MINING ACTIVITIES AND THEIR EFFECTS ON PUBLIC HEALTH IN ZAMBIA:
HOW ADEQUATE ARE THE MECHANISMS FOR PROTECTION

BY

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A paper submitted in partial fulfilment of the requirements for the Award of the Degree of Bachelor of Laws of the University of Zambia.

UNZA 2013
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ABSTRACT

Zambia is largely a mining country with abundant deposits of copper, cobalt, coal, lead and zinc. Historically, the mining industry has been the pillar of Zambia's economy and continues to be the country's largest foreign exchange earner to date. Further, mining has provided important benefits for health, education and the environment in Zambia through infrastructure development and rehabilitation. Alongside these positive developments, changing societies and rapid increase in mining activities in Zambia in the 20th century have produced an ever-increasing variety of circumstances whose consequences are capable of posing irreversible risks to public health and the environment, like any other productive activity. These effects may in some instances last for a long period and affect even the future generation.

Despite legislation regulating mining activities in Zambia, the question on whether or not such regulations are adequately implemented to protect public health from the adverse effects of mining activities still remained to be answered. This research therefore set to analyse the effects of mining activities on public health, and assessed the adequacy of the mechanisms for.

It was observed and found that greater attention to stakeholder involvement during the EIA process for the implementation of mining projects leads to better environmental assessment and adequate public health protection, and thus to the formulation of projects that deliver more social benefits.
DEDICATION

This is dedicated to the two people I first fell in love with, my late mum (Annie) and dad (Stanley) for the great gift of all that I am which today I offer as my greatest gift to God and a tribute to them and mankind. Mum and Dad, I wish you were still here today to see me become the lawyer you always wanted me to be, but it is still well. Always love you.
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I wish to thank Mrs. Anne Chew-Chanda my supervisor who kindly took the thorough task of reading, correcting and offering valuable critic and suggestions on the content and character of the research. Mrs. Chanda read every sentence and criticised it in an intelligent and meticulous way. I hope her excellence is reflected on every page of this research though I remain personally responsible for any errors or otherwise. I am forever grateful madam.

I also extend my gratitude to my special and best sister and brother in-law (Alice and Graham) for their support, endurance, courage and confidence during the most trying of moments at UNZA. My sister, the queen’s language cannot describe how grateful I am for raising me up since I was in my sixth grade. All I can say is “may you live longer to see your children’s grandchildren.” I will always love you and I am forever grateful.

My thanks also extend to my Pastors (Pastor Choolewe and Pastor Mwape) who showed me love and propelled me to always aim for the best during my years at UNZA. Thank you for believing in me and supporting me in my spiritual and academic life. Love you always.

My gratitude is also extended to every member of the 2013 Law School graduating class for the friendship and scholarship during this long journey. In a special way thanks to Chisomo Nyangu, Modrine Siemens, Idah Phiri Nzali, Harrison Zulu, Roy Mwala, Mazuba Moonga, Patricia Nachilima and Maloba Nalomba for the companionship and enduring friendship. Special thanks to Mambwe Kaliminwa for his care, support and friendship during the most important moments of my life-Thanks Mambwe. To you all thank you and may God bless you- I have done my best!

I also thank my God for calling me to be a Lawyer for the progress of my family and society as a whole.
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Local Government Act Chapter 281 of the Laws of Zambia

Mines and Minerals Development Act No.7 of 2008

Mining Waste Regulations Statutory Instrument No. 71 2011

National Environmental Management Act Number 107 of 1998

Statutory Instrument No. 28 of 1997

The Constitution of the Republic of Zambia, Chapter 1 of the Laws of Zambia

The Public Health Act, Chapter 295 of the Laws of Zambia
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Kangwa and others v Environmental Council of Zambia and others (2008/HP/245)
LIST OF ACRONYMS

ECZ  Environmental Council of Zambia
EIA  Environmental Impact Assessment
EMA  Environmental Management Act
EPPCA Environmental Protection and Pollution Control Act
NEAP National Environmental Action Plan
NCS  National Conservation Strategy
NFC  Non-Ferrous Company Africa
UNDP United Nations Development Programme
UNEP United Nations Environmental Programme
ZEMA Zambia Environmental Management Agency
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CHAPTER ONE

1.0 Introduction

Zambia is largely a mining country with abundant deposits of copper, cobalt, coal, lead and zinc. Historically, the mining industry has been the pillar of Zambia’s economy and continues to be the country’s largest foreign exchange earner to date.¹ Further, mining has provided important benefits for health, education and the environment in Zambia through infrastructure development and rehabilitation.² For example, Mopani Copper mines, one of the mining giants in the country has implemented various projects in Mufulira town, which include, among others; construction of classroom blocks at Muleya Winter Basic School, rehabilitation of the Kankoyo Zambia Police Post, renovation of Clinic No. 5 in Kankoyo township and provision of clean piped drinking water to Kankoyo township as well as sponsorship of various Anti HIV/AIDS and Malaria programs.³

It is true that mining companies such as Mopani Copper Mines (MCM), Konkola Copper Mines (KCM), Chibuluma Copper Mines (CCM), among others, have provided direct and indirect employment opportunities to many Zambians.⁴ Alongside these positive developments, changing societies and rapid increase in mining activities in Zambia in the 20th century have produced an


⁴ Zambian Traveller, Issue 73, July/August (2012)
ever-increasing variety of circumstances whose consequences are capable of posing irreversible risks to public health and the environment.

