by the dispatch centre to the provincial co-ordinating centre which, in turn, reports it to a national co-ordinator who is linked to the National Disaster Management Centre (Müller 2007:53).

The focus of the WoF programme is on poverty relief and skills development. Recruits are provided with life skills that they can deploy for their own and their communities' benefit long after they have left the programme. To date, 1 056 fire-fighters have been trained. It is envisaged that the programme will grow from the original 40 teams to 200 teams, that is, 5 000 people (Müller 2007:54).

## 8.4 REVIEW

The primary objectives of the RDP correspond to a large extent to those of sustainable development. As such, the RDP can in fact be seen as a strategy to bring about sustainable development in South Africa. RDP programmes should, however, be implemented with the utmost care and sensitivity towards the environment to prevent the environment from being irreparably damaged and resource bases from being permanently exhausted.

# **LEARNING UNIT 9**

## **INTEGRATED ENVIRONMENTAL MANAGEMENT**

# TABLE OF CONTENTS

<b>9.1</b>	<b>INTRODUCTION.....</b>	<b>123</b>
<b>9.2</b>	<b>MEANING AND OBJECTIVES OF INTEGRATED ENVIRONMENTAL MANAGEMENT (IEM).....</b>	<b>123</b>
<b>9.3</b>	<b>PHASES OF IEM.....</b>	<b>124</b>
9.3.1	Phase 1: Proposal development and environmental impact assessment.....	124
9.3.2	Phase 2: Consideration of the application and decision making by government.....	128
9.3.3	Phase 3: Implementation of development proposal .....	128
<b>9.4</b>	<b>REVIEW.....</b>	<b>131</b>
	<b>SELF-EVALUATION.....</b>	<b>132</b>

# Learning Unit 9

## INTEGRATED ENVIRONMENTAL MANAGEMENT

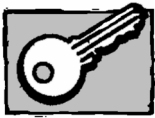


### LEARNING OBJECTIVES

---

After completing this learning unit, you should be able to explain

- integrated environmental management



### KEY CONCEPTS

---

After studying this unit, you should be able to explain the following concept:

- integrated environmental management
- 

## 9.1 INTRODUCTION

In learning unit 8 we saw that it is an accepted principle in South Africa that development should not occur at the expense of the environment. To ensure that the environment is taken into account at all times during the planning and implementation of development projects, certain procedures that must be followed during development have been set out in accordance with the integrated environmental management process. In this learning unit we investigate more closely what integrated environmental management entails.

## 9.2 MEANING AND OBJECTIVES OF INTEGRATED ENVIRONMENTAL MANAGEMENT (IEM)

In 1984 the Council for the Environment established a committee to investigate a national strategy through which environmental considerations could be integrated into the developmental process. After an in-depth investigation, the committee recommended in 1989 that a national environmental policy be accepted that would both ensure the effective protection of the environment and make provision for the controlled exploitation of the environment by applying the principle of integrated environmental management (IEM). The IEM procedure as proposed by the Council for the Environment was amended in 1992 by the Department of Environmental Affairs after consultation with a wide variety of groups (South Africa, Department of Environmental Affairs 1992).

The IEM is a comprehensive and systematic process to ensure that environmental considerations are taken into account in decision making during all phases of the development process. The aim is to collect and make available information on the possible effects that a certain activity may have on the environment. On the grounds of this information, a decision can be taken about whether or not that activity should proceed. In certain cases, ways in which the effects on the environment can be reduced are also considered. The IEM does not aim to hamper development, but to guide the development process through the planning to the implementation phases in order to attain a balance between development and conservation (SA Council for the Environment 1989; South Africa, Department of Environmental Affairs 2015).

## 9.3 PHASES OF IEM

The IEM process occurs in three phases, namely:

- **Phase 1:** proposal development and environmental impact assessment.
- **Phase 2:** consideration of the proposal and decision making (approval or rejection of the proposal).
- **Phase 3:** implementation of the development proposal or the amended version.

Two key parties are involved in these three phases: the developer and the government. The developer is an individual, organisation or institution (in the public or private sector) who wishes to undertake a certain activity with the aim of making money, serving the interests of a particular group or promoting general welfare. The government refers to local, provincial or national governmental institutions that are responsible for approving or rejecting a development proposal. In addition to these two roleplayers, other parties may be involved, such as communities that may be affected by the development and interest groups.

