

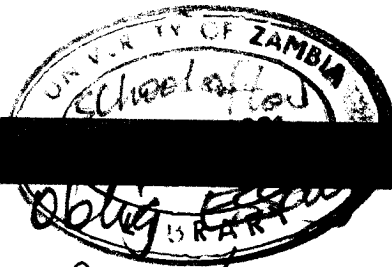
**THE UNIVERSITY OF ZAMBIA  
SCHOOL OF LAW**

**THE ZAMBIAN LEGISLATION  
REGULATING POLLUTION AND  
ITS EFFECTIVENESS IN  
POLLUTION CONTROL.  
AN ANALYSIS.**

**BY**

**NKUSUWILA/NACHALWE  
COMPUTER NO. 95179712**

**AUGUST 2001.**



2000/2001

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**BY**

**NKUSUWILA NACHALWE**

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**Being a paper submitted to the University of  
Zambia, Faculty of Law in partial fulfilment of  
the requirements for the Bachelor of Laws  
Degree.**



**THE UNIVERSITY OF ZAMBIA**  
**SCHOOL OF LAW**

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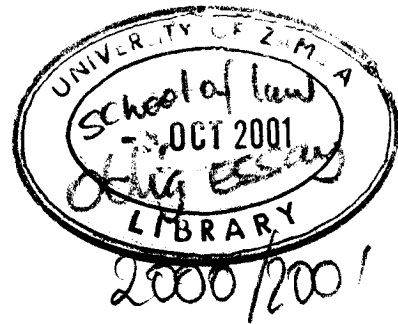
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### DEDICATION.

To my Father Sained Thomas Namulinda Sichalwe, thank you for being a dad, friend , mentor and counsellor. You will always be my inspiration. Thank you so much for helping me make your dream a reality and in the process realising mine too. Like you always taught me

'hurry, hurry has no blessing'

It has helped me cultivate patience and indeed I have endured to the end.

To my mother Elida Nachilombe Sichalwe, you are a virtous woman, mother, grandmother and wife, who can find? Thank you for being my help in all my academic endeavours, in times I felt like I couldn't go on. Most of all thank you for the sacrifices you made so long ago, just to see us all through school.

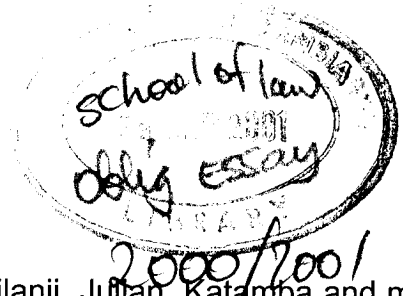
May God bless you.

### IN MEMORY OF

My brothers Christopher and Arthur, my sisters Muzano and Hope. In a nick of time, I lost all of you my friends. You believed in me yet did not live long enough to see and cheer me through to the finish line.

I still love you.

## ACKNOWLEDGEMENTS



Special thanks go to my brothers and sisters Suwilanji, Julian, Katamba and my twin sister Lukundo, for giving me moral support and motivation to work hard in life.

To my friends Musonda, Miyoba, Njekwa, Mwenya, Chibeka and the 'gang' for making my stay at UNZA memorable.

My heartfelt gratitude to Rodgers Mbao for being so helpful and patient in times when I could not get things right.

Thanks to Frightone Sichone for being there for each time I needed advice and guidance throughout my stay in the law school.

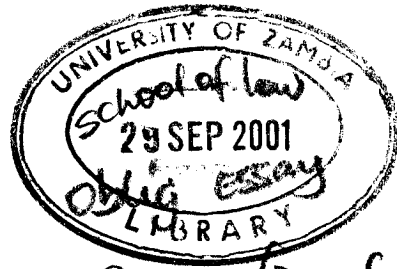
I'm greatly indebted to Mr. and Mrs. Gift Sikaundi for making my final years at school bearable.

To Christopher Sinyinza, Latos and Aaron Sichilombe for the all the material support without which I would not have been able to write this paper thank you.

To the Environmental Council of Zambia officers who were there to answer all my queries, thanks.

Last but not the least I would like to thank my supervisor, Mr. George Mpundu Kanja for his patience, advice and guidance.

## PREFACE



The Zambian environment like any other environment, faces major set-backs and hindrances when it comes to conservation. One such eminent threat being pollution, particularly air and water pollution in the mining and industrial areas.

It is an established scientific fact that when pollution in whatever degree goes unchecked results in a gradual degradation of the environment; consequence of which intolerable risks to human, plant and animal life results, needless to say, irreversible forms of degradation and waste.

The advent of industrialisation and other related human activities has resulted in pollution that has ultimately upset the ecological system. Zambia no doubt has not been spared, in the name of development, industries have sprung up such as the mining, fuel refineries like Indeni and other manufacturing industries.

Furthermore, inadequately controlled technology has compounded the depletion of the natural resources as well as the Ozone layer, whose total depletion may lead to the extinction of all forms of life on earth.

This has been a global concern of which Zambia should take heed and thus take it upon herself to put in place measures that will reduce the rate of the Ozone layer depletion.

Zambia has in place one principal legislation that seeks to regulate pollution, this being the Environment Protection and Pollution Control Cap 204 of the laws. Other legislation such as the Water Act, Mines and Minerals Act, Factories Act and various related Statutory Instruments will be referred to in the paper.

Zambia being a member of the international community, is a signatory to a number of international environmental agreements, such as the African Convention on the Conservation of Nature and Natural Resources

(1968), Ramsar Convention of Wetlands of International Importance Especially as Waterfowl Habitat (1971), Convention concerning the Protection of the World Cultural and National Heritage (1972), Convention on International Trade in Endangered Species of Wild Fauna and Flora (1973) and International Undertaking on Plant Genetic Resources.

Most of these have a bearing on the environmental conservation process.

In view of the foregoing therefore, the problem this research endeavours to address is Zambia's vigilance to the problem of pollution; whether or not the legislation in place has been effective and adequate vis-à-vis enforcement.

Lastly, a focus on the regulatory body created to control pollution and its inadequacies in enforcing legislation.

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## **INTRODUCTION**

Zambia is rich in its natural resource base, which supports a rich biodiversity. This biodiversity is however under a serious threat from various shocks, which include rapid population growth, deforestation and pollution, particularly air and water, in the mining and industrial areas. These are setbacks that the Zambian environment suffers.

An environment is the totality of external conditions with concrete or abstract items which affect the behavior of a system. It consists of surrounding within which living things find themselves and which affect their lives. It comprises both natural ecosystems and results of human interventions, such as infrastructure and institutions.

An environment is dynamic and is in a state of positive and negative change due to natural and human influences, but at any one time these are in equilibrium. Living things have to adapt to the new equilibrium. When they fail to do so their existence becomes threatened and endangered. They become extinct and their life form disappears from the environment.

The debate on conservation of biological diversity has gained momentum since the signing of the convention on Biological Diversity in Kenya in 1992, and was accelerated by the United Nations conference on Environment and Diversity (Rio Earth summit). Diversity is the basis of any country's natural resource base, its past, existing and future production and productivity potential.

In view of the foregoing, key stakeholders such as governments should make institutional arrangements to plan for sustainable utilisation and conservation of the environment. National strategies should also work within the framework of global conventions and local legislation/ legal instruments; as a strong legal

foundation or the conservation and equitable utilisation of the environment are essential for sustainable development.

In the light of the many environmental threats, Zambia has taken positive steps to manage its biological resources on a sustainable basis. Its is party to several international conventions and legal instruments as outlined below: -

- World Heritage Convention (1972)
- Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) (1973).
- Ramsar Convention on Wetland Management (1975)
- UN Framework Convention on Climate Change.
- Control of Emission of Green House Gases (GHG).
- Convention on Biological Diversity (CBD)
- Basel convention on Control of Trans-boundary Movements of Hazardous wastes and their Disposal.
- Vienna Convention for the Protection of the Ozone Layer
- Convention on Desertification<sup>i</sup>

In meeting the commitments required by the Convention on Biological Diversity and other global conventions, Zambia embarked on many programmes prominent of which are the following: -

- Preparation of the National Conservation Strategy in 1985.
- Enacting the Environment Protection and Pollution Control Act 1990.
- Establishment of the Ministry of Environment and Natural Resources (MENR) in 1991.
- Establishment of the Environmental Council Of Zambia (ECZ) in 1992.
- Preparation of the Environmental Support Programme (ESP) in 1996.
- Implementation of the Agricultural Sector Investment Plan (ASIP) in 1996.
- Enacting the Environmental Impact Assessment (EIA) Regulations in 1997.

- Preparation of the Zambia Forestry Action Plan (ZFAP)

In this paper however, we will endeavour to limit the scope of our study to the aspect of pollution, and the examination of the Zambian response towards pollution of the environment. The paper is divided into four parts.

Chapter one, therefore, deals with the definition and description of the problem of pollution focusing on air and water pollution. It discusses the various common pollutants and their effect on humans and the biosphere, and how they hinder prevention of environmental degradation. This discussion aims to facilitate a general understanding of the effects of pollution on any life form.

The second chapter endeavours to identify and analyse the Zambian legislation relating to the control and prevention of pollution. It further, discusses the adequacy and effectiveness of these laws in curbing pollution.

The third chapter attempts to evaluate and assess the institutions in place for pollution regulation and control, their strategies and measures in place to achieve this purpose.

An analysis of the enforcement mechanisms will be made in order to determine their effectiveness.

Lastly, chapter four endeavours to conclude the study. It attempts to make suggestions, recommendations, and a call for revision of legal framework will be made.

---

1 Sand H. Peter, *The Effectiveness of International Environmental Agreements ,A Survey Of Existing Legal Instruments* (1992) Grotius Publications Ltd. England

# Chapter 1

The pollution of the air we breathe, ironically enough, is an indirect result of our pursuit of an even higher standard of living. Air pollution derives from the burning of fuel for heat and power, from the processing of materials, and from the disposal of wastes.

Jacob Atkinson, 1966.

## 1.0 DEFINITION OF POLLUTION.

Pollution literally refers to any form of environmental impairment. There is however a difficulty in comprehensively defining pollution. A scientific consensus on the subject has been reflected in a United Nations document prepared for the conference on the Human Environment (Identification and Control of Pollutants of International significance) DOC. A/CONF.48/8<sup>1</sup>

A pollutant is deemed to refer to;

*'Human activities inevitably and increasingly introduce material and energy into the environment, when that material or energy endangers or is liable to endanger man's health, his well-being or his resources, directly or indirectly, it is called a pollutant.'*

The definition of pollutant suggests that pollution is the result of the contamination of the environment. And where desirable activities produce undesirable side effects, it follows that there is potential for pollution. Viewed from yet another perspective, a substance may be considered a pollutant simply because it is in the wrong place, at the wrong time, and in the wrong quantity.<sup>2</sup>

Another definition of pollutant is advanced to be;

*Pollutants are substances or energy introduced by man into the 'marine' environment which result in or are likely to result in harm to living resources and marine life, hazards to human health, hindrance to marine activities, impairment of quality, for use of water and reduction of amenities.*<sup>3</sup>

Bringing this closer to home, pollution is further defined in Section 2, of the

Environmental Protection and Pollution Control Act, Cap. 204 of the Laws as;

*'As the presence in the environment of one or more contaminants in such quantities and for such duration and under such conditions as may cause discomfort to or endanger the health, safety and welfare of persons, or which may cause injury or damage to plants or animal life or property, or which may interfere unreasonably with the normal enjoyment of life or use of property or conduct of business.'*

It must also be appreciated that air, water and food always contain varying amounts of 'foreign' matter or impurities, and in this sense, the potential for pollution has always been present.