Public health is the science and art of preventing diseases, prolonging life and promoting good health through organized efforts and informed choices of society, organisations, public and private communities and individuals.\(^5\) The protection of public health is supported by a clean environment. Therefore, at the heart of public health protection is the concept of environmental impact assessment- a process of evaluating the likely environmental impacts of a proposed project or development taking into account inter-related socio-economic, cultural and human health impacts, both beneficial and adverse.\(^6\) Although health is a result of individual life style or susceptibility, every population has its own historical culture and economic and technological divisions that influence how and why people are exposed to specific risks and how they respond to such exposure.

Mechanisms for public health protection can take a variety of forms within Zambia. These forms include the application of various principles of environmental law such as Environmental Impact Assessment (EIA) as defined above, public participation, polluter-pays principle and the precautionary principle, among others. In relation to public participation, the requirement is that when an EIA is conducted, it must be open and must involve all interested parties, commonly referred to as stakeholders, who are likely to be affected by the impacts of a project or development either positively or negatively. Such a consultative process must yield good

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decisions on the way forward and alternative courses of action if need be. Further, the EIA must thoroughly investigate the conditions within the environment of a proposed project or development, followed by an assessment of the impacts that the project will have on the environment in its totality.\textsuperscript{7}

In relation to mining, the Mines and Minerals Development Act\textsuperscript{8} sets out the procedural requirement when conducting an impact assessment of a mining project. Where established, the nature and scope of functions carried out by environmental and public health protection institutions in the implementation of the environmental impact assessment (EIA) and public participation principles is guided by the Environmental Management Act (‘EMA’).\textsuperscript{9}

The Act is the main law relating to environmental protection which further enhances public health protection. Other Acts relevant to the concept of public health protection are the Public Health Act,\textsuperscript{10} The Constitution,\textsuperscript{11} as well as the Local Government Act.\textsuperscript{12} In order to fulfill the obligation to protect public health from the impact of mining activities, Zambia has created the Zambia Environmental Management Agency (ZEMA).\textsuperscript{13} One of the objectives of ZEMA is to ensure sustainable and effective respect for public health during the operation of mining activities in the country.

\textsuperscript{7} Environmental Council of Zambia’ Role in the EIA process: (2012)

\textsuperscript{8} Act No. 7 of 2008

\textsuperscript{9} Act No. 12 of 2011

\textsuperscript{10} Chapter 295 of the Laws of Zambia,

\textsuperscript{11} Chapter 1 of the Laws of Zambia

\textsuperscript{12} Chapter 281 of the Laws of Zambia

\textsuperscript{13} Act No. 12 of 2011, part II
Additionally, some of the functions of ZEMA are to investigate damage caused by mining activities, mal-administration of environmental justice and to propose effective measures to prevent environmental damage in order to enhance public health, and ensure that reparation is given to the victims. It is also mandated to develop standards and guidelines relating to the protection of air, water, land, and the prevention and control of pollution, and to assess the conditions of the mining activities facilities' compliance to environmental standards.\textsuperscript{14} In order to effectively perform the foregoing protective functions, ZEMA is expected to act independent of government influence notwithstanding the fact that it is funded from the national treasury.

1.1 Statement of the Problem

Like any other productive activity, mining has the potential to impact public health. These effects may in some instances last for a long period and affect even the future generation. For example, the impact of ninety years of zinc and lead mining in Kabwe is still experienced by the residents. As a means to mitigate such effects, the ZCCM-IH Environmental Coordination Unit (ZECU)\textsuperscript{15} developed and implemented public and environmental health programs which included both biophysical engineering to monitor blood, especially in antenatal mothers in order to minimise the lead effect to the unborn children.

It must be mentioned however that the establishment of ZECU has not completely alleviated the effect of lead and zinc on the residents. Mining and smelting ran almost continuously up to 1994 without addressing the dangers of pollution which lead to damage to public health. In addition,

\textsuperscript{14} Act No. 12 of 2011, section 9

\textsuperscript{15} CEP News: Healing Our Earth (January-March 2009), Issue 3
the mining activities on the air people breathe, the discharge in the water they drink and the large pieces of land that become degraded as a result of mining activities. Subsequently, these factors have potential and actual effects on public health. The research is also important as it undertakes to provide explanations on how to reduce the risk factors that result from mining activities and affect public health.17

Further, the research findings would also benefit the government by providing evidence-based support for setting priorities for the Mines' corporate social responsibility programs that would recognise environmental and public health policy plans, long-term and emergency responses. The research is a modern contribution to literature on protection of public health from the effects of mining activities.

1.4 Justification of the research

With the increase in the activities of mining firms, especially on the Copperbelt and Northwestern provinces of Zambia, the available protective mechanisms are not adequate enough to protect public health. The inadequacy is evident in the lack of implementation and monitoring of compliance with the rules and regulations. It has been noted that once a mining project has been implemented, there is lack of continued monitoring to ensure that the mining project maintains the environmental standards required to enhance public health protection. It is therefore against this background that the research is conducted on mining activities and their effects on public health, and assesses the adequacy of the mechanisms for protection.