### 9.3.1 Phase 1: Proposal development and environmental impact assessment

During proposal development a proposal is formulated about a certain activity or action which is being contemplated (e.g. the construction of a road or hotel). This entails planning on how to go about achieving the aim. The principles underlying IEM should be incorporated into the early planning stages right from the start. The following steps must be taken in accordance with IEM procedures:

- The parties which are affected by the development must be notified and consulted about the proposed development.
- The relevant government institutions must be consulted on the procedures to be followed so as to obtain the necessary permission for the project.
- Alternatives must be identified and considered in order to achieve the aim in the best possible way.
- Options must be considered for reducing the effects on the environment.

After the proposal has been developed, it may follow one of three paths, depending on its influence on the environment. If during the development phase it becomes clear that the proposal will have a significant impact on the environment, a complete environmental impact assessment must be done. An initial environmental impact assessment is done in cases

- where there is uncertainty about the effects that the project may have on the environment.
- where the action/development that is being contemplated is included in the list of activities and the list of environments appearing in the document on integrated environmental management (issued by the DE&T), but does not seem to present any major hazards to the environment identified during the proposal development phase.
- The list of activities includes the following:
  - The construction of power generating facilities
  - The construction of roads or railways
  - The transport of hazardous waste matter
  - Mining activities
  - Storage facilities for chemical products
- The list of environments includes
  - conservation areas
  - national monuments
  - estuaries
  - wetlands
  - caves
  - indigenous forests

If it is clear that the development will have little or no impact on the environment and if the proposal fulfils all the requirements, it can be submitted to the appropriate authority for approval (South Africa, Department of Environmental Affairs 2015).

On 5 September 1997, in the Government Gazette, the Minister of Environmental Affairs and Tourism issued regulations to govern environmental impact assessments. The activities that could have a significant, adverse effect on the environment and to which the regulations are applicable are set out in Government Notice R 1182. The following are some of the main activities that have been identified:

- The construction or upgrading of
  - nuclear reactors and installations for the production, enrichment, reprocessing and disposal of nuclear fuels and wastes
  - facilities for electricity generation and supply
  - roads, railways, airfields and related structures
  - outdoor motor racing tracks and horseracing tracks
  - dams, levees or weirs affecting the flow of a river
  - cableways and associated structures

- public and private resorts
- sewage treatment plants and related infrastructures
- The change in land use from
  - residential use to industrial or commercial use
  - light industrial use to heavy industrial use
  - agricultural or undetermined use to any other land use
  - use for grazing to any other form of agricultural use
  - use for nature conservation or open spaces to any other form of land use

The regulations issued by the Minister set out the procedure to be followed by developers to obtain the necessary approval from the government so that the proposed development may be implemented. The developer must appoint an independent consultant who will follow the procedures stipulated in the regulations.

The steps to be taken are as follows:

#### *9.3.1.1 Step 1: Submission of the application*

An application to undertake a certain activity must be submitted to the relevant provincial government. If the Minister appoints a local authority to approve certain activities, the provincial government must refer the application to the local authority for consideration. The provincial government must refer the application to the Minister in the following cases:

- If the action (development project) has direct implications for environmental policy, international environmental obligations or relations.
- If the environment that is threatened is designated as an area of national or international importance.
- If the Minister and the relevant provincial government both agree that the Minister should rather consider an application.
- If the applicant is a national state department, the relevant provincial government or a statutory institution.
- If the activity has the potential to influence the environment across the borders of two or more provinces.

#### *9.3.1.2 Step 2: Submission of scoping report*

After the application is accepted by the provincial or local government or the Minister, the applicant will be requested to submit a scoping report. The extent of and approach to the development project is set out in this report. The scoping report must include

- a brief project description
- a description of how the environment could be affected
- a description of the environmental issues identified
- a description of all alternatives identified
- a description of the public participation process followed
- a list of the interested parties consulted and their comments

After the scoping report is accepted, the relevant authority can either decide that the information contained in this report is adequate for the consideration of the application and that no further investigation is necessary, or that the information contained in the scoping report must be supplemented by further environmental impact assessments. During the investigation into the impact of the project on the environment, alternatives and environmental issues identified in the scoping report are focused on.



**Activity 9.1**

Compile a scoping report on a development project/activity that you are aware of, which could have an impact on the environment. You could also use a fictitious project/activity as a point of departure.

Make sure that your report complies with the requirements prescribed in the relevant regulations.