## **1.1 IDENTIFICATION OF POLLUTANTS.**

As noted above, virtually any natural substance may be considered a pollutant if introduced into the wrong place, at the wrong time and in the wrong quantity. In the same manner, any human activity could result in pollution as a function of error. Industrialisation, mining activities and growth of technology has significantly increased pollution by man through the development and manufacture of synthetic material such as plastics, detergents and solvents, food additives and pesticides. Many serious pollution problems are attributable directly to the introduction of specific substances. The UN Secretariat in Document A/CONF.48/8 compiled numerous substances that contribute to pollution. Some of which are shown in the table 1.1 (a) below.

POLLUTANT	PRINCIPAL MAN-MADE SOURCE.	DISTRIBUTION IN THE ENVIRONMENT
CARBON DIOXIDE CO <sub>2</sub>	Carbonaceous fuel combustion for energy production, heating and transport.	WATER AND AIR
CARBON MONOXIDE CO	Incomplete combustion of carbonaceous matter (motor vehicles, industrial processes, solid waste disposal, forest fires).	AIR
SULPHUR DIOXIDE SO <sub>2</sub>	Energy and heat production from sulphur containing fuel. Industrial process.	AIR
OXIDES OF NITROGEN NO <sub>x</sub>	Oxidation of atmospheric nitrogen at high temperatures (internal combustion engines, furnaces, and incinerators) forest fires and industrial processes.	AIR
FLUORIDES	Industrial processes (production of aluminium, steel, phosphate, fertilizers, fluorinated hydrocarbons, Brick making), combustion of coal, industrial liquid wastes and agricultural run-offs.	AIR, WATER, SOIL AND FOOD.
ODOUROUS POLLUTANTS.	AIR Industrial processes. Fuel combustion. Processing of animal products. Improper disposal of liquid and solid wastes.	AIR
MERCURY Eg LEAD Pb	Chlor-alkali plants. Mercurial catalysts. Pulp and paper industry (slimicide) seeds treatment. Burning of fossil fuels. Mining and refining processes. Medical and research laboratories.	FOOD, FRESH WATER, SOIL AND AIR.
	Anti-knock ingredients of motor fuels. Lead	

CADMIUM Cd	smelting. Chemical industry. Pesticides. Burning of fossil fuels. Lead paints, glazes and enamels.	AIR, WATER AND FOOD.
SOLID WASTES	Mining and metallurgy (lead, copper and zinc smelters). Chemical industry (alkaline accumulators, alloys, paints and plastics)	AIR, SOIL AND WATER.
	Domestic, commercial, industrial and agricultural activities.	FRESH WATER AND LAND.

Figure 1.1(a): Substances that contribute to Pollution

## 1.2 TYPES OF POLLUTION.

There are numerous types of pollution. But for the purpose of our study, however, we shall limit the discussion to only two types namely; air and water pollution. The two suffice as they have a bearing on the general concept of pollution.

### 1.2.1 (a) Air Pollution.

Air is a naturally occurring resource, an endowment that man takes without devoting any thought to. It is a mixture of gases which surrounds the earth in a comparatively thin layer, called the atmosphere.

Thus air pollution is deemed to be

*the addition to the atmosphere of any material which will have a deleterious effect to life upon the earth. The material may range from a toxic gaseous hydrocarbon with long-lasting effect on an organism ingesting it or perhaps a particulate irritant that may cause similar problems.<sup>4</sup>*

These materials have the effect of reducing the oxygen content or significantly changing the composition of air. Prior to the advent of the industrialisation, the air quality could not significantly be altered, by the negligible amounts of smoke or wastes gases from natural processes owing to the vastness of the atmosphere. However the rapid advancement in the field of science and technology have inexorably altered this position.

Air pollution is thus defined in section 35 of Cap 204, The Environmental Protection and Pollution Control Act to mean : -

*'A condition of the ambient air arising wholly or partly from the presence of one or more pollutants in the air that endangers the health, safety, or welfare of persons or that interferes with the normal enjoyment of life or property or that endangers animal life or that causes damage to plant or property;'*

The major sources of air pollution in Zambia have been identified as industries, mining and quarrying activities, Industrial fuel burning and processing emissions, motor vehicles (transportation), construction and rampant burning.<sup>5</sup> The principal contributors to air pollution are the copper mines on the Copperbelt (former ZCCM), Ndola Lime company ltd. and Chilanga Cement Works in both Ndola and Lusaka. Others include tanneries and food processing industries.

The common air pollutants identified in the industrial and mining areas of Zambia, include: -

- Carbon dioxide CO<sub>2</sub>
- Carbon monoxide CO
- Sulphur dioxide SO<sub>2</sub>
- Oxides of Nitrogen NO<sub>x</sub>
- Particulate matter
- Dust
- Vibrations
- Noise
- Offensive odours
- Black smoke.

### **1.2.1(a) Sulphur dioxide Pollution.**

Sulphur dioxide SO<sub>2</sub> is a by-product of smelting processes of sulphur bearing copper ores by the Mines. When the molten copper is taken into the converter, air is blown through it and oxygen reacts with the copper sulphide giving out copper with sulphur dioxide and heat as by-products.

Mopani Copper mines (formerly Nkana division of ZCCM) in Kitwe and Roan Antelope Mining Corporation (RAMCOZ) (formerly Luanshya division) have Acid Plants that convert sulphur dioxide into sulphuric acid. Notwithstanding, only a fraction of the sulphur dioxide is converted into acid, the rest is released directly into the atmosphere.

The case is not the same at Mopani Mines (formerly Mufulira division); no sulphuric acid plant exists at the same to reclaim the sulphur dioxide. It is for this reason that large amounts of sulphur dioxide are discharged into the atmosphere. It must be appreciated at this juncture that the production of sulphur dioxide exceeds the amount required for acid production, which entails that the excess is discharged unabated into the surrounding atmosphere.

According to a study conducted by a Consultancy body, the sulphur dioxide level in the ambient air at Mufulira, Kitwe and Luanshya are rated as severe on a scale of A to C, where A is severe and means sulphur dioxide levels exceed international standards over 70 % of the time at certain locations.<sup>6</sup>

Mufulira division has however, been granted permit by the Environmental Council of Zambia (ECZ) to emit sulphur dioxide at a limited quantity under Statutory Instrument (S.I) No. 141 of 1998, the mines are allowed to emit up to maximum 600 tonnes of sulphur dioxide per day. Sulphur dioxide as noted earlier in table 1.2 (a) can be produced during the combustion of fossil fuels that also contain sulphur. Particularly by industries that utilise petroleum and coal to generate heat for their numerous processes, do contribute to sulphur dioxide pollution.

### **1.21(b) Carbon monoxide, Carbon dioxide and Oxides of Nitrogen.**

Other common industrial gaseous pollutants in Zambia include oxides of nitrogen that are chiefly produced during the combustion of fossil fuels that contain nitrogen, during the production of nitric acid, ammonia gas and ammonium nitrates. The main contributors to this type of pollution was Nitrogen Chemicals of Zambia (NCZ), a chief producer of fertilizers. In the past, NCZ in Kafue was discharging about 21,000 tonnes of nitrogen dioxide into the atmosphere per year.<sup>7</sup> Lastly, incomplete combustion of fossil fuels does contribute to carbon monoxide and carbon dioxide pollution.

### **1.2.2 Water Pollution.**

Water is a basic requirement for life. It is also true that there is no less water on earth than there has been in the past. However, the question of its distribution and quality has become of paramount importance. Municipalities, industry, agriculture and the householder have all increased their consumption of water.

In the like manner the same Act, Cap 204 defines water pollution in section 22 as,

*'The introduction, directly or indirectly of pollutants into the aquatic environment.'*

Pollution of water systems is further defined as the *specific impairment of water quality by agricultural, domestic or industrial waste (including thermal and atomic wastes) to a degree that has an adverse effect upon any beneficial use of water, yet that does not necessarily create an actual hazard to the public health.*<sup>8</sup>

## **Background.**

A body of water, like an air mass, is a dynamic system absorbing a range of solids, liquids and gases both natural and man-made. Thereby being prone to pollution. Natural wastes moreover, normally teem with living organisms, which can powerfully influence the course of events in a given water system. All these substances living and non-living may flow, disperse and interact chemically and physically before they reach a receptor such as a fish. Water as H<sub>2</sub>O, is a chemical compound of unvarying composition and in this sense natural waters are never pure. Water is considered polluted if it is not suitable for its intended use, be it domestic, industrial or agricultural water supply; propagation of fish and wildlife; recreation and others.<sup>9</sup>

Before the population expanded, water systems could carry waste materials away from their source of production. There was sufficient dilution to utilise river systems for disposal of domestic and industrial wastes. But owing to the rapid population expansion and urbanization, people utilise and waste more products and pollution from agriculture, industrial and domestic sources equally increases.

Industrial, mining and manufacturing wastes are a major source that contribute a major share to water pollution in Zambia. The entire amount of water which passes through the industrial processes is returned to the streams frequently at a higher temperature which result from the use of water for cooling purposes, by steam electrical power plant and industries, which have harmful effect on fish and aquatic life.

Rivers carry as a result substantial amounts of metal salts, hard detergents and oil from several industrial sources. Such kind of pollution from industrial site drainage may not only occur in surface waters, but in ground water through percolation.

The mining activities that may cause water pollution include run-off water from mining dumps, seepage from tailing dams and discharge of untreated wastewater. The raw untreated wastewater from tailing dams enter natural watercourses, as a result of design faults and maintenance failures.<sup>10</sup> Heavy rainfall during the wet season may also causes tailings dams to overflow and thereby polluting natural water courses with heavy metals, which even in small amounts, can be harmful to human health and aquatic life. Valuable metals which are mined contain sulphide which when oxidized and exposed to water, produces acidic effluents. The consequences for the aquatic environment can be disastrous.

In perspective, contamination or pollution of ground or surface waters either from mining activities or other industrial effluents may result in the loss of beneficial uses such as drinking water supply, fisheries, irrigation wildlife resource including recreation.

### **1.3 GENERAL EFFECTS OF POLLUTION.**

By and large, uncontrolled pollution can entail substantial costs to human health, physical property and agricultural production. It is imperative at this juncture to recognise the different ways in which pollution affects man in general, directly or indirectly.

#### **1.3.1 Direct effects include: -**

- Acute effects from exposure to a toxic pollutant reaching man through air, water and food.
- Long-term effect due to prolonged exposure to a pollutant at levels lower than those giving rise to overt toxic effects.

- Acute or long-term effects due to synergistic interaction between pollutant and such factors as malnutrition and disease.
- Genetic effects that a pollutant may induce in the germ cell of an exposed individual but that manifest themselves in his descendants sometimes several generations removed.

### **1.3.2 Indirect Effects.**

May result from reduction of the food supply, deterioration of the habitat or alteration of the climate. These include: -

- Actual reduction of the food supply when a pollutant kills food plant or animals, renders them liable to disease, or makes the production unfit for consumption.
- Elimination by a pesticide or herbicide of the natural enemies of a hitherto harmless species, allowing it to proliferate and become a pest;
- Damage to human habitat resulting from air pollution that destroys vegetation or corrodes buildings; from oil that fouls rivers or industrial wastes that make inland waters unusable for recreation.
- Alteration of the global climate from a number of causes.<sup>11</sup>

### **1.3.3 Effects of Air Pollution.**

Air pollution can have acute, chronic adverse effects on human health. Thus, this section endeavours to discuss health and other effects of the major gaseous air pollutants found in industrial and mining towns of Zambia.