17 The ECZ report: Integration of Environment Information into Development Planning and Decision Making Process, (2011)
1.2 Objectives of the Research

1.2.1 General Objective

The general objective of this study is to highlight the effects of mining activities on public health in Zambia, and assess the adequacy of the mechanisms for protection.

1.2.2 Specific Objectives

- To explore the historical background of mining activities and their effects on public health in Zambia.

- To assess the adequacy of the current legal and institutional framework in considering the acceptability of mining projects and ensuring protection of public health from the effects of mining.

1.5 Research questions

(1) What are the positive and negative impacts of mining on public health?

(2) How adequate are the mechanisms for protection of public health from the effects of mining activities?

1.6 Scope of the study

The study assesses the impact of mining activities in Mufulira, Chingola and Kitwe districts on the Copperbelt, as well as Kabwe in the Central, and Solwezi town in North-western province of Zambia.
1.7 Research Methodology

The study is qualitative based on both primary and secondary information. Primary information was obtained through interviews with the mining officers in the environmental and safety departments at Mopani, Konkola and Kansanshi copper mines. More interviews were conducted with environmental management officers from Zambia Environmental Management Agency (ZEMA), as well as with residents near the aforementioned mining sites. Secondary sources included Statutes, Judicial decisions, Textbooks, Articles and Reports. Questionnaires were used sparingly and only where it was necessary.

1.8 Outline of Chapters

Chapter One

INTRODUCTION

This chapter gives an introduction to the research and in general terms the synopsis of the research. It has dealt with the basic aspects of the research. These include the statement of the problem, significance of the study, justification of the study, objectives of the research, research questions, the methodology, and the chapter lay out.
Chapter Two

THE CONCEPT OF PUBLIC HEALTH: HOW MINING ACTIVITIES AFFECT PUBLIC HEALTH

This chapter introduces the concept of public health. The chapter identifies the aspects that promote public health in general. The chapter further discusses the mining activities and how they affect public health. The chapter establishes the importance of protecting public health from the effects of mining activities.

Chapter Three

LEGAL AND INSTITUTIONAL FRAMEWORK FOR THE REGULATION OF MINING ACTIVITIES AND PROTECTION OF PUBLIC HEALTH

This chapter discusses the law which regulates mining activities and public health protection, as well as the institutional framework for the implementation of the legal regime. The chapter gives an appraisal of the functions of institutions such as the Zambia Environmental Management Agency (ZEMA) in protecting public health from the adverse effects of mining activities. The chapter outlines the meaning of environmental impact assessment ("EIA"), as well as public participation in the implementation of mining projects.
Chapter Four

THE ADEQUACY OF THE MECHANISMS FOR PROTECTION OF PUBLIC HEALTH FROM THE EFFECTS OF MINING ACTIVITIES IN ZAMBIA.

Having discussed the legal and institutional frameworks on the protection of public health from the effects of mining activities, this chapter appraises the effectiveness of the protective mechanisms. The chapter attempts to logically argue that the various challenges in the implementation of protective mechanisms are linked with the government’s policies and political motives.

Chapter Five

CONCLUSION, RECOMMENDATIONS AND POSSIBLE AREAS OF REFORM.

This chapter gives a general conclusion of the whole research paper, makes recommendations and identifies possible areas of reform in the administration, mandate and functions of the legal and institutional framework that deal with regulation of mining activities as well as public health protection in Zambia. It also advances arguments for better protection of public health from the effects of mining activities through enhanced protective mechanisms, given the social, political and economic context of Zambia.
1.10 Conclusion.

This chapter has dealt with the basic aspects of the research and has given an introduction to the subject. It has also highlighted the salient features of the subsequent Chapters. The next chapter introduces the concept of public health and the importance of its protection. The chapter further highlights some of the components of public health mainly affected by mining activities in Zambia.
CHAPTER TWO

THE CONCEPT OF PUBLIC HEALTH: HOW MINING ACTIVITIES AFFECT PUBLIC HEALTH

2.0 Introduction

Public Health is the science of protecting and improving the health of communities through education, promotion of healthy lifestyles and research for disease and injury prevention. Public health professionals analyze the effect on the health of the environment in order to develop programs that protect the health of families and the community. Overall, public health is concerned with protecting the health of entire populations. These populations can be as small as a local neighborhood, or as big as an entire country.18

The World Health Organisation (WHO) defines public health as the “science and art of preventing diseases, prolonging life and promoting health through organized efforts and informed choices of society, organisations, public and private communities and individuals”.19 Public health is concerned with threats to population health, and incorporates the interdisciplinary approaches of health services, environmental health, economic health and quality of life.20 From the foregoing definition, it can safely be stated that public health is not merely concerned with the absence of disease or infirmity but the state of complete physical, mental and social well-being of the general public.


developments do not degrade or pollute the components essential for the survival of human beings such as water, air and land.

2.1.2 Access to Health Services

Promoting public health goes beyond mere prevention of diseases. It calls for access to health services by the general public. Access to health services is dependent on the affordability, acceptability and physical accessibility of services and not merely adequate supply of such services. Access to health care impacts overall physical, social and mental health status, quality of life and life expectancy. Services available must be relevant and effective if the population is to gain access to satisfactory health outcomes.