---



---



---



---

.....

*9.3.1.3 Step 3: Investigation into the effect on the environment and submission of environmental impact report*

The aim of the investigation is to provide the government with adequate information on the positive and negative aspects of the proposal so that an appropriate decision may be made (South Africa, Department of Environmental Affairs 1992). Before the investigation may begin, a 'study plan' must be submitted. This includes an exposition of the environmental issues and practical alternatives identified during scoping which may require further investigation. The study plan must also contain a description of the proposed methods to be followed to determine and assess the effect of the proposed project on the environment. After the study plan is accepted, an environmental impact report must be submitted to the government. Such a report must include

- a description of all alternatives with reference to the environmental impact of each and the ways in which the impact can be reduced
- a comparative assessment of all the alternatives
- descriptions of the environment and the activities to be undertaken
- a description of the process of public participation that was followed
- a list of interested parties and their comments
- any media coverage given to the proposed project
- any information that was included in the accepted study plan

### 9.3.2 Phase 2: Consideration of the application and decision making by government

After an environmental impact study conforming to all the requirements has been received, the developer's application is considered by the government. They may decide to approve the application with or without conditions, or to reject the application. The relevant authority must keep a record of the decision that is made and issue this to the applicant on request or to any other interested party. Such a record of the decision should among other things, include the following information:

- The name, address and telephone number of the applicant
- An indication of the specific place where the development is to occur
- A short description of what the proposed development entails
- The conditions of approval (if any)
- The main factors leading to the decision

An applicant who is not satisfied with the decision may appeal in writing to the Minister or provincial authority within 30 days after the record of the decision has been issued.

Some of the conditions to which approval may be subject include the submission of an environmental management plan and/or the conclusion of an "environmental contract" by the applicant. An environmental management plan must give an indication of how the proposal will be implemented and how control will be exercised over the project's implementation. Furthermore, it should indicate how negative consequences of the development will be managed and monitored and how damaged areas will be restored. The environmental contract stipulates certain mitigating measures with which the developer must comply (e.g. replanting plant matter) and at the same time lays down penalties (e.g. fines) for non-compliance with these measures (Preston, Robins & Fuggle 1992:752).

### 9.3.3 Phase 3: Implementation of development proposal

After approval has been granted for the development proposal, it will usually be implemented. During this phase, it is important that the developer conducts a monitoring programme to ensure that

- all conditions of approval are fulfilled;
- measures are applied to reduce the impact on the environment;
- approved plans are complied with.

By setting up a monitoring programme, the effectiveness of the mitigating measures can be continually evaluated and provision can be made for the amendment of guidelines that do not seem achievable. The monitoring programme also serves as a valuable source of information to determine how accurate predictions were about the influence of the development on the environment and to evaluate whether the proposed mitigating measures were applied (Preston, Robins & Fuggle 1992:725, 753).