### **1.3.3(a) Sulphur dioxide SO<sub>2</sub>**

Irritant pollutants like sulphur dioxide have detrimental effects on human health. It causes acute discomforts such as eye, throat and nose irritation. It is easily soluble in nasal passages so that most of the time its irritant effects are restricted to the upper respiratory tracts and the eyes. It dissolves in the mucous lining of the air tracts.

Exposure to sulphur dioxide for a period of time makes it to penetrate into the bronchioles and alveoli in the lungs. If the exposure continues year after year and in large concentrations other major chronic diseases may develop such as Asthma, Bronchitis and Emphysema.

The same has been the case for residents around the smelters, like Roan mine township in Luanshya, Kankoyo and Butondo mine townships in Mufulira, Nkana west, Wusakili and Ndeke townships in Kitwe, who are exposed to the choking, pungent smell of sulphur dioxide emissions. These are prone to the diseases highlighted above. Like humans, vegetation is susceptible to sulphur dioxide. Crops such as barley, cotton, cabbage, potatoes and corn if exposed to sulphur dioxide die. Sulphur dioxide limits the distribution of Lichen vegetation and in some cases lichen have been used as indicators of sulphur dioxide pollution.<sup>12</sup> Lichens are lowly plants, which normally grow, attached to such solid objects as trees, rocks, walls and roofs. They do not flourish where the atmosphere carries some type of smoke pollution.

Testimony to sulphur dioxide pollution, was the result of a study conducted on the effects of air pollution in Mufulira. It was concluded that 'the results indicate that lack of substrate or trees and sulphur dioxide pollution from the copper smelter affected the distribution of lichens in Mufulira. The area adjacent to the smelter does not actually have any kind of lichen growth form; it is called 'Lichen desert'.<sup>13</sup>

It was deduced that there is sulphur dioxide pollution from the copper smelter, which has affected the lichen distribution in Mufulira. Furthermore, rain water combines with sulphur dioxide to form sulphuric acid. The resultant '*acid rain*' has the effects of increasing the acidity of the soils thereby affecting agricultural productivity of the soils.

For Mufulira, Luanshya and Kitwe, the acidity is as a result of the acid rain and industrial dust. Sulphur dioxide has damaging effects on the soil characteristics that affects the entire productivity, especially if it kills vegetation. The consequence is that soils have become leached, acidic and of low productivity because of the additional sulphates by the named agents.

Metallic surfaces exposed to acid rains are susceptible to corrosion damage. On contact with acid rain water, textile, fabric, paints, and leather lose their material strength and get discoloured. Buildings materials (limestone, marble) for instance are weakened on reaction with acidic water.

### **1.3.3(b) Carbon monoxide, CO**

Carbon monoxide is one of the most dangerous pollutants. Carbon monoxide poisoning can cause headache, dizziness, nausea, vomiting, and difficulty in breathing and unconsciousness.<sup>14</sup> Exposure to carbon monoxide from automobile exhaust pipes or other sources of incomplete combustion of fossil or other fuels like coal and charcoal can cause brain damage within minutes. The symptoms are produced by the fact that haemoglobin combines more readily with carbon monoxide than oxygen. Carbon monoxide thus, prevents haemoglobin from transporting oxygen from the lungs to the tissues.

### **1.3.4 Effects of Water Pollution.**

Like air, if oxygen is so reduced in the water so as to render the water unsuitable for aquatic life, then the water is polluted. An effect of polluting inland waters with agricultural fertilizers and sewage effluent can cause '*eutrophication*'<sup>15</sup> which refers to a condition where there is an abundant supply of nutrients and a high rate of formation of organic matter by photosynthesis. This stimulates excessive nuisance growth of aquatic plant life such as 'Algae' and water Weeds.

For instance the Kafue water weeds in some parts of the Kafue and Kafubu rivers have flourished owing to the abundance of plant nutrients that supports it's growth. The death and subsequent bacterial decomposition of these depletes the oxygen content of the river resulting in the death of the fish and other animals.

In Zambia, mines and the industries are a very potent source of non-biodegradable pollutants like heavy metals, chlorinated hydrocarbons used as pesticides. Metals, acid, oil and thermal pollutants that occur in the effluent eventually accumulate in the natural water bodies. The effect is that they interfere with natural stream purification, destroys fish and aquatic life, causes excessive hardness of water supplies, produces corrosive effects, and in general, add to the cost of water treatment.

Furthermore, synthetic-organic chemicals such as detergents and pesticides resulting from chemical technology are toxic to aquatic life and potentially to humans. The result is '*fish kills*' a phenomenon where fishes and other living organisms are destroyed in large numbers as they are poisoned by chemicals or hot water that industries use for cooling purposes in numerous processes. It goes without saying that such contaminated water is unsuitable for human consumption.

Figure 1.2 below illustrates some of the effect of water pollution highlighted above.

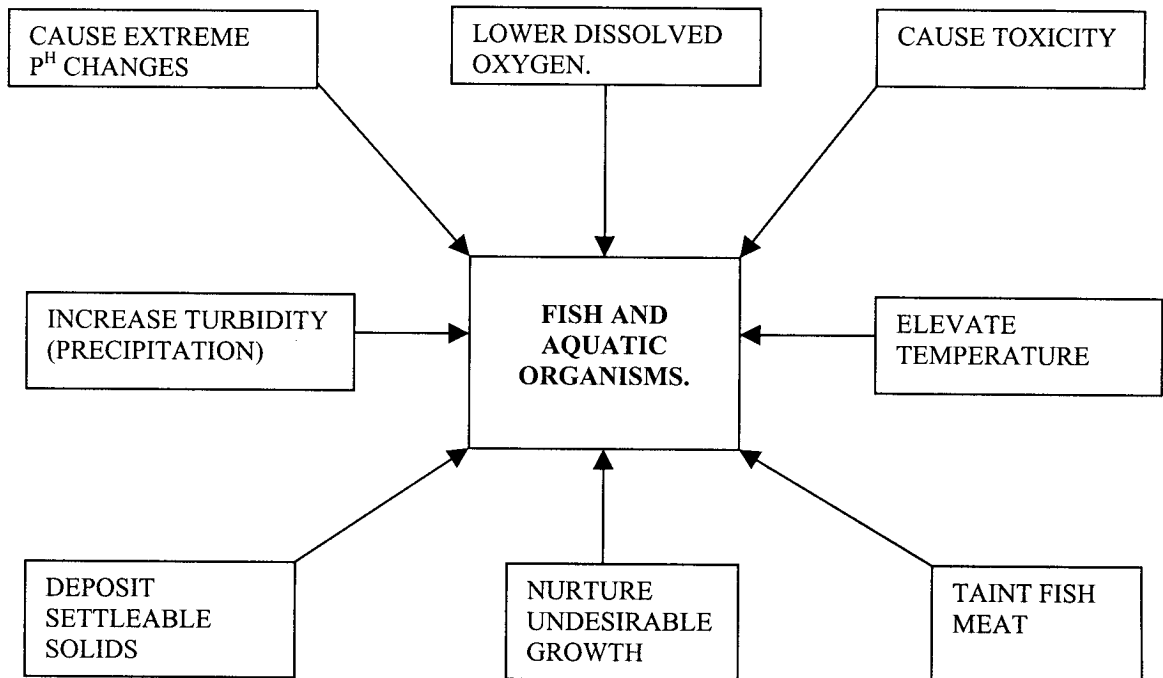


Figure 1.2: Some effects of water pollution.

#### 1.4 HITCHES TO POLLUTION PREVENTION.

The greatest hitch has been the fact that, sometimes there is simply no way to control a particular pollutant except by diminishing the volume or intensity of some human activity. For instance it is not practicable to burn fossil fuels without producing an increase in atmospheric carbon dioxide, that ultimately causes global warming. In order to control carbon dioxide, the answer lies in reduction of combustion. The question still remains to be answered, can this be attained practicably? The same question is posed where control of sulphur dioxide pollution on the Copperbelt is concerned.

Copper extraction is the heart of Zambia's economy; reduction of sulphur dioxide emission entails cutting down on production. This cannot be done, as it would have an adverse effect on the economy of the country as a whole.

Maximum production continues and so does sulphur dioxide pollution. Mfulira is a typical example of unabated pollution of sulphur dioxide. Pollution is sometimes defined as *'resources out of place'*<sup>16</sup> Most of what passes for pollution control does not recover resources in a useful form; it merely displaces them further.

Air pollutants are often converted into water pollutant (acid rain) or solid waste. For instance even if up to 90% of the sulphur dioxide in the stack gases may be removed, the resulting sludge could eventually become a serious source of water and ground pollution. Microbial action on the sludge might even convert the sulphur into hydrogen sulphide, thus making it again a source of air pollution.

Lastly, mercury is mined, transported, processed, used and discarded, but as much mercury exists at the end of the process as at the beginning. The metal is simply in a different place or perhaps in a different condition than it was before- *'resources out of place'*. Owing to this displacement, environmental degradation is not inhibited but accelerated.

### End Notes

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- 13 Ibid .p.17
- 14 Wilfrid Bach, *Atmospheric Pollution* (1972) Mc.Graw-Hill Book Co. Hawaii. P.56
- 15 **Oxford Concise Science Dictionary** Second Edition (1991) Oxford University Press, Suffolk.
- 16 Dennis Hayes, *Pollution: The Neglected Dimensions* (1979) World Watch Paper 27.

# Chapter 2

Progress is achieved by being aware of the mechanisms and processes by which pollution harms us so that we steadily eliminate the worst sources and apply even more stringent standards to the new sources.

R.S. Scorer.

The law that deals with environmental protection is spread through out the statute book either as specific pieces of legislation or targeted provisions incorporated in more general statutes.

This widely spread nature of environmental related laws is recipe for conflict and inconsistency it so easily breeds gaps in the law whose consequences would entail neglect for certain pertinent environmental concerns. This review is a theoretical analysis of existing environmental laws, it attempts to take inventory of the substantive provisions of the respective laws and check them against contemporary policy inclinations.

Whether or not a law is dubbed inadequate, inconsistent or conflicting will largely depend on its reflection of the policy objectives it is intended to achieve. This attempt of analyzing environmental laws is not exhaustive and should not be understood to be an alternative but a compliment or supplement to the already existing wealth of literature on the subject.

Having established that both air and water pollution endanger the lives of human beings, animals and plants, two pertinent questions are thus posed.

### **2.2.1 WHEN IS AIR POLLUTION A CRIME?**

When any person, industry or undertaking emits pollutants above the authorized limit in accordance the Environmental Protection and Pollution Control Act Cap. 204, hereinafter referred to as the EPPCA.

Too, when any person, industry or undertaking emits pollutants in the ambient air without a licence or permit from the Environmental Council of Zambia. Ambient air being defined as

*'atmosphere surrounding the earth, but does not include the atmosphere within a structure or within any underground space.'*<sup>1</sup>

Perpetrators of air pollution are usually individuals through activities such as charcoal burning and domestic waste, production industries that include smelters, roasters, incinerators, boilers, vehicles and cement works. Others

include motorists, mining operators, property developers and users of products containing chlorofluorocarbons. The main causes are lack of appropriate technology such as no equipment to monitor emissions, economic gain, ignorance of the effects of the activities, greed, poor monitoring by enforcement institutions.

On the other hand, water pollution has been established as the introduction of a pollutant such as waste, or poison directly or indirectly into the aquatic environment, that changes the quality of the water and renders it harmful to aquatic life, human, animal and plant health. The greatest concern is that it has negative repercussions on aquatic life, human, plant and animal health as stated above. It does also lead to higher tariffs to users due to the cost of purification by water utilities and other service providers.

## **2.2.2 WHEN DOES WATER POLLUTION BECOME A CRIME?**

Like air pollution, water pollution becomes a crime when it endangers aquatic life, human, plant and animal health. When too, any substance or matter that is released into the aquatic environment exceeds the legally permitted levels stipulated under the EPPCA. The causes of such crimes may be attributed to in most cases due to poor facilities for disposal of substances.