2.1.3 Providing Food Security and Nutrition

The Food and Agriculture Organisation (FAO) recognises that households are food secure when they have year-round access to the amount and variety of safe foods for them to lead active healthy lives. Further, food security can either be from households own production based on subsistence or commercial farming. It follows therefore that the health of members of the community depends on the availability, safety and quality of food. The availability and quality of food is however dependent on successful social and economic developments which are environmentally friendly.

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It is worth noting that while there are various aspects that promote public health as discussed above, there are several factors that may adversely affect public health. These include technological and industrial developments which include mining activities. Hence the rest of this chapter discusses mining activities and their effects on public health, as well as the importance of protecting public health.

2.2 Mining Activities and their effects on Public Health

As noted in the preceding chapter, mining activities can impact local communities and the nation both positively and negatively. To this end, mining has provided important benefits for health, education and the environment in Zambia through infrastructure development and rehabilitation. For example, Mopani Copper mines, one of the mining giants in the country has implemented various projects in Mufulira town, which include, among others; construction of classroom blocks at Muleya Winter Basic School, rehabilitation of the Kankoyo Zambia Police Post, renovation of Clinic No. 5 in Kankoyo township and provision of clean piped drinking water to Kankoyo township as well as sponsorship of various Anti HIV/AIDS and Malaria programs.

It is true that mining companies such as Mopani Copper Mines (MCM), Konkola Copper Mines (KCM), Chibuluma Copper Mines (CCM), among others, have provided direct and indirect employment opportunities to many Zambians. Alongside these positive developments,


27 Zambian Traveller, Issue 73, July/August (2012)
changing societies and rapid increase in mining activities in Zambia in the 20\textsuperscript{th} century have produced an ever-increasing variety of circumstances whose consequences are capable of posing irreversible risks to public health and the environment.

Mining activities can negatively affect local communities in the following ways; forcing the local communities from their homes and land, preventing them from accessing clean land and water and impacting on their health and livelihoods. These impacts are exacerbated mainly when local people are not consulted and are given no information about a planned mining project. Even worse is when people are not given a say whether or not a mine should be developed.

2.2.1 Mining Activities: Phases of Mining Projects

In order to establish how mining activities can adversely affect public health, it is important to understand their operations from the outset. The first stage of a mining project is the exploration phase which involves clearing of a wide area of vegetation to allow entry of heavy vehicles mounted with drilling rigs. Once the exploration phase is successful, the project proponent then begins to plan for the development of the mine. The development phase involves construction of access roads which also involves clearing of large tracts of land. Once a mining company has constructed access roads and prepared staging areas that would house equipment and personnel, mining may commence.\textsuperscript{28}

\textsuperscript{28} GRZ Environmental Impact Assessment Report, (2011)
In case of an open pit mining, it is observed that ore deposit extends very deep in the ground, necessitating the removal of layer upon layer of overburden ore. In most cases, this involves logging of trees and clear-cutting or burning of vegetation above the ore deposits. Since open-pit mining often involves the removal of natively vegetated areas, it is said to be among the most environmentally destructive type of mining. Moreover, because open-pit mining is employed at a substantial depth underground, it usually involves the creation of a pit that extends below the groundwater table. In this case, the groundwater must be pumped out of the pit to allow mining to take place.\textsuperscript{29}

After a mining company has removed the vegetation and land has been cleared, the extraction of ore begins using specialised heavy equipment and machinery. This activity creates a unique set of environmental impacts such as emissions of thin dust from pull roads.\textsuperscript{30}

2.2.2 The Adverse Impact of Mining Activities on Public Health

Perhaps the most significant impact of a mining project on public health is its impact on water quality and availability of water resources within the project area. This raises the question of whether surface and ground water supplies will remain fit for human consumption and adequate to support aquatic life. It is believed that when mined materials such as walls of open pit mines are excavated and exposed to water, acid can form which in turn dissolves metals and other contaminants from mined materials and form an acidic solution. The solution is considered to

\textsuperscript{29} Kribet Benjamin, "Impact Assessment of Mining and Processing of Copper on the Environment," (2009)

\textsuperscript{30} Ibid
have serious threats to water resources. If uncontrolled, the acid mine drainage may run-off into streams or rivers or into ground water.

Section 45 of the Environmental Management Act defines water pollution as the introduction, directly or indirectly, of pollutants into an aquatic environment.\textsuperscript{31} Owing to the fact that water is life and any contamination poses a serious threat to public health, there is need to protect it from contamination. Mining activities discharge effluents that may threaten human well-being.\textsuperscript{32} It has been argued that in mining areas such as the Copperbelt Province, water pollution arises from runoff from mining dumps, seepage from tailing dams and accidental discharges of untreated waste water.\textsuperscript{33}

To this end, there have been Newspaper\textsuperscript{34} articles on how certain mining firms have polluted the water sources in Kalulushi and Mufulira areas on the Copperbelt province. The article stated that, “the level of freedom which the government had given KCM to pollute the environment and throw sulphuric acid into the Kafue River was unacceptable as it resulted into some people being hospitalised for having stomach problems. It was further reported that this was not the first time the mine was doing that.