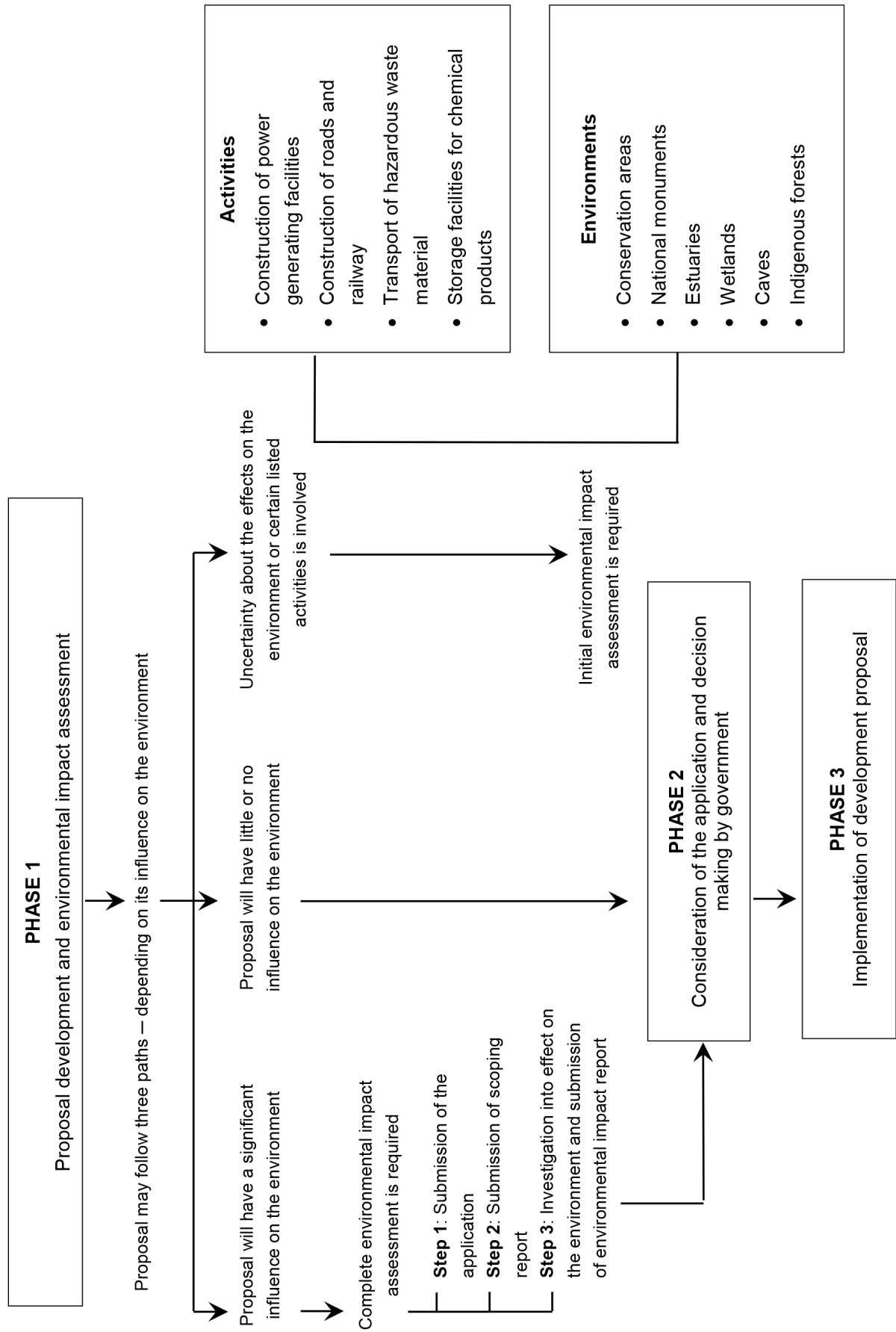
After the development project is completed, auditing (evaluation) should take place. This takes place after enough time has passed to assess the real impact of the development on the environment. Auditing aims to

- assess the effectiveness of environmental planning during the proposal development phase;
- determine the accuracy of investigations undertaken during the assessment phase;
- consider the wisdom of the decisions taken during the decision-making phase;
- determine the effectiveness of the conditions of approval and the monitoring programme.

The information that may come to light during auditing contributes to the improvement of the IEM process (South Africa, Department of Environmental Affairs 1992; South Africa, Council for the Environment 1989).

The entire IEM process can be illustrated as follows:

**Figure 9.1:** Schematic Representation of Integrated Environmental Management



## 9.4 REVIEW

Adhering to the IEM process is indispensable in ensuring that the environment is taken into consideration during all phases of development – from the planning to the implementation phase. By carefully applying IEM, a true balance is achieved between environmental conservation and development.

# SELF-EVALUATION

1. Analyse the meaning and objectives of sustainable development.
2. What does the Reconstruction and Development Programme entail?
3. Evaluate the influence that the RDP may have on the environment and indicate how this influence may be reduced.
4. What are the meaning and objectives of integrated environmental management?
5. Describe and explain the IEM process.