It is owing to the foregoing that the Zambian government like in any other worldwide has “recognized the need to protect, preserve and improve its environment to enhance good management and use of human and natural resources for sustainable development.”

## **BACKGROUND**

Attempts to protect the environment started as far back as 1980 when the International Union for Conservation of Nature and National Resources (hereinafter referred to as IUCN) was commissioned to prepare a World Conservation Strategy in response to escalating global environmental problems

and the growing shortages of natural resources for supplying the world's population.

The former president of Zambia, Dr. Kenneth D. Kaunda took up the important initiative within IUCN to prepare such a strategy at a national level for Zambia. As a result the National Conservation Strategy was prepared and adopted in 1985 through the Ministry of Lands and Natural Resources.

The scope of activities under the National Conservation Strategy included proposing policies, plans, organization and action for the better management of Zambia's vast but fragile natural resources. The achievements of the National Conservation Strategy saw to the enactment of the EPPCA, concerning pollution; and the establishment of the Environmental Council of Zambia.

Prior to the enactment of the EPPCA of 1990, Zambia had a lacuna in the law, as there was no specific Act that directly dealt with the control of pollution in general, and air pollution in particular. Water pollution was by and large covered by the Water Act mainly. Notwithstanding this lacuna, it was argued that pollution control provisions were scattered in a number of Acts, which are considered below:

## **2.3 LEGAL FRAMEWORK OF POLLUTION CONTROL**

### **2.3.1 THE CONSTITUTION, CAP 1:**

The validity of any statute is dependent upon its consistency with the supreme law of the land as affirmed in the Constitution.

“This Constitution is the Supreme law of Zambia and if any other law is inconsistent with this Constitution that other shall, to the extent of the inconsistency, be void.”<sup>2</sup>

Thus, any analysis of a statute has to stem from reference to the Constitution. Relevant for our purpose is Part IX of the Constitution that deals with the citizen. Article 112 enjoins the State to: -

(d) the state shall endeavour to provide clean and safe water....

(h) the State shall strive to provide a clean and healthy environment for all

(i) the State shall promote sustenance, development and public awareness of the need to manage the land, air and water resources in a balanced and suitable manner for the present and future generation.

The directive principles are however not justiciable and are not legally enforceable in any court, tribunal or administrative institution. They are principles to guide the executive, legislature and the judiciary in the development of national policies, implementation of these policies, enactment of laws and the application of the Constitution or any other law.

### **2.3.2 THE NATURAL RESOURCES CONSERVATION ACT, CAP. 315.**

Enacted in 1970 and replaced the Natural Resources Act of 1962; its main objective is the conservation of natural resources, which it defines as including the soils of Zambia, waters, plant life and vegetation, animal life and fauna, and such other things which the minister may by statutory notice declare to be natural resources.<sup>3</sup>

The Act established the Natural Resources Advisory Board<sup>4</sup> whose objectives were inter alia , to exercise general supervision over natural resources and the means of their conservation, use and improvement, to carry out such investigations and inquiries into natural resources.

Part IV of the Act contained provisions for the conservation and improvement of natural resources, and it empowered the minister on the advice of the Board to make orders for the conservation of the natural resources to occupiers of land requiring them to undertake measures in accordance with the appropriate conservation plan.

Chiefly, the Act empowered the minister to cause measures to be undertaken to prevent or mitigate soil erosion, the disposal and control of water including storm water and drainage water; source...; the prevention of pollution of public water...

More on the water sector, the major pieces of legislation prescribing or affecting the development and management of the water sector are the Water Act Cap 198, EPPCA Cap 204, Local Government Act Cap 281, Public Health Act Cap 295, Mines and Minerals Act Cap 213.

### **2.3.3 THE WATER ACT, CAP 198.**

Was enacted in 1949, and its objectives have been to provide for ownership, control and use of water excluding water of the Zambezi, Luapula and a portion of Luangwa rivers, constituting a boundary between Zambia and Mozambique.<sup>5</sup> The act creates an offence to pollute water or render it harmful to man, animal and vegetation. It provides that

*'any person who wilfully or through negligence pollutes or fouls any public water so as to render it harmful to man, beast, fish or vegetation shall be guilty of an offence.'*<sup>6</sup>

Section 56 (1) requires that the water officer if satisfied that water is being polluted, can direct the person responsible to take adequate measures to prevent further pollution. It states as follows : -

*'should the water officer be satisfied that public water is being fouled or polluted, he shall in the prescribed form, call upon the person responsible therefore to take adequate measures to prevent such fouling or pollution within a specified period'*

On the failure to prevent pollution subsection (2) provides as follows: -

*'any person who when, called upon to take steps in accordance with subsection (1), fails within the specified period to take such adequate steps to prevent the fouling or pollution of public water, shall, in addition to any penalties to which he may be liable under the preceding section, be liable on conviction to penalty units a day until the matter is rectified.'*

The above notwithstanding, the Water Act has not been adequate and effective in curbing pollution. The major weakness of the Act is that it inadequately provides for measures to address floods, soil erosion, situation of dams and watercourses, sanitation and water pollution. It does not provide for the control and use of water that is part of the international boundaries.

Secondly, water pollution standards are not elaborated under the Act and the monitoring system is almost non-existent.

The Act appears not to recognize water rights appropriated under customary arrangements.

Lastly, there has not been a comprehensive incorporation of international instruments to reflect current trends in water resource management for instance.

In the light of the foregoing, therefore, there is need to amend the Water Act so as to incorporate provisions that will: -

- (a) clearly define private and public waters adequately so that the ground water uses can be controlled.
- (b) Establish elaborate standards on water pollution with reference to the EPPCA.

#### **2.3.4 THE MINES AND MINERALS ACT, CAP. 213 1995.**

The Act by and large regulates the law relating to mines and minerals to provide for the granting of; renewal and termination of mining rights. The Act empowers the minister of mines and mineral development to make regulations for the better carrying into effect of the Act.<sup>7</sup> Such include inter alia the avoidance of wasteful mining practices or wasteful metallurgical practices, the regulation of all matter relating to sanitation and health.

On wasteful practices, section 81(1) provides that

**Wasteful Practices:**

*'where the director of mine safety considers that the holder of a mining right is using wasteful mining practices, he may give notice to the holder accordingly, and require the holder to reply in writing showing cause, within a time limited by the notice, why he should not cease to use those practices.'*

Additionally, statutory instrument No. 99 of 1972, relating to Dumping Operations, requires that measures ought to be taken during dumping operations for the purpose ensuring the security of the dump and its surroundings and the avoidance of pollution and prevention of nuisance.

Part IX governs environmental protection provisions. This is in relation to prospecting, mining and at the abandonment of a mining or prospecting area. Authorized officers have powers to ascertain whether any nuisance exists in any mine area. They can also take soil samples or specimens of rocks, ore concentrates, tailings, mine premises or workings for the purpose of examination.

It provides for submission of environmental plans giving details and prevention of pollution, treatment of wastes, protection of land and water resources and minimizing adverse effects in the environment.

There is a requirement to conduct environmental impact assessment on proposed mining operations.<sup>8</sup>

*'in deciding whether or not to grant any mining right, the minister shall take into account the need to conserve and protect*

*(a) the air, water and soil, flora, fauna, fish, fisheries and scenic attractions*

*(b) the features of cultural, architectural, archaeological, historical or geological interests;*

*in or on the land over which the right is sought, the minister may cause such environmental impact studies and other studies to be carried out as the minister considers necessary to enable such a decision to be made.*

There is yet another requirement for re-forestation or rehabilitation of land affected by mining operations.

*Section 76 (1) the conditions subject to which the right is granted or renewed shall*

*Include such conditions as may be prescribed by the minister may, in a particular case, otherwise determine, in relation to*

*(a) the conservation and protection of the air, water and soil, flora, fauna, fish, fisheries and scenic attractions.*

*(b) The rehabilitation, leveling , re-grassing, re-forestation or contouring of such part of land over which the right has effect as may have been damaged or adversely affected by prospecting operations;*

There is a requirement for compliance with national environmental standards and regulations under the EPPCA. Section 76 (2) (a) provides as follows: -

*'any conditions of the kind referred to subsection (1)*

*(a) shall conform to specifications and practices established by national standards for the management of the environment as it is affected by mining operations.*

The inadequacy of this Act lies on the issue of water and air pollution arising from surface and underground mining that have not been addressed.

### **2.3.5 THE PUBLIC HEALTH ACT, CAP. 295.**

The Act was enacted in 1930, and has been amended from time to time. Its main objective has been to provide for the prevention and suppression of diseases, and generally to regulate all matters connected with the public health in Zambia.

The Act provides for environmental sustenance from a public health point of view. It thus prohibits inter alia any person from causing a nuisance or condition liable to be injurious or dangerous to health.

The Act vests the minister with powers to promulgate the regulations such as the;

**2.3.5(a) Public Health (Drainage and Latrine) Regulations** that cater for the drainage and sewerage provisions, constructions of drains, waste pipes and wastewater fittings, septic tanks and sewage filters installation.

Under section 78, the Act enjoins local authorities to take all necessary measures to maintain clean and sanitary conditions and prevent or remedy danger to health arising from unsuitable dwellings.

To take measures 'preventing any pollution dangerous to health of any supply of water which the public within its district has a right to use and does use for domestic purposes....' Councils are empowered to order removal of nuisance which it defines as any noxious matter, waste, water and accumulation of refuse.

### **2.3.6 THE LOCAL GOVERNMENT ACT, No 22 1991**

The Local Government Act came into force in September 1991, and provides for the establishment of councils in district, the function of local Government administration system. Its main objective includes 'inter alia' to take and require the taking care of measures for the:

- (a)
  - (i) *Conservation of natural resources.*
  - (ii) *Prevention of soil erosion, including the prohibition and control of cultivation.*
- (b) *To establish and maintain sanitary services for the removal and destruction of or otherwise dealing with, all kinds of refuse and effluent and to compel the use of such services.*
- (c) *To take and require the taking of measures for conservation and the prevention of pollution of supplies of water.*

The Minister is empowered under the Act to promulgate regulations, a power that was invoked to make regulations relating to trade effluent in 1985.

**2.3.6(a) The Local Administration (Trade Effluent) Regulations No 161, Statutory Instrument of 1985.** Whose objective was to control the discharge of trade effluent in any watercourse or any land in the area of a local authority.

Regulations: -

- (a) *Prohibit the discharge of trade effluent into any watercourse or on any land in the area without the written permission of the council.*
- (b) *Provides for the council to approve the point at or through which trade effluent is to be discharged.*
- (c) *Provides for the condition and standards of the chemical and physical parameters for the trade effluent to be discharged into a public sewer and into a public watercourse or on any land in the area.*
- (d) *Provide for regulation of discharge of effluent in terms of:*
  - i. *Hours during which trade effluent may be discharged into the sewer;*
  - ii. *The maximum hourly rate at which trade effluent may be discharged into the sewer; and*
  - iii. *The total volume of trade effluent which may be discharged into a sewer during an operating day.*
- (e) *Prescribes the methods and frequency of sampling and analysis and empowers an officer of a council to take samples of the trade effluent at any trade premises from which trade effluent is being discharged.*
- (f) *Provide for the occupier of trade premises to install measuring devices and maintain inspection chambers for the discharge of effluent.*

Trade effluent being, any water or any other liquid which has been used for medical, trade or industrial purposes and as a result of such use has been polluted within or beyond the legally enforceable limiting values with respect to physical, chemical and microbiological characteristics and so requires treatment before discharge into the environment.