The Earth and Environmental Organisation challenged the Environmental Management Agency (ZEMA) to prosecute Konkola Copper Mines (KCM) because the spillage of acid into the river was not accidental. An investigation into the matter was later conducted by the Zambia Environmental Management Agency, followed by a recommendation to suspend the mining

\textsuperscript{31} Act No. 12 of 2011
\textsuperscript{34} 2012-2013 \texttt{http://www.postzambia.com}, “Nkana Water cuts supply after contamination alert”. 18
activities by the said mining firms. The recommendation was made for purposes of ensuring that such mining activities by the said mining firms met the environmental standards stipulated in the Environmental Management Act (EMA).”

Based on the foregoing, it can safely be stated that polluted water may contain pathogens or disease producing organisms to which the public is exposed once this polluted water is used. It has also been noted that the prevalence of environmental diseases such as cholera, dysentery and malaria can be correlated to water pollution and discharge of inadequately treated mining waste, which invariably contribute to poor human health and environmental deterioration, a situation that undermines public health.

Secondly, mining activities impact on public health by distorting air quality. During each stage of a mining project, emissions occur which contain small size particles which are easily dispersed by the wind. Air pollution has been defined as, ‘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 human beings or that interferes with the normal enjoyment of life or property, endangers animal life or causes damage to plant life or property (“or endangers Public Health as a whole”).

Once these pollutants enter the atmosphere, they can cause serious effects to people’s health as it increases chances of respiratory diseases such as tuberculosis and bronchitis. It has been argued that the largest sources of air pollution in mining operations include: particulate matters


36 GRZ- Environmental Council of Zambia; unpublished report, 2013)

37 The Environmental Management Act No. 12 of 2011
transported by the wind as a result of excavations, blasting, and transportation of materials and wind erosion especially in open pit mining.\textsuperscript{38}

Mining activities may also cause land degradation through clearing of land which involves the uprooting of trees with machinery when setting up mining plants. Barrow defines land degradation as the loss of utility or potential utility which cannot be replaced.\textsuperscript{39} In relation to its impact on public health, human beings rely on land as a source of raw materials such as food and medicine essential for their survival and must therefore be kept in good quality. Once degraded, land will not be a viable habitat for organisms and humans and as a result public health which aims at prolonging community lives is compromised. This is because land degradation affects both life support systems as well as the economic livelihood for humans in terms of agriculture.

As noted earlier, although mining activities have boosted Zambia’s economy, these activities may pose a great threat to the environment which is essential in enhancing and promoting public health. Among the various environmental problems associated with mining activities are; degradation of land, water and air pollution, soil degradation, and deforestation.\textsuperscript{40} While these problems exist and may continue to exist, there is need to ensure that public health is protected from the effects.

\textsuperscript{38} Environmental Council of Zambia, unpublished Article, 2012

\textsuperscript{39} Barrow C.J., \textit{Land Degradation} (Cambridge: Cambridge University Press)

\textsuperscript{40} National Environmental Action Plan (NEAP 2000)
2.3 The Importance of Protecting Public Health

As stated earlier, public health aims at preventing diseases and promoting environmental health in populations. There are several reasons why protection of public health is important. Protecting public health benefits both the community and the nation as a whole. At national level, public health protection improves the quality of life by increasing the life expectancy of individuals, reducing mortality rates and eliminating or reducing communicable diseases.

It goes without saying that if the general public has access to clean air, water, food security, solid waste management and other health facilities, their lives are prolonged. One important aspect of improving the health of communities is through education about the importance of protecting the environment. Once the public is educated on issues of pollution control, disease and injury prevention, public health is enhanced. Hence mining activities must not be conducted in a manner that does not take into account the public health concerns. The protection of public health must therefore be a prime concern in all developmental projects including mining activities.

2.4 Conclusion

This chapter has discussed the concept of public health in general. It has also outlined the aspects that promote public health which include; a clean environment, access to clean water, air and health services. The chapter has further discussed the various mining activities and how such activities impact public health. Lastly, the importance of protecting public health has also been highlighted in this chapter. The next chapter discusses the law which regulates mining activities.
and public health protection, as well as the institutional framework for the implementation of the legal regime. The chapter gives an assessment of the functions of institutions such as the Zambia Environmental Management Agency (ZEMA) in protecting public health from the adverse effects of mining activities. The chapter outlines the meaning of environmental impact assessment ("EIA"), as well as public participation insofar as the implementation of mining projects is concerned.
CHAPTER THREE

LEGAL AND INSTITUTIONAL FRAMEWORK FOR THE REGULATION OF MINING ACTIVITIES AND PROTECTION OF PUBLIC HEALTH

3.0 Introduction

It must be mentioned from the outset that a legal framework is required for most human endeavours, whether it be to apply justice or to establish codes of public conduct or to provide facilities for the conduct of social or economic life by regulating and thus enabling such activities to be carried out in an orderly manner. Hence, as in all other activities, legislation is required to establish rules and regulations to control mining activities in order to protect public health. The term mining law in this chapter is used to mean those enactments relating to the control of pollution and ensuring the safety of the public from the negative effects of mining activities.

Zambia has recognised the need for a sustained legal and institutional framework for the protection of public health from the effects of mining activities. In 1995 Zambia launched the national Conservation Strategy as the first step to the protection of the environment, an aspect that promotes public health. This was premised on the fact that, before that, mining companies had no obligation to conserve the environment and public health. The National Conservation Strategy therefore laid a basis for future legislation aimed at preventing and controlling any kind of pollution arising from mining activities.