# REFERENCE LIST

## LIST OF SOURCES

- African National Congress. 1994. *The reconstruction and development programme – a policy framework*. Johannesburg: Umanyano.
- Aids statistics. Available at: [http://www.mongabay.com/external/AIDS\\_stats/](http://www.mongabay.com/external/AIDS_stats/) (accessed on 10 November 2008).
- Annan, K. 2002. Set tone for sustainable development. *Bojanala* 4 (Jul/Aug): 1, 3.
- Antweiler, W. 2014. *Elements of environmental management*. Toronto; Buffalo; London: University of Toronto Press.
- Baer-Brown, L & Rhein, B. 1995. *Earth keepers: a sourcebook for environmental issues and action*. San Francisco, Calif: Mercury House.
- Barrett, K, Van der Merwe, C & L'Ange, J. 1992. *Inside the Earth Summit: on the road to sustainable development*. Auckland Park: Frontline Communications.
- Beale, JG. 1980. *The manager and the environment*. Oxford: Pergamon Press.
- Callahan, D. 1981. What obligations do we have to future generations?, in *Responsibilities to future generations: environmental ethics*, edited by E Partridge. Buffalo, NY: Prometheus: 73–88.
- Cilliers, AC. 1979. *Limitations imposed by administrative law on the exercise of discretionary powers of officials*. SAIPA 14(1):1–9.
- Crump, A. 1991. *Dictionary of environment and development: people, places, ideas and organizations*. London: Earthscan Publications.
- DEA. Available at: <http://www.environment.gov.za> (accessed on 20 May 2015).
- Demographics of Africa (from Wikipedia). Available at: [http://en.wikipedia.org/wiki/Demographics\\_of\\_Africa](http://en.wikipedia.org/wiki/Demographics_of_Africa) (accessed on 20 May 2015).
- Department of Agriculture, Conservation and Environment. Available at: <http://www.gdard.gpg.gov.za/Pages/default.aspx> (accessed on 18 May 2015).
- Department of Environmental Affairs. Available at: <https://www.environment.gov.za/> (accessed on 14 March 2015).
- Department of Environmental Affairs (b). Available at: <https://www.environment.gov.za/aboutus/structure> (accessed on 02 July 2015).
- Department of Environmental Affairs and Tourism. 2002. Transfrontier conservation areas: a new environmental, social and economic vision for cross-border collaboration. *Timbila* 3(6):88–94.
- De Santa Ana, J. 1995. *The present socio-economic system as a cause of ecological imbalance and poverty, in Ecology and poverty: cry of the earth, cry of the poor*, edited by L Boff & V Elizondo. London: SCM Press: 3–11.
- Desjardins, JR. 1993. *Environmental ethics: An introduction to environmental philosophy*. Belmont: Wadsworth.
- Enders, JC. & Remig, M. 2015. *Theories of sustainable development*. London: Routledge, Taylor & Francis Group.
- Environmental science update: ten years after Chernobyl. Available at: <http://www.westpub.com/Educate/mathsci/06401x07.htm> (accessed on 5 December 1997).
- FAO alarm: water, a resource near depletion. 1994. *Cooperazione*, 134:57–65. Foundation for Research Development & Department of Environmental Affairs and Tourism. 1994. *Cities and Sustainable Development*. Pretoria.
- Fyfe, WS. 1990. Our planet observed: the assault by Homo Sapiens, in *Planet under stress*,