### **2.3.7 THE IONIZING RADIATION ACT, CAP. 311**

The Act was enacted in 1975 and specifically deals with the issues relating to the protection of the public and worker from dangers arising from the use of devices or materials capable of producing ionizing radiation.

The prescribed radiation levels conform to those established by the International Commission on Radiological Protection.

Licences are issued by the Radiation Protection Board to persons who intend to use radioactive material or other sources of dangerous ionizing radiations. Conditions attached to such licences include the imposition of measures for the conduct of the proposed operation process or facility and for the safe disposal of all radioactive wastes and materials resulting from the proposed operation, process or facility.

To protect the environment and avoid pollution, a duty is placed on the licensee to minimize exposure in the operation, transportation or disposal of ionizing radiation.

The Act is under the portfolio of the Ministry of Health. It establishes the Radiation Protection Board, the Radioscope Advisory Committee and the Radiation Protection Services, who implement the Act; provisions.

A radiation safety officer is appointed for each ionizing radiation facility to monitor the safe use, handling, transportation and storage of radioactive materials, and to further ensure that all workers are monitored regularly to determine their close limits.

The weakness of this Act lies in the fact that there is no provision in the Act for public participation or objection to the issuing of licences relating to ionizing radiation operations, even though exposure to ionizing radiation may cause harmful effects to the public and employees working with such facilities and wastes.

### **2.3.8 THE FACTORIES ACT, CAP 441.**

The Act was enacted in 1967 and provides the legal framework for the regulation of the conditions of employment in the factories regarding the safety, health and welfare of persons employed in factories.

A factory is defined in Section 2(1) to mean

*Subject to the provisions of this section, the expression 'factory' means any premises in which or within the close or curtilage or precincts of which, persons are employed in manual labour in any process for or incidental to any of the following purposes namely :-*

- (a) the making or assembling of any article or of part of any article;*
- (b) the altering, repairing, ornamenting finishing, cleaning or washing or the breaking up or demolition of any article;*
- (c) the adapting for sale of any article.*

The Act has general health provisions, cleanliness of the factory, general ventilation, lighting and sanitary conveniences, It provides further for safety, that is, safe means of access and generally ensuring a safe place of employment and the prevention of accidents in places where dangerous fumes, inflammable dust, gas or substances are present.

The major limitation is that the Act does not make any influence to the control of ozone depleting substances.

### **2.3.9 THE FISHERIES ACT, CAP. 200.**

The Act was passed in 1974. It provides for the development of Commercial fishing, the control of fishing and the registration of fishermen and their boats. Of concern is Section 3(1) which prohibits particular fishing methods; it states

*'No person shall, without the written permission of the Director which maybe given to any person, class or group of persons, for the purpose of fishing, make, grow poison, poisonous plants, or like injurious substances or make, use or have in his possession any explosive or any electrical fishing device.'*

### **2.3.10 THE PETROLEUM (EXPLORATION AND PRODUCTION) ACT, CAP. 439**

The Act was passed in 1968, and it provides for the establishment of petroleum committees, which are responsible for the formulation of policies relating to petroleum and its development in Zambia. The Act deals with contractual matters relating to persons wishing to explore and produce petroleum. They are contractual obligations that oblige the contractor to adopt the necessary measures for the protection of flora, fauna and other natural resources and for avoiding the pollution or contamination of water, air or land.

Section 32 (1) provides thus

*'in the conduct of petroleum operations, each contractor, in accordance with generally accepted practices in the international petroleum industry shall-*

- (d) generally adopt the necessary measures for the protection of flora, fauna and other natural resources;*
- (e) avoid the pollution or contamination of water, atmosphere or land;*

The major weakness of the Act, hinges on its lack of any provision on the environmental impact of petroleum exploration or production activities.

### **2.3.11 THE ENERGY REGULATIONS ACT, CAP. 436**

The Act was enacted in 1995. It provides for the licencing of undertakings for the production of energy or handling of certain fuels. Under the Act, fuel is defined as petroleum and its products, coal and its derivatives, firewood, charcoal and other wood derivatives, uranium or other nuclear fuels.<sup>9</sup>

Part III establishes the Energy Regulations Board<sup>10</sup> whose functions include the formulation of measures to minimize the negative environmental impacts of production and supply of energy, transportation, storage and use of fuels.

Any person may apply to the Board for a licence to establish and operate any commercial undertaking whether public or private for the production, generation or supply of energy, manufacture, storage or supply of fuel.

Section 9(1)

*'any person may apply to the Board for a licence to establish and operate an undertaking.'*

The Board may invite any member of the public who objects to the granting of the licence to lodge an objection, on environmental or other grounds within a prescribed period.<sup>11</sup>

Production of all forms of energy has environmental effects such as deforestation caused by cutting trees, pollution from fossil fuels, as illustrated in the preceding chapter.

### **2.3.12 THE INVESTMENT ACT, 1993.**

The Act repealed the 1991 Investment Act. It provides that investors may carry on the business of manufacturing, mining and processing of gemstones, agriculture, transport, communications and services of know-how.

The Act does not in express terms provide for pollution control. notwithstanding, under section 8, it tries to regulate activities relating to specified industries.

The investment board shall not issue such licences, authorization or permits from the relevant ministry bodies. The specified industries are: -

1. any industry manufacturing arms and ammunition, explosives, military vehicles and equipment.
2. any industry manufacturing poisons, narcotics, dangerous drugs and toxic, hazardous and carcinogenic materials.
3. any industry producing currency coins and security documents.

These activities like most industrial activities can cause extensive air and water pollution.

The Act's areas of weakness, stem from its silence on the impact of investment in Zambia on the environment. Firstly, the Act has been drafted in such a way that it offers incentives to the investors, and in the process it has not placed stringent environmental standards on other industries such as tanneries, mining, agriculture and other manufacturing and processing industries, which are the commonest.

By this provision it follows that the industries not included are exempt from prosecution on environmental matters. The incentives provided should be such that investors have obligations to protect the environment whether they engage in manufacturing, tourism or agriculture. The Act lacks provisions relating to environmental impact studies, to be carried out, as to the possible effects of the business undertaking on the environment, before the board issues an investment certificate. Incidental to this should be that measures of control have to be outlined, in the event that any harmful effects on the environment are identified. Lastly, measures to be taken for the prevention of any harm to the environment.

The Act does not provide or state specific conditions applicable to industries. It does not state, depending on the nature of the industry, the maximum limits of production or quantity ratios and other conditions that provide for the general protection and safety of the public. It does not refer to the powers vested in the inspectorate established under the EPPCA, and as such the investors are indifferent on the importance of maintaining a pollution free environment, and the protection of the community.

Generally, the Act is silent on the need for environmental protection, as it does not have a provision that deals with business that are potentially harmful to the environment that is manufacturing, agriculture and tourism. Especially manufacturing industries that produce heavy metals and other chlorofluorocarbons and toxic chemicals, non-biodegradable products like plastic, rubber and metallic products.

### **2.3.13 THE ENVIRONMENTAL PROTECTION AND POLLUTION CONTROL ACT, NO. 22 1990, CAP. 204.**

The EPPCA was enacted in 1990 as consequence of the adoption of the National Conservation Strategy which recognized that the powers and enforcement in the existing legislation were weak and that there were inadequate provisions relating to the power to make regulations for the control and monitoring of pollution in the environment.<sup>12</sup>

Thus, this enactment saw to the elimination of the lacuna that existed in the laws, concerning pollution control. Its main objectives include protection of the environment through provisions on natural resources management as well as for pollution control under the powers of the Environmental Council of Zambia. The Act has since been the umbrella Act that covers pollution control in Zambia. And in relation to pollution, the act prohibits under section 24 water pollution as follows: -

*'no person may discharge or apply any poisonous, toxic, erotoxic, obnoxious or obstructing matter, radiation or other pollutant or permit any person to dump or discharge such matter or pollutant into the*

*aquatic environment in contravention of water pollution control standards established by the Council under this part.'*

Similarly, in section 39, the Act prohibits air pollution, when it states that

*'no person may emit any pollutants which cause air pollution in contravention of emission standards established or prescribed by the Council under this part.'*

The Act further prohibits disposal of waste so as to cause pollution in the environment.<sup>13</sup> The other prohibitions specified under the Act include land contamination, importation of radioactive material.

The Environmental Council of Zambia is established under part II, in section 3. Section 6 in turn outlines the functions of the council and empowers it to do all such things as necessary to protect the environment and pollution control, so as to provide for the health and welfare of persons, animals, plants and the environment. It has separate parts dealing with the different areas of the environment and pollution control, namely: - air, water, wastes, pesticides and toxic substances; the ECZ in all these aspects has a major role to play in relation to its pollution control mandate.

## **1. WATER.**

Firstly, in Part IV under section 23, the Act obliges the ECZ to establish water quality and pollution control standards; determine conditions for the discharge of effluents into the aquatic environment; order or carry out investigations of actual or suspected water pollution.

## **2. AIR**

Section 36, obliges the Council to establish ambient air quality and emission standards and guidelines for monitoring air pollutants; order and carry out

investigations of actual or suspected air pollution; order any industry or other source of air pollution to file such returns and provide such information as the Council may require.

### **3. WASTES.**

This is covered under section 49, where the Council is mandated to formulate and provide standards on the classification and analysis of wastes; to formulate and advise on standard disposal methods and means; regulate the handling, storage and transportation, segregation and destruction of any hazardous waste; monitor the contamination and degradation of the environment arising from the operation of any disposal site.

### **4. PESTICIDES AND TOXIC SUBSTANCES.**

The ECZ is empowered by virtue of section 58, to control the importation, exportation, manufacture, storage, distribution, sale, use, packing, disposal of pesticides and toxic substances; to provide for the monitoring, in the environment pesticides and toxic substances and their residues.

## **End Notes**

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- <sup>1</sup> Section 35, CAP 204.
  - <sup>2</sup> Article 1(3), Cap 1
  - <sup>3</sup> Section 1, CAP 315.
  - <sup>4</sup> Section 3 (1), “
  - <sup>5</sup> Section 3, CAP 198
  - <sup>6</sup> Section 55, “
  - <sup>7</sup> Section 123, CAP 213.
  - <sup>8</sup> Section 75, CAP 213.
  - <sup>9</sup> Section 2, CAP 436
  - <sup>10</sup> Section 6, CAP 436
  - <sup>11</sup> Section 10, CAP 436
  - <sup>12</sup> State of the Environment Report, Zambia. 1994, p. 93.
  - <sup>13</sup> Section 50, CAP 204.

# Chapter 3

We are in somewhat the same position in regard to polluted air as the fish are to polluted water. We live in it....

A. O. Kneese, 1966.

This chapter endeavours to focus on the Environmental Council of Zambia as an institution created for pollution regulation and control.

### **3.0 THE ENVIRONMENTAL COUNCIL OF ZAMBIA.**

The enactment of the EPPCA saw to the birth of ECZ. Under part II,<sup>1</sup> the Council is established as an autonomous body, when it provides that: -

*'there is hereby established the Environmental Council which shall be a body corporate with perpetual succession and a common seal, capable of suing and of being sued in its corporate name, and with power subject to this Act, to do all such acts and things as a body corporate may lawfully do or perform.'*

### **3.1 THE COUNCIL.**

The composition of the Council is outlined in section 4<sup>2</sup>

*(1) The Council shall consist of the following members appointed by the minister.*

*(a) the Chairman*

*(b) a representative from the following ministries or organizations:*

- (i) the ministry responsible for environment and natural resources;*
- (ii) the ministry responsible for mines and minerals development;*
- (iii) the ministry responsible for local government and housing;*
- (iv) the ministry responsible for labour and social security;*
- (v) the ministry responsible for education;*
- (vi) the ministry responsible for health;*
- (vii) the ministry responsible for energy and water development;*
- (viii) the ministry responsible for food, agriculture and fisheries;*
- (ix) the Zambia Wildlife Authority;*

- (x) *the Chamber of mines;*
- (xi) *the Zambia Association of Chambers of Commerce and Industry*
- (xii) *a non-governmental organization concerned with the conservation of nature designated by the chairperson of that organization.*
- (xiii) *The Zambia Bureau of Standards.*

All but one, member of the Council are appointed by the minister, responsible for the ministry of environment and natural resources.