It is for the foregoing reasons that this chapter discusses the law which regulates mining activities to enhance public health protection, as well as the institutional framework for the
implementation of the legal regime. The chapter gives an assessment of the functions of institutions such as the Zambia Environmental Management Agency (ZEMA) in protecting public health from the adverse effects of mining activities. The chapter highlights the meaning of environmental impact assessment ("EIA"), as well as public participation in the implementation of mining projects.

3.1 The Environmental Management Act No. 12 of 2011

The Environmental Management Act ("the Act") was enacted on 15th April, 2011 to repeal and replace the Environmental Protection and Pollution Control Act of 1990, and to encompass all aspects of environmental and public health protection. It is the principle law on environmental issues, and was passed to provide for integrated environmental management and the protection and conservation of the environmental and the sustainable management and use of natural resources. Further, the Act was enacted to provide for the prevention and control of pollution and environmental degradation, which is as a result of various industrial activities including mining.41

Part II of the Environmental Management Act establishes the Zambia Environmental Management Agency (ZEMA “Agency”) for purposes of carrying out all functions necessary to ensure the sustainable management of natural resources and protection of the environment, and the prevention and control of pollution to water, air and land. Section 9 of the Act outlines the functions of the Agency. Some of the main functions pertinent to the protection of public health from the effects of mining include, inter alia: to co-ordinate the formulation and implementation

41 Preamble of Act No. 12 of 2011
of policies on all aspects of the environment and in particular, make recommendations for the sustainable use of land for mining activities. The Agency is further required to carry out any other activities relating to environmental management and the prevention and control of pollution, which are necessary or conducive to the better performance of its functions under the Act, and to review environmental impact assessment reports, especially those relating to the implementation of mining projects. Section 9 (2) (c) imposes a duty on the Agency to develop and enforce measures aimed at preventing and controlling pollution, which provision hinges also on the protection of public health from the effects of pollution arising from mining activities.

In addition to the above, section 14 of the Act is yet another salient feature relevant to the protection of public health from the negative effects of mining activities. This section establishes an inspectorate for administration, monitoring and enforcing of measures for the protection of the environment and the prevention of pollution, thereby ensuring that activities from the mines do not negatively affect public health. To this end, section 15 allows an inspector to enter and search any industrial facility or mining plant, or any other premises, where the inspector has reasonable grounds to believe information or documents which are necessary to the investigation are kept or an activity discharging or likely to discharge a contaminant or pollutant into the environment is being carried out or likely to be carried out.

In this regard, if a mining activity is causing any pollutant to be discharged in water, air or land, likely to affect the health of the general public and the environment, the inspector may seize and detain any substance, material, or matter likely to cause pollution contrary to the provisions of the Act.\textsuperscript{42}

\textsuperscript{42} Section 15 (3) of Act No. 12 of 2011
Further, part IV of Act caters for public health protection by outlining the procedure and methods of environmental protection and pollution control. To this end, section 31 of the Environmental Management Act provides that, in protecting the atmosphere, the Minister responsible for the appropriate ministry shall undertake research relating to substances, activities and practices that deplete the ozone layer and other components of stratosphere to the detriment of human health and well-being and the environment.

Mention must be made that one of the major contributors to the discharge and increase of greenhouse gases responsible for ozone layer depletion are the mines. This is as a result of the various chemical activities which take place in the mining plant, which in turn burn and release more carbon dioxide in the atmosphere, leading to its depletion. Once the ozone layer gets depleted, the resulting effect on human and public health are that, people start developing skin diseases due to the radiation that come direct from the sun. In addition, there would be loss of vegetation necessary for farming, thereby increasing the poverty levels.43

Section 31 (2) requires persons to obtain a licence for purposes of conducting any activity that produces, or is likely to produce a controlled substance that depletes the ozone layer, failure to which attracts an imposition of a penalty under section 31 (1). Further, section 32 prohibits discharges and contaminants into the environment if that discharge causes or is likely to cause an adverse effect to public health. An application for an emission licence by the mines is determined by the Minister in charge of the ministry. Section 38 of the Act requires any person who discharges any pollutant or contaminant into the environment or emits noise must take

reasonable measures to ensure the best practicable option, that is to say, the best method for preventing or minimising adverse effects on the environment and public health.

In ensuring the best practicable option, regard shall be had to the nature of the discharge or emission and the sensitivity of the general public to the adverse effects of mining activities.\(^{44}\)

In minimising the effects of mining activities on public health, the law requires that the current state of technical knowledge be applied. This entails the adoption of the best option as compared to other options which promote low carbon investment and cleaner production and sustainable land use.

3.2 Other Supporting Pieces of Legislation

While the Environmental Management Act is the principle law regarding the regulation of development projects such as mining, as well as the prevention of activities likely to have an adverse impact on environmental management and public health, there are other pieces of legislation that supplement the protective mechanisms regarding public health. Among them are the following;

3.2.0 The Public Health Act, Chapter 295 of the Laws of Zambia

The Public Health Act is another piece of legislation associated with public health protection in Zambia. It is an Act that provides for the prevention and suppression of diseases including those

\(^{44}\) Section 38 (3) (a) of Act No. 12 of 2011
associated with the effects of mining activities, and generally to regulate all matters connected with public health. Under section 65, the Act provides that every local authority is under a duty to take all lawful, necessary and reasonably practical measures for maintaining its districts at all times in a clean and sanitary condition, for preventing the occurrence therein, or remedying or causing to be remedied any nuisance or condition liable to be injurious or dangerous to public health, and to take proceedings at law against any person causing such condition.