- edited by C Mungall & DJ McLaren. Toronto: Oxford University Press: 3–28.
- Gauteng: Preliminary state of the environment report. June 1997. Pretoria: Government Printer.
- Government Communications and Information System (GCIS). 2002. *World Summit Outcomes: A new agenda for practical action*. Sunday Times (Metro), 8 September.
- Grant, M & Hawkins, R (eds). 1995. *The concise lexicon of environmental terms*. Chichester: Wiley.
- Grubb, M, Koch, M, Munson, A & Sullivan, KT. 1993. *The Earth Summit Agreements: a guide and assessment*. London: Earthscan Publications.
- Gudynas, E. 1995. Ecology from the viewpoint of the poor, in *Ecology and poverty: cry of the earth, cry of the poor*, edited by L Boff & V Elizondo. London: SCM Press: 106–114.
- Huntley, B, Siegfried, R & Sunter, C. 1989. *South African environments into the 21st century*. Cape Town: Tafelberg.
- Imber, MF. 1994. *Environment, security and UN reform*. NY: St Martin's Press.
- International Mission on Environmental Policy. 1995. *Building a new South Africa: environment, reconstruction and development*. Volume 4. Ottawa: International Development Research Centre.
- The Johannesburg Declaration on Sustainable Development. 2002. Available at: <http://www.joburg.org.za/pdfs/johannesburgdeclaration.pdf> (accessed on 19 May 2015).
- Jeppe, J & Van Baalen, J. 1995. Sustainable development, in *Policies for public service transformation*, edited by F Cloete & J Mokgoro. Kenwyn: Juta: 29–50.
- Klingner, J. 1994. Debt-for-nature swaps and the limits to international cooperation on behalf of the environment. *Environmental politics* 3(2):229–246.
- Kluger, J & Dorfman, A. 2002. *The challenges we face*. Time, 2 September: 10–16 (Special report).
- Kok, PC & Gelderblom, D. 1989. *Verstedeliking in Suid-Afrika: perspektiewe op die dinamika en begeleiding van die proses*. Pretoria: Raad vir Geesteswetenskaplike Navorsing.
- Kirchner, JW, Ledec, G, Goodland, RJA & Drake, JM. 1985. Carrying capacity, population growth and sustainable development, in *Rapid population growth*, edited by RJ Muscat. Washington DC: The World Bank.
- Kromberg, M. 1997. Caring for the environment. *SA Now* 2(1):8–16.
- Lampley, P, Wigley, M, Carr, D & Collymore, Y. 2002. Facing the HIV/AIDS pandemic. *Population Bulletin* 57(3):1–39.
- Latin America (from Wikipedia). Available at: [http://en.wikipedia.org/wiki/Latin\\_America](http://en.wikipedia.org/wiki/Latin_America) (accessed on 06 May 2015).
- Lemonick, MD. 1997. Turning down the heat. *Time* 150(25):12–15.
- Linden, E. 1994. Showdown in Cairo. *Time* 44(10):44–45.
- List of states and union territories of India by population (from Wikipedia). Available at: [http://en.wikipedia.org/wiki/List\\_of\\_states\\_and\\_union\\_territories\\_of\\_India\\_by\\_population](http://en.wikipedia.org/wiki/List_of_states_and_union_territories_of_India_by_population) (accessed on 06 May 2015).
- Malan, P. 2002. Keerpunt vir VN en Amerika in Johannesburg. Rapport 8 September: 10.
- McMichael, AJ. 1993. *Planetary overload: global environmental change and the health of the human species*. Cambridge: University Press.
- Miller, M. 1995. Where is globalization taking us? *Futures* 27(2):125–144.
- Mink, SD. 1993. *Poverty, population and the environment*. Washington DC: World Bank.
- Müller, K. 2007. Organisation innovation: some emerging environmental governance

- models in South Africa. *Politeia* 26(1):45–59.
- Municipal Conservation Association. Sa. Local Agenda 21. Melbourne.
- Myers, N. 1993. *Ultimate security: the environmental basis of political stability*. New York: Norton.
- Omara-Ojungu, PH. 1992. *Resource management in developing countries*. Essex: Longman Scientific & Technical.
- Population Reference Bureau. 2005. World population data sheet. Available at: [http://www.prb.org/pdf05/05WorldDataSheet\\_Eng.pdf](http://www.prb.org/pdf05/05WorldDataSheet_Eng.pdf) (accessed on 19 May 2015).
- Population Reference Bureau. Human population: fundamentals of growth patterns of world urbanisation. Available at: <http://www.prb.org/> (accessed on 20 April 2015).
- Preston, GR, Robins, N & Fuggle, RF. 1992. Integrated environmental management, in *Environmental management in South Africa*, edited by RF Fuggle & MA Rabie. Cape Town: Juta:748–761.
- Rabie, MA. 1992. Implementation of environmental law, in *Environmental management in South Africa*, edited by RF Fuggle & MA Rabie. Cape Town: Juta:120–154.
- Rabie, MA & Fuggle, RF. 1992. The rise of environmental concern, in *Environmental management, in South Africa*, edited by RF Fuggle & MA Rabie. Cape Town: Juta: 11–25.
- SADC Environment and Land Management Sector. 1996. *Caring for Southern Africa's resources*. Maseru.
- Schwella, E, Burger, J, Fox, W & Müller, JJ. 1996. *Public resource management*. Kenwyn: Juta.
- Schwella, E & Müller, JJ. 1992. Environmental administration, in *Environmental management, in South Africa*, edited by RF Fuggle & MA Rabie. Cape Town: Juta:64–82.
- Seager, J (ed). 1990. *The state of the earth: an atlas of environmental concern*. London: Unwin Hyman.
- Sitarz, D (ed). 1993. *Agenda 21: the Earth Summit strategy to save our planet*. Boulder, Col: Earthpress.
- South Africa. Council for the Environment. 1989. *Integrated environmental management in South Africa*. Pretoria: Government Printer.
- South Africa. Department of Environmental Affairs. 1989. *White paper on environmental education*. Pretoria: Government Printer.
- South Africa. Department of Environmental Affairs. 1992. *The integrated environmental management procedure*. Pretoria.
- South Africa. Department of Environmental Affairs. 1994. *Integrated pollution control: summary of a project framework and plan describing the strategic process to develop a national holistic policy on integrated pollution control*. Pretoria: Government Printer.
- South Africa. Department of Environmental Affairs. 1995. *Environment South Africa*. Pretoria.
- South Africa. Department of Environmental Affairs and Tourism. 1996. *Turning words into action*. Pretoria.
- South Africa. Department of Environmental Affairs and Tourism. 1997. *White paper on environmental management policy for South Africa*. Pretoria: Government Printer.
- South Africa. Department of Water Affairs and Forestry. 1997. *White paper on a national water policy for South Africa*. Pretoria: Government Printer.
- South Africa. Department of Environmental Affairs. 2009. *Strategic Plan for Environmental Sector 2009–2014*. Pretoria.
- South Africa (from Wikipedia). Available at: [http://en.wikipedia.org/wiki/South\\_Africa](http://en.wikipedia.org/wiki/South_Africa) (accessed on 20 May 2015).
- South Africa. Gauteng Department of Agriculture, Conservation and Environment. 1997/98.