Subsection (2) of the Amendment provides for the appointment of the Council's Vice-chairman from amongst the members.

### **3.1.1 FUNCTIONS OF THE COUNCIL.**

The Council is mandated<sup>3</sup> to do all such things as are necessary to 'conserve' the environment, prevent and control pollution, so as to provide for the health and welfare of persons, animals, plants and the environment.

The Council has the duty to 'inter alia'

- Advise the government on the formulation of policies relating to sustainable management of natural resources and the environment.
- Recommend measures aimed at preventing and controlling pollution resulting from industrial processes or otherwise.
- Advise on the need to conduct and promote research analysis, surveys, studies, investigations and training, of personnel, in the field of environmental conservation, prevention and control of pollution.
- Conduct studies and make recommendations on standards relating to the improvement of the environment and the maintenance of a sound ecological system;
- Monitor trends in the use of natural resources and their impact on the environment.

- Request for information on the quality, quantity and management methods of natural resources and environment conditions from any individual or organization anywhere in Zambia.
- Carry out any other activities relating to the management of the environment, prevention and control of pollution which are necessary or conducive to the better performance of its function under the Act.

The Council in carrying out these functions is assisted by a directorate to which it delegates its daily activities, an Inspectorate and Administration constitute the directorate.<sup>4</sup>

### **3.2 THE INSPECTORATE.**

The Council is vested with the power to establish an inspectorate<sup>5</sup> with a mandate to administer, monitor and enforce measures for the prevention and control of pollution in the environment. Like the directorate, the inspectorate does carry out duties of the Council.

The powers incidental to its mandate are outlined in Section 84 by virtue of which they may enter any area, place or premises that forms part of any industry, business or works, to examine and take samples used in any activity that is believed to be causing pollution; such entry is not extended to private dwellings, to which entry can only be done with a warrant or owners consent.<sup>6</sup>

Section 23 of the Amendment Act inserts *section 84 A*, which gives additional powers to inspectors, namely the power of arrest, which provides as follows: -

*84A (1) an inspector (or police officer) may, without warrant, arrest any person and keep that person in custody where: -*

- (a) *the person is found committing an offence or is reasonably suspected of having committed an offence under this Act;*
- (b) *upon being requested by the inspector or the police officer, the person willfully fails or refuses to furnish that person's name, address or other relevant information to the satisfaction of the inspector or police officer; and*
- (c) *the inspector or police officer has reasonable grounds to believe that unless arrested, the person will: -*
  - (i) *escape or cause unreasonable delay, trouble or expense in being made answerable to justice;*
  - (ii) *interfere with the witnesses;*
  - (iii) *tamper with or destroy relevant evidence or material.*

*Any person who is arrested under this subsection ought to be taken before a court of competent jurisdiction, as soon as is practicable, and is not to be detained for longer than is necessary for the purpose.*

Immunity from liability is granted to inspectors in respect of any act done or omitted to be done in good faith, in the exercise of duties and powers under the Act or any other written law.<sup>7</sup>

### **3.2.1 RESPONSIBILITIES OF INSPECTORS**

The inspectorate is endowed with other additional responsibilities that are incidental to the implementation and enforcement of the Act. An inspector in the first instances is under a duty to treat as confidential the source of any complaint brought to his knowledge, concerning any manner of derogation and contravention of the Act.

Further, they neither disclose to the offender that a complaint was made against them, nor furnish information that would operate to identify the complainant.<sup>8</sup>

The inspectorate has the authority to renew any licence that is issued in accordance with the Act, and in so doing it ensures that the applicant has complied with the provisions of the Act, and incidental regulations.

### **3.3 IMPLEMENTATION AND ENFORCEMENT OF THE ACT.**

#### **WATER**

Part IV of the Act covers matters relating to water in general. The Council's responsibilities vis-à-vis water matters are stated in *section 23*, by virtue of this provision, the Council has the power to establish water quality and pollution control standards; determine conditions for the discharge of effluents into the aquatic environment; formulate rules for the preservation of fishing areas, aquatic areas, drinking water sources and reservoirs, where water may need special protection.

It can order or carry out investigations of actual or suspected water pollution including the collection of data; take steps or authorize any works to be carried out which appear to be necessary to prevent or abate water pollution from natural causes; or from abandoned works; and to enforce rulings made in accordance with the said part IV.

It is under this part, particularly *section 23, 34 and 96*, and the powers contained therein that;

#### **3.3.1 The Water Pollution Control (Effluent and Wastewater) Regulations, 1993, were made.**

These regulations have extended the jurisdiction of the water pollution control unit, a unit of the pollution control inspectorate.

The unit is charged with the responsibility of enforcing the regulations above. For instance, any local authority intending to operate a sewage system or owner or operator of any industry or trade, which will discharge effluent into the aquatic environment, has to apply to this inspectorate for a licence to do so.<sup>9</sup>

Similarly, a person intending to withdraw water from a water course for the purpose of diluting effluent is obliged to apply to the inspectorate for a licence to do so.<sup>10</sup> The application in question has to contain information relating to the amounts of water required, and the treatment of effluent.

The water pollution control inspectorate can only issue a licence to discharge effluent if it is satisfied that the applicant has adequate and appropriate facilities and equipment for pre-treatment and the effluent will not cause significant damage to the aquatic environment.

The licence to discharge effluent into the aquatic environment is granted on condition that it conforms with the conditions and standards for chemical and physical parameters contained in the table of standards for effluent and wastewater.

An inspector can enter any premises on which a licenced activity is conducted and take samples, analyse and examine the materials used at any reasonable time. The regulations create an offence, where a person operates a sewage system, industry or trade which discharges effluent into the aquatic environment without the requisite licence; or withdraws water from any watercourse for the purpose of diluting effluent without a licence.<sup>11</sup>

### **3.3.1 (a) Enforcement Notice.**

By virtue of regulation 11(1) the inspectorate has authority where it has reasonable cause to believe that a person is contravening any of the provisions of the regulations or any condition of a licence or indeed is likely to contravene the provisions, it serves an enforcement notice on that individual.

The enforcement notice contains a specification of the matter constituting the contravention and specifies the steps that ought to be taken to remedy the contravention.

Where contravention of the provisions of the regulations or conditions of the licence is committed after the enforcement notice, the penalties drawn against this offence is the revocation of the licence or a fine of a hundred thousand kwacha or imprisonment for three years or both.<sup>12</sup>

### **3.3.2 The Air Pollution Control (Licencing and Emissions Standards) Regulations**

#### **AIR**

Part V of the Act covers matters pertaining to air. The Council is enjoined to establish ambient air quality and emission standards, to carry out investigations of actual or suspected pollution, and to order any industry, any source of pollution to file such returns and other information required.

When establishing the emission standards, the Council takes into account the rate of emission, concentration and nature of the pollutants emitted; and the best practicable technology available in controlling pollutants during the emission process.

The air pollution inspectorate of the Council has been granted authority<sup>13</sup> to request for information from an operator of an industry, of which it has reasonable grounds to believe results in the emission into ambient air of any air contaminants.

Applications for licence to emit air pollutants is provided for in the Act<sup>14</sup> as well as in the statutory instrument, both of which require any person intending to emit or install a new industrial plant or process that is likely to cause air pollution, to register with the inspectorate during the initial planning stage, and shall apply thereto.

Prior to the granting of the licence, the inspectorate has to consider such details as, the possible effects on the quality of ambient air of the area; the existing licences affecting the same air resource; the requirements of residents, human settlements and other industrial or commercial activities; the comments from the local authority and other concerned organisations.<sup>15</sup>

Where the licence to discharge is issued, it should conform with the long-term emission limits set, and is subject to other conditions that the inspectorate determine. The licence is valid for thirty-six months, subject to renewal.

In instances where a person wishes to make a new extension to an existing plant, application is provided for in the regulations<sup>16</sup> which is submitted to the inspectorate six months before the extension commences. Such licence will be issued if the inspectorate is satisfied that the details set out above (in section 45,) are met by the applicant and also whether the new sources of emission conforms to long-term emission limits.

Regulation 10, of the instrument covers applications by owners of industrial plants, who were emitting air pollutants prior to the commencement of the regulations, to apply within twelve months of passing the same.

The permit to discharge air pollutants into the atmosphere, shall be subject to intermediate emission limits and conditions specified for a particular period, on the determination of the inspectorate on the basis of: -

- The age and technology of the plant;
- The ability of the operator to install cleaning equipment; and any other factors necessary<sup>17</sup>

The other conditions attached to the granting of the licences or permit, demands that the licence holder

- Install, at his expense, air measuring devices, collect such samples and conduct such analyses that the inspectorate directs;

- Operate an internal air emission monitoring system, approved by the inspectorate
- Submit monthly emission returns, coupled with a declaration testifying that entries are correct
- Report abnormal emissions immediately.

### **3.3.2 (a) Enforcement Notice**

The enforcement notice is served under the provisions of *regulation 16*, which authorises the inspectorate, where they have reasonable cause to believe that a person has contravened any of the provisions of the regulations; or any conditions of the licence or is likely to contravene the same, to serve an enforcement notice on that person.

The notice states the provisions or conditions that have been contravened or that are likely to be contravened as the case may be. It also specifies the measures to be taken in order to remedy the said contravention, it does specify the time limit within which the said measures should be taken.

## **3.4 ENFORCEMENT IN GENERAL**

Each part of the Act creates offences in relation to the matter which it addresses. For instance, parts IV and V relating to water and air respectively, create offences where conditions of the licences, and provisions of the Act and the statutory instruments have been derogated, as discussed above.

The enforcement mechanism undertaken by the Council is two fold: -

The first is that concerning a licenced offender. The Council is authorised to issue the enforcement notice to such a one. Where it is found that the person to whom an enforcement notice has been served, still continues the breach in defiance of

the notice, and in the event that he admits guilt, it can then impose a summary fine in accordance with *section 91E (1)* of the Amendment Act.

Further, if he continues the violations and takes no steps whatsoever to mitigate the damage, or stop the same, it is within the Council's power to revoke the licence of such an operator.

Depending on the gravity of the breach, the offender will be liable to a fine as well as imprisonment for a period ranging from one to three years.

The second mechanism is that designed for unlicensed offenders, to whom no summary fine is imposed, but criminal proceedings are instituted by way of arrest.

### **3.5 THE ENVIRONMENTAL IMPACT ASSESSMENT.**

#### **What is Environmental Impact Assessment- EIA ?**

EIA involves a thorough investigation of conditions within the environment of the proposed development followed by an assessment of the impacts that the development will have on the environment in its totality i.e physical, biological and social economic aspects.<sup>18</sup> The purpose for conducting an EIA in this regard is to enhance quality by ascertaining the environmental acceptability of the development long before it is implemented.