From the foregoing, it can safely be stated that the public health Act imposes a duty on the local authority to take all measures to prevent any pollution dangerous to public health of any supply of water which the public within its districts has a right to use and does use for drinking or domestic purposes. Further, to enhance protection of public health from the effects of mining activities, the Act requires the local authority to take measures for purifying any contamination of water which has become polluted by discharges from mining sites, and taking proceedings against any person or mining firm responsible for the pollution of any stream so as to be a danger to health.46

3.2.1 The Local Government Act, Chapter 281 of the Laws of Zambia

The Local government Act is another supporting piece of legislation in the field of public health protection in Zambia. Its area of coverage for the regulation of mining activities is the establishment of local authorities and local government administrative systems. The Act provides for maintenance of drains, sewers and streams, among others. Consequently, the Act provides

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45 Preamble of Chapter 295 of the Laws of Zambia
46 Section 78 (a) and (b) of Chapter 295 of the Laws of Zambia
that the council is to take all measures necessary for the conservation of the environment and public health as a whole. In addition, section 56 of the Environmental Management Act lays out the role of local authorities in waste management to ensure the promotion and enhancement of public health protection and sustainable management of natural resources.

3.2.2 The Mines and Minerals Development Act No. 7 of 2008

In relation to mining, the Mines and Minerals Development Act sets out the procedural requirement when conducting an impact assessment of a mining project. Where established, the nature and scope of functions carried out by environmental and public health protection institutions in the implementation of the environmental impact assessment (EIA) and public participation principles is guided by the Environmental Management Act.

Section 75 of the Act provides that in deciding whether or not to grant any mining right, the Minister responsible must take into account the need to conserve and protect the air, water and soil, in or on the land over which the right is sought, and to cause such environmental impact studies and other studies to be carried out necessary to the protection of public health from the negative effects of mining.

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47 Section 50 of Chapter 281 of the Laws of Zambia
48 Act No. 7 of 2008
3.2.3 Mining Waste Regulations Statutory Instrument No. 71 2011

The Mining waste regulation provides for the control of transportation of mining wastes that are hazardous to public health, and for the management of waste disposal sites. All persons transporting waste are required to obtain licences and have to adhere to conditions and standards set by the Environmental Management Agency.

3.3 Constitutional Provisions

It is worth noting that the current Zambian Constitution addresses the subject of environmental management, thereby enhancing the protection of public health from the effects of various activities such as mining, among others. This subject of is in form of non-justiciable Directive Principles of State Policy. These principles, though not enforceable however, recognize the importance of the citizens’ right to a clean environment which subsequently hinges on the protection of public health from the adverse effects of mining.

3.4. The Concept of Environmental Impact Assessment ("EIA")

It must be mentioned at the outset that there is need to have an inclusive approach towards public health protection from the adverse effects of mining. This therefore entails the effective integration of all interested and affected parties into environmental and public health protection mechanisms.

49 Article 112 of Chapter 1 of the Laws of Zambia
EIA is one mechanism that has been devised as a tool for mitigating environmental damage caused by developmental projects such as mining. It is a vital component of sustainable development and its vitality is that it ensures the weighing of environmental effects against possible benefits when initiating a proposed project. Many scholars are of the view that EIA’s success is dependent to a large extent on the integration of effective public participation into the process. EIA is therefore effective where all the stakeholders are allowed to participate in the process.

Environmental Impact Assessment refers to the process of examining, analyzing and assessing proposed activities, policies or programs to integrate environmental issues into development planning and maximize the potential for environmentally sound projects and sustainable development. Section 2 of the Environmental Management Act defines Environmental Impact Assessment to as: “A systematic examination conducted to determine whether or not a proposed project or an activity will have significant adverse or beneficial impacts on the environment.” This means that any proposed projects likely to cause negative impacts on the environment must be analyzed and assessed before their commencement.

This principle (EIA) therefore embodies public participation by encouraging awareness and information availability to the public. The role of EIA in society is that it is an avenue for the

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50 Section 2 of the Environmental Management Act No. 12 of 2011 defines sustainable development as that which meets the needs of present generations without causing deterioration or compromising the ability to meet the needs of future generations. EIA is a component of sustainable development in that it helps in protecting the environment from impacts caused by development projects. It does this through impact assessment studies which are taken into consideration when deciding whether to implement a proposed project or not.


public to contribute to the decision making process through written and oral contributions to the decision maker(s). Therefore there is need to have adequate integration of stakeholders in the EIA process for a mining project.

Stakeholder or public participation in the EIA process is emphasized both at national and international levels. Public Participation is a process which leads to a joint effort by stakeholders, technical specialists, the authorities and the proponent who work together to produce better decisions than if they had acted independently.

The reasons for conducting EIA are inter alia to ascertain the environmental and public health suitability of the mining project long before it is implemented and to provide information for decision-making on the environmental and public health consequences of proposed actions.

EIA also promotes sustainable development through the identification of appropriate enhancement and mitigation measures. Further, EIA ensures that there is participation of all the stakeholders in the decision making process. EIA is therefore a precautionary approach to


56 In Hungary v Slovakia, General List No. 92, 25th September 1997, Justice Weeramantry stated that a balance must be held between environmental considerations and development considerations. EIA therefore promotes sustainable development because it ensures that adverse effects to the environment and public health are foreseen and mitigated during project planning.

public health protection which is aimed at ensuring that potential negative impacts of proposed mining projects are identified and mitigated in the planning process.

It is worth mentioning that the Zambia Environmental Management Agency (ZEMA) through its mandated functions, uphold the principles of EIA and public participation in ensuring public health protection from the adverse effects of mining. To this end, section 9 (2) (h), (m) and (o) of the Environmental Management Act provides thus; the agency shall, ensure integration of environmental concerns in overall national planning through co-ordination with appropriate authorities; request information on projects proposed, planned or in progress and advise stakeholders on projects, programmes, plans and policies for which environmental assessments are necessary, and; publicise information on any aspect of the environment and facilitate public access to information on the environment, respectively.

3.5 Conclusion

It been discussed in this chapter that the making of explicit and enforceable regulations to protect public health from the adverse effects of mining is an important step in the implementation of environmental and public health legislation in Zambia. Secondly an assessment of all environmental, mining and public health protection related legislation including various principles of international law is vital and inevitable. This is in order to see how adequate the mechanisms are in ensuring that public health is protected from the adverse effects of mining. As stated above, the intention of the Environmental Management Act, 2011, is to provide for environmental protection and management, as well as for the conduct of strategic environmental
assessments of proposed policies, plans and programs likely to have an impact on the environment. The Act also provides for the prevention and control of pollution and environmental degradation which subsequently lead to the protection of public health.58

Hence, the next chapter builds up from this chapter and analyses whether the legal and institutional frameworks for the protection of public health from the effects of mining are adequate.

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58 Preamble of the Environmental Management Act No. 12 of 2011
CHAPTER FOUR

THE ADEQUACY OF THE PROTECTIVE MECHANISMS FOR PUBLIC HEALTH
FROM THE ADVERSE EFFECTS OF MINING IN ZAMBIA.

4.0 Introduction

It must be mentioned from the outset that the making of explicit and enforceable regulations to protect public health from the adverse effects of mining is an important step in the implementation of environmental and public health legislation in Zambia. Secondly an assessment of all environmental, mining and public health protection related legislation including various principles of international law is vital and inevitable. This is in order to see how adequate the mechanisms are, in ensuring that public health is protected from the adverse effects of mining.

It is worth mentioning that the Zambia Environmental Management agency (ZEMA) through its functions, upholds the principles of EIA and public participation in ensuring public health protection from the adverse effects of mining. To this end, section 9 (2) (h), (m) and (o) of the Environmental Management Act provides that; the agency shall, ensure integration of environmental concerns in overall national planning through co-ordination with appropriate authorities; request information on projects proposed, planned or in progress and advise stakeholders on projects, programmes, plans and policies for which environmental assessments are necessary, and; publicise information on any aspect of the environment and facilitate public access to information on the environment, respectively. This Chapter therefore builds up from the preceding chapter and analyses the adequacy of the mechanisms for protection of public health from the adverse effects of mining.
4.1 An Analysis of the Adequacy of the Mechanisms for the Protection of Public Health from the Effects of Mining Activities

It is worth mentioning that prior to the enactment of the Environmental Management Act, existing protective mechanisms for public health from the effects of mining activities were incoherent and ineffective. This was largely due to the inadequate enforcement mechanism and ineffective administration and administrative procedures.\(^{59}\) In an effort to curb existing problems, the current laws on the protection of public health from the effects of mining activities are comprehensive to the extent that they address the relevant issues pertaining to such protection.

Firstly, the Environmental Management Act\(^{60}\) determines that mining activities that impact on the environment and public health must comply with the environmental standards set out in the Act. To this end, section 29 (1) provides that no person should undertake any project that may have an effect on the environment without the written approval of the Zambia Environmental Management Agency (ZEMA), and except in accordance with the conditions imposed in the approval. It can safely be stated that before mining projects are implemented, a systematic examination must be conducted to determine whether or not such mining activities will have any adverse impacts on public health.

The practice of EIA for the implementation of mining projects is inherently a public process that informs the environmental decision making. This means that the practice of EIA is dependent on the involvement and participation of several individuals in a community. This underscores the

\(^{59}\) Kribet Benjamin, Impact Assessment of Mining and Processing of Coal on the Environment: 2009 Article

\(^{60}\) Act No. 12 of 2011
reasons for assessing the public participation provisions of the EIA process in Zambia and whether it is implemented in a manner that promotes public health protection.

One of the major reforms introduced to the EIA regulations in the Environmental Management Act is the streamlining of the EIA process as opposed to the previous system where it was argued that the EIA administrative system was overburdened by large numbers of applications associated with insignificant projects.\(^{61}\) The new regime has streamlined the EIA process by ensuring that some activities or projects that are considered miniscule and pose no adverse