- Annual Report*. Johannesburg.
- South Africa. Department of Environmental Affairs & Tourism. 2005. *Annual Review 2004–2005*. Pretoria.
- South African Department of Environment Affairs 2009. *Strategic Plan of Environmental Sector 2009–2014*. Pretoria.
- South Africa. 1997. *Regulations regarding activities which may have a substantial detrimental effect on the environment*. (Government Notice R 1183 of 1997). Government Gazette no 18261 of 5 September. Pretoria: Government Printer.
- South Africa. *The identification of activities which may have a substantial detrimental effect on the environment* (Government Notice R 1182 of 1997). Government Gazette no 18261 of 5 September. Pretoria: Government Printer.
- South Africa. Ministry for Provincial Affairs and Constitutional Development. 1998. *White paper on local government*. Pretoria: Government Printer.
- Southern African Development Community (ELMS). 1994. *SADC policy and strategy for environment and sustainable development*. Maseru.
- Southern African Research and Documentation Centre. *The World Conservation Union & SADC*. 1994. State of the environment in Southern Africa.
- Speth, JG. 2004. *Red Sky at Morning: America and the Crisis of the Global Environment*. New Haven: Yale University Press.
- Statistics South Africa. *Census 2001*. Available at: <http://www.statssa.gov.za/census01/html/default.asp> (accessed on 13 March 2006).
- Sunter, C. 1996. *The high road: where are we now?* Cape Town: Tafelberg.
- Tham, C. 1992. *Poverty, environment and development, in Ecological change: environment, development and poverty linkages (Volume V)*, edited by U Kirdar. New York: United Nations: 25–37.
- United Nations. 1991. *World urbanisation prospects 1990*. New York: United Nations.
- Von Weizsäcker, U. 1994. *Earth politics*. London: Zed Books.
- Wapner, P. 1995. The state and environmental challenges: a critical exploration of alternatives to the state-system. *Environmental Politics* 4(1):44–69.
- Weiss, EB. 1989. *In fairness to future generations: international law, common patrimony and intergenerational equity*. Tokyo: The United Nations University.
- Welsh, BWW & Butorin, P (eds). 1990. *Dictionary of development: third world economy, environment, society (Vol 2)*. New York: Garland.
- What is the World Summit on Sustainable Development?. 2002. Available at: <http://ww2.joburgsummit2002.com/> (accessed on 21 April 2015).
- Wilkinson, L (ed). 1980. [Earthkeeping in the '90s: stewardship of creation](#). Revised edition. Grand Rapids, Mich: Eerdmans.
- Wisner, B. 1995. The reconstruction of environmental rights in South Africa. *Human Ecology* 23(2):259-284. World Nuclear News, 5 May 2010.
- World Population (from Wikipedia). Available at: [http://en.wikipedia.org/wiki/World\\_population](http://en.wikipedia.org/wiki/World_population) (accessed on 19 April 2015).
- World Summit on Sustainable Development: Plan of Implementation. 2002. Available at: <http://www.joburg2002.net/docs/200209140348336600.txt> (accessed on 9 October 2002).
- Yeld, J. 1997. *Caring for the earth: South Africa – a guide to sustainable living*. Stellenbosch: World Wildlife Fund.