Thus the EIA: -

- Integrates environmental considerations into development planning;
- Ensures that potential negative impacts are foreseen and discussed at an early stage in the planning process;
- Identifies and enhances the positive impacts of the proposed development activity;
- Examines the trade-offs and the possible alternatives;

- Ensures that all the affected and interested parties such as the grass root communities, government authorities, developers, investors, non-governmental organisations and other stakeholders, participate in the decision making process;
- Ensures that the development activities are centred on people and promote sustainable livelihoods;

In order to ensure that the EIA process is implemented in the smooth and in a satisfactory manner, it should meet all the following essential requirements: -

- Be open and involve all affected and interested groups. In order to achieve this, all developers are compelled to publicise their development activity proposals to concerned parties.
- Focus on the major positive and negative impacts of the project to facilitate decision making based on the range of alternative courses of action. It is essential that both social and technical issues are considered in the decision making process.
- Identify the different affected and interested groups. It should be recognised that groups with different vested interests will identify and perceive major issues differently.
- Create effective co-ordination and communication avenues amongst planners, project proponents, government, private sector, NGOs, community etc.
- Include in-built environmental monitoring and auditing to ensure adherence to the selected options and performance standards.
- Quantify and evaluate identified impacts, where possible, for resource accounting purposes.<sup>19</sup>

### **3.6 Who is Responsible for Implementing the EIA Process?**

The administration of the EIA process in Zambia involves three primary stakeholder parties. These are the developer, the sectoral agencies or planning

authorities and the ECZ. Other parties may be involved directly or indirectly either because they are interested or affected in one way or the other, and usually this is the general public. Each of these parties is responsible for specific administration aspects of the EIA process.

### **3.6.1 The Developer**

The EIA process is initiated by the developer or project proponent conceptualising a development project. His primary objective is to bring about development either by provision of goods such as manufacturing of plastic ware, cement, mining works, or by providing a service such as the construction of a shopping mall like Manda Hill. These are usually investors, government ministries and departments, private sector etc.

The responsibilities of the developer include the preparation of project documents, completing the EIA, meeting management requirements resulting from EIA recommendations and meeting the expectations of the public at large.

In this regard, the developer provides information regarding the nature and scope of the project, the expected impacts, management and mitigation measures, monitoring programmes and the rehabilitation programmes. The developer also needs to inform the public on areas needing their involvement and ensure that they are agreeable to the type of project he is embarking on.

### **3.6.2 Sectorial Agencies/Planning Authorities**

Sectorial and authorising agencies refer to any government ministry or department, public corporation, local authority or public officer in which, or whom any law, regulation or bye-law vests power and functions to authorise, control or manage any aspect of a proposal or existing project. These agencies work on behalf of the public to ensure that ecological, cultural, social and economic issues

are addressed in line with existing government policy and legislation. Their main responsibility is to ensure that the proposed project meets all the sectorial requirements for which the agency is mandated.

### **3.6.3 The Public**

The public is a very important party in the EIA process. Growing public concern for environmental protection spells out the need for involving the public in decision making. This allows the developer to inform the public or interested and affected parties about the project and afford them an opportunity to express their concerns so as to include the same in government plans. This is a statutory requirement. Public involvement helps reduce problems such as increased costs, project delays arising from public opposition to the project, bad publicity and litigation.

The responsibilities of the public include provision of information about the local environment, community goals and aspirations in relation to the proposed development; contributing to the social, cultural and economic evaluation of the project; assisting in the decision making as well as the management process.

### **3.6.4 The Environmental Council of Zambia**

The ECZ is the lead agency on matters of the environment. To which it plays advisory, regulatory consultative, co-ordination and information dissemination roles. Its main objective is to provide for a clean and healthy environment for all (persons, animals and plants) by working with everybody from government institutions to the individual.

It is empowered by the Act to identify projects, plans and for which EIA are necessary and ensure that the same is done in line with the provisions of EIA regulations. Its responsibilities include managing the EIA process, sponsoring a decision and ensuring that management occurs in accordance with the decisions

made. In this regard, the ECZ establishes the terms of reference for project assessments, reviewing reports including the prospectus, EIA and follow-up monitoring reports. The council also helps the project proponent to establish a public consultation process.

### **3.7 The Environmental Impact Assessment Regulations Statutory Instrument No 28,1997**

These are made pursuant to section 6 and 96 of the EPPCA. According to these Regulations, EIA refers to

*“a systematic examination conducted to determine whether or not a proposed project or alteration to an existing project, or alternatives, may have significant adverse or beneficial impact on the environment.”*

#### **3.7.1 Project Brief**

Regulation 3(1) states that

*“a developer shall not implement a project for which a project brief or an Environmental Impact Assessment is required under these regulations, unless the project brief or an EIA has been concluded.”*

Thus, a project brief is a statutory requirement which ought to give a description of the project in line with the provisions of the regulations, which a developer submits to the ECZ.

Upon receipt of the project brief, the Council sends copies to relevant authorising agencies for their comments. The authorising agency has 30 days in which to give a feed back to the Council. The ECZ proceeds to make a decision basing on its own assessment, that of the authorising agency, and other relevant institutions as to the existence of a risk that certain activities of a project may cause notable

impacts on the environment. The decision is made either to approve the project with or without conditions or to compel the project to a full EIA study. The Council makes this decision within 40 days of receiving the project brief<sup>20</sup>.

### **3.7.2 Environmental Impact Statement**

Once a project has been recommended for a full EIA study, the developer proceeds to conduct one in accordance with the regulations. The developer starts with a scoping exercise and proceeds on to prepare the terms of reference for the study. The issues to be considered when preparing the terms of reference as outlined in the third schedule-8(3) include:-

(i) Water:

- the effects on surface water quality and quantity
- effects on underground water quality and quantity
- effects on downstream uses and users
- effects on oxygen content of water
- effects on siltation, patterns of water bodies
- effects on salinity, turbidity, flow rate and temperature of water.

(ii) Air:

- effects on the quality of the ambient air of the type and amount of possible emissions (pollutants).

The terms of reference have to be submitted to the ECZ which either reject or accepts them. In the event of acceptance, a study team with the inclusion of a local expert is chosen; they too have to be approved. Once approved, they proceed to conduct the EIA study and all the time the public is adequately consulted. Upon completion of the study, an Environmental Impact Statement is drawn which the ECZ circulates to invite public views, after which the Council

proceeds to consider the statement paying particular attention to the need for mitigation measures and goes on to consider whether the suggested mitigation measures are acceptable or not. Finally, the ECZ makes a decision accepting the project with or without condition or rejecting it altogether. Any party aggrieved by whichever decision the Council makes can appeal against such a decision within 10 days.

The regulations impose penalties for any person who<sup>21</sup>:-

*(a) fail to prepare and submit a project brief to the Council under regulation 3.*

*(b) Fails to prepare and submit an Environmental Impact Statement under regulations 9, 10, 11 and 12.*

*(c) Fraudulently makes a false statement in a project brief or Environmental Impact Statement contrary to these regulations*

*Shall be guilty of an offence and shall be liable upon conviction, to a fine not exceeding one hundred thousand kwacha or to imprisonment for a period not exceeding three years or both.*

The regulations in 29(1) provides for an inspector appointed under the Act, to, at all reasonable times enter upon any land, premises or other facility related to a project for which a project brief or an Environmental Impact Statement has been made under the regulations, to undertake investigations of any condition or measure to be taken following an environmental audit.

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**End Notes.**

- 1 Section 3, CAP 204.
- 2 as amended by section 3 of the EPPCA (Amendment) Act of 1999.
- 3 Section 6(1) of the Amendment Act, 1999.
- 4 Section 6 (3)
- 5 Section 81
- 6 Section 81 (1)
- 7 Section 84 B
- 8 Section 87, CAP 204.
- 9 Regulation 3 (1),
- 10 Regulation 4 (1)
- 11 Regulations 10
- 12 Regulation 12.
- 13 Section 41, CAP 204.
- 14 Section 43(1) CAP 204; regulation 5.
- 15 Section 45, CAP 204.
- 16 Regulation 7.
- 17 Regulation 11(2)
- 18 EIA Procedures Manual Volume 2, p. 5
- 19 Ibid. p.7
- 20 Regulation 7(1)
- 21 Regulation 34(1)

## Chapter 4

What we want to stress is the indivisibility and complexity of the environment. For example the earth's atmosphere is so thoroughly mixed and so rapidly recycled through the biosphere that the next breath you inhale will contain atoms exhaled by Jesus at Gethsamane and Adolf Hitler at Munich. . . .

P. Cloud and A. Gibor, 1970

## **4.0 DISCUSSION**

### **4.1 EFFICACY OF THE LAW.**

Having attempted to identify and analyse the laws pertaining to pollution control, we may endeavour to analyse the adequacy and effectiveness of the same. As observed above, the law on pollution was seen to have been fragmented in a number of legislations. Mostly, the pollution control mechanism covered in a good number of them addressed water pollution as opposed to air pollution. And in this regard therefore, the law was not so adequate as it merely covered a particular aspect of pollution.

Nonetheless, this position has now been upset by the consolidation of the numerous provisions into the EPPCA, which has been the umbrella Act on pollution Zambia. The Act is further supplemented by the Standards and Regulations that have been enacted pursuant to the various provisions of the Act, which empower the minister on the advice of the Council to promulgate the same.

The Regulations include: -

- Water Pollution Control, Waste Management, Pesticide and Toxic Substances
- Air Pollution
- Environmental Impact Assessment

Some of which have been discussed in the preceding chapter.

These enactments exhibit a trend that is different from that of the past. The law has since expanded and can be said to be adequate and comprehensive to a considerable extent, in that it encompasses not only water, but air pollution and other forms and sources of pollution.

Yet another significant innovation is the creation of a body corporate, that is a sole custodian and implementer of the EPPCA. The ECZ as a body corporate is mandated to oversee all such matters as concerning the environment, its mandate is diverse.

This notwithstanding, the question of effectiveness still remains unanswered:

#### **4.2 HOW EFFECTIVE HAVE THESE LAWS BEEN IN ACHIEVING THE AIMS AND OBJECTIVES THEY WERE ENACTED TO ADDRESS? HAVE THEY TRULY FURTHERED THE CAUSE OF POLLUTION CONTROL?**

These questions fly in the face of implementation. It has been argued in legal jurisprudence that a law is not law unless it is enforced. If not, it would be reduced to law on paper, which is as good as a social sanction that is unenforceable. Therefore, in the light of the foregoing, these laws cannot be effective unless they are enforced by those mandated to do so in the legal order, in this case the ECZ, which is the custodian of the Act.

In as much as the Council has power of enforcement and implementation, this power is not absolute. As the Council is fettered in a number of ways, to which we shall allude.

Firstly, the Council is not totally independent of government control. Despite being a legal entity created by statute, it is not an autonomous body in practice, as it is directly under the Ministry of Environment and Natural Resources.

This is evident in the Act, which empowers the minister in *Section 4* to appoint members of the Council as it were. The Council permanent secretaries as representatives from the various government ministries. The minister has the discretion to determine who should be appointed to the Council. This is a fetter on the Council, as such power is bound to be abused.

Secondly, the Council's role is limited to that of advising the government on drafting and enacting any subsidiary legislation on environmental matters. As already alluded to, the Regulations passed pursuant to the Act have all been done by the minister responsible for the environment and natural resources ministry. The Council has no mandate to promulgate at its own instance any legislation governing environmental matters. Yet it is well vested with the environmental problems and related issues.

Furthermore, the Council is constrained where finances are concerned. From the wording of *section 14(1)* the Council is funded by moneys appropriated by Parliament for its purposes, or by grants or donations and fees paid to it. But by virtue of the same provision in subsection (2) the Council cannot accept any such funds, unless approval of the minister is sought. And a similar approval is required in order for the Council to embark on raising of loans, for the discharge of its functions. All these factors operate to hinder the effectiveness of implementing and enforcing the Act by the Council.

### **4.3 OTHER HINDERING FACTORS.**

The other factors we ought to consider are those pertaining to the Act itself. Particularly *section 40*, which provides for emergency situations covering hazardous air pollutants, the inspectorate is granted authority to take and advise on appropriate measures for the protection of persons and the environment.

This is far as the provision can go. The provision seems to be inadequate in addressing emergency situations, which in certain cases do result in loss of life, depending on the toxicity of the pollutant involved.

By their nature gaseous pollutants have the propensity to cover a large surface area in the atmosphere. This is so because they are enabled to do so by movement of other gases, from a concentrated area to one with less concentration, thereby causing saturation and homogeneity in distribution. Owing

to the foregoing, measures to safeguard against any accidental leakages of hazardous pollutants should be put in place.

These emergency measures should be able to vest the inspectorate with diverse powers to control any catastrophe in the shortest possible time to avoid further damage. The unfortunate part is that the same provisions are not available for water. There are no emergency powers whatsoever for the water unit inspectorate to take any measures in order to remedy any damage caused by water pollutants.

Having discussed the various Acts in the second chapter, it has been discovered that a number of duplications have been made. For instance the EPPCA clashes with the Local Government Act in relation to the *Trade Effluent Regulations* and the *Water Pollution Control (Effluent and Wastewater) Regulations* made pursuant to the EPPCA.

The duplication is unnecessary and should be removed in order to provide local councils with powers only to regulate effluent discharged into their sewer and ponds, so that effluent into public watercourses would then be the responsibility of the Council.

Most of the analysed Acts except for the EPPCA and the Mines and Minerals Act lack provisions for environmental impact assessment (EIA) studies, where licensing of industrial activity and development is concerned.

Setting up of factories and other activities under the Investment Act, for example need the requisite EIA, to determine what effect the proposed activity will have on the environment.

The directive principles contained in Article 112 of the Constitution, that grants accessibility to safe water, clean and healthy environment, are neither justiciable nor enforceable in any court or tribunal. This is an abrogation by the State of the duties to guarantee rights of individuals. These should have been enforceable so

as to safeguard people from all manner of pollution that would endanger their lives, as water and air are essential natural resources that man cannot be deprived of.

Lack of access to safe and clean drinking water has a direct effect on human, animals and other living organisms, whose life spans are in the process shortened. It is thus, a duty of the State to ensure that people at the grass root have access to safe and clean water, and are not disadvantaged by whatever economic activity taking place, that operates to impair the environment at large.

To compound this problem further, the statutory power of control normally backed by criminal sanctions, under the various Acts considered, given to the relevant authorities makes it impossible for an individual to have a right of objection to a proposed discharge of effluent. In no case has he a right of action for breach of a statutory duty against the person who exceeds the permitted standards.

The only action he has, must be founded on the tort of nuisance, where he has to prove actual damage and inconvenience caused to him by the tortfeasor. This tortious liability is quite difficult to establish, especially where air pollution is concerned. It is too high a standard expected of an individual to establish per se.

If our law is to serve the two functions of ensuring acceptable standards of environmental quality, and compensating those who suffer damage where pollution occurs, and if it to do so with the consistency that justice naturally demands, these two systems must at least be based on one coherent theory of man's legal rights and duties towards those who share his environment.

In exercising discretions given by the Acts, such discretion as to grant licenses or permits under the EPPCA, the authorities concerned have a duty to attempt to balance the interests of those members of the public who stand to be affected by

pollution against the interests of the industry, remembering that a viable industry is a matter of public interest also.

But an observation has been drawn that authorities often refrain from prosecuting, even in the face of repeated breaches, where they are convinced that the polluter is taking reasonable steps to remedy the breach, and that prosecution will serve no useful purpose. Thus, the intermediate standards that have been devised and implemented by the Council in regulation (9) of the *Air Pollution (Licensing and Emission Standards) Regulations, 1996*.

Policy making in Zambia has had an influence on environmental issues. Some of which greatly undermine the efficacy of environmental laws. The consequence of this is that pollution control and regulation is hindered. An incidence of this is that pertaining to the “Environmental Liabilities Agreement 2000” between the Zambian government and Konkola copper mines, whereby the former undertakes to indemnify the latter on environmental losses. The Agreement states in Clause 3.1 that “GRZ undertakes to and covenants with Konkola Copper Mines under this Deed to indemnify and hold harmless Konkola Copper Mines against any and all environmental losses suffered or incurred by it, provided that, if the acts or omissions giving rise to environmental losses have or may have occurred over a period of time part of which is before and part of which is after the Indemnity Termination Date, this indemnity shall not apply to that portion which occurs prior to the Indemnity Termination Date.”

The ramifications of these provisions are that notwithstanding the environmental pollution caused by mining operations, Konkola Copper Mines shall not be liable for the same.

## **4.4 CONCLUSION**

Both as individuals living in our homes and as members of an industrial and agricultural community, we each all produce waste. If that waste could be disposed of without affecting others, no problem arises. But as soon as the disposal affects others, directly or indirectly, we are faced with a social problem.

The common law nuisance does protect the individual from some direct and obvious forms of interference by pollution such as excessive smoke, but it has however failed to arrest the tendency of men to pollute the environment to the detriment of their neighbours. The problem of control arising from the task of disposing of waste on a large scale, common law was never designed to meet. The community must dispose of its sewerage and it is also dependent on Industry which produces large volumes of waste to do the same. The task of controlling pollution falls into three interrelated parts, the first being to decide what degree of pollution to accept, that is, what standard of environmental quality we intend to maintain. In making this decision, the following have to be taken into account:

- The damage caused by pollution
- The benefits to be derived from the activity which produce it.
- The cost of alternative methods of production waste control.
- The importance of the activity which produces the waste.
- The extent to which the polluter is able to bear further loss.

The second part of the task is to improve technical methods of waste control and disposal, so that high standard may be archived. Lastly, the third is to enforce the standards which have been set.

From the discussion, it has been observed that in Zambia, standards of environmental quality are maintained by controlling the rates of emission or discharge of polluting matter. To find a satisfactory balance between damage and benefits, which will give reasonable rates of emission or quality standards has

been a challenging task, as it depends on evaluating the damage and economic analysis of costs and benefits. This is too expensive an exercise in monetary terms as well as the time, to carry out in the fields of the various types of pollution.

Thus, in Chapter 1 we have endeavoured to define the problem of pollution both in air and water. We have further highlighted the effects it has on the biosphere particularly on humans and other living organisms such as fish. Because the consequences of pollution are adverse and its effects can be felt over a number of years, and are usually irreversible, measures to mitigate these side effects, and to maintain a sustainable use of the natural resources, should be put in place.

Analysis of the numerous environmental related Acts has been carried out in the second Chapter and it has been found that there are a number of duplications vis-à-vis the provisions. But there is one comprehensive Act which is all embracing and has adequate provisions to cover the various types of pollution.

Chapter 3 has discussed the Environmental Council of Zambia, being established by the Act as a body corporate, mandated to regulate pollution, enforce and implement the said Act. Further analysis has been given on the regulations that are employed by the Council in order to assist the better carrying out of this mandate.

Finally, the fourth Chapter has endeavoured to discuss the efficacy of the environmental laws. The vigilance of the Council in regulating, implementing, and enforcing the laws has been addressed. It has further endeavoured to highlight the problems and hindrances encountered by the authorities in regulating and controlling pollution.

## **4.5 RECOMMENDATIONS**

If we are to mitigate and remedy the damage caused by excess pollution, and guarantee a safe, clean and healthy environment for all citizens, especially those living in highly industrialised areas such as the copperbelt, the following recommendations ought to be adopted by the policy makers as well as the legislators.

### **4.5.1 THE COUNCIL**

- The ECZ should be granted full powers to draft regulations that are enabling to carry out effective pollution control and monitoring; as opposed to the current advisory and consultative role it plays, in the drafting and enacting of the various regulations. The Council is well vested with the issues and problems that need remedying pertaining to the environment.
- In order to enhance its autonomy and impartiality, all appointments to the Council should not be carried out by the minister. The process of appointment should be on merit, upon different individuals applying for the posts, subject to being advertised in the local print and electronic media. The majority of other members should not be drawn from various government ministries, but instead should be drawn from a host of other stake holders like the private sector, the general public, business houses and other professions.
- The funding to the Council must be revisited, so that it maintains the funds appropriated by parliament as one means. The ministerial approval requisite when accepting donations and grants should be done away with. The Council should be free to obtain loans from any institution without obtaining ministerial consent, if it deems the loan necessary for the better carrying on of its mandate.
- All pollution control functions must be rationalised into the ECZ as one body, so that scarce, highly trained expertise can be used efficiently and the shunting of pollution between media (water, land and air) can be effectively controlled.

- Pollution control at national and local government level must be effectively integrated for the same reasons. Adequate resources must be allocated to train or employ qualified staff.
- The Council's threats to withdraw pollution permits must be made public. The emergency measures to be undertaken by the inspectorate outlined in *section 40*, should be elaborated, in order to give the inspectorate a mandate to take any measures it deems necessary in an emergency situation, to remedy the situation, at its own instance. Thus, regulation to this effect should be promulgated.

#### 4.5.2 THE MINES AND OTHER INDUSTRIES

- The mines should construct a number of sulphuric acid plants as a way of recovering the sulphur dioxide and sulphur particulates. The mines should look at the possibility of using scrubbing method, which involve application of alkalines of potassium and sodium to form neutral sulphates salts, that is, potassium sulphate and sodium sulphate as opposed to acidic ones.
- The mines should embark on the environmental cleaning which include the reprocessing of slag; covering of the mine rock dumps and abandoned tailing dams; and planting of trees on derelict lands.
- The industries in general and mines in particular should consider resuscitating the poorly maintained control equipment, which in most instances are non-operational. Because most of the industries lack the capacity to install the pollution monitoring systems, because they are an expense, a major one at that, the government should give them a tax rebate or allowance on the machinery, plant and equipment that can enhance reduction of sulphur dioxide and other emissions, and the recovery of other solid particulates (for example, the dust from cement works) as a way of promoting cleaning technology production.
- Thus, emission control will be based on source control without reference to the receiving environment.

### **4.5.3 THE GOVERNMENT**

- As introduced custodian and guarantor of the citizen's rights, should adopt policies that will seek to balance individual interest against public interest, bearing in mind that industrial advancement and development are crucial to the country's economy.
- Pollution legislation must therefore include penalties (carrot and stick) to encourage industries to apply managerial strategies and state of the art technology to control pollution.
- Much can be done by good planning to prevent or reduce the ill effects of pollution. Air/water pollution should be considered adequately in planning the placement of industries and residential areas. Factories can be sited where the effects of discharges to water will be minimised, or where because of meteorological conditions their discharge to air will be dispersed rather than concentrated. Environmental planning should be integrated into the development process through EIAs, which should be mandatory, a principle that should be incorporated at all levels, including development co-operation protocols. The placement of environmental officers by ECZ at the Ministry of Finance should be implemented.
- A programme should also be set up to train the legal profession in pollution cases.
- Penalties under the existing body of legislation should be revised from time to time, to take into account the growing industrial concern with the issue of climate change and global warming which results from uncontrolled pollution. We recommend that the penalties should be stiffer and hash, as a deliberate move to discourage air pollution.
- An environmental court should be established and there should be enough legal expertise in the pollution inspectorate to ensure that polluters are prosecuted.

#### 4.5.4 THE INDIVIDUAL CITIZEN

- The citizen as a stakeholder who stands to be ultimately affected by the unabated pollution, from which he derives no economic gain, like the industries; we recommended that he be afforded *locus standi* the legal right to launch a court action, in pollution cases as this is important for protecting the private interest. Action should not be limited to authorities such as ECZ only.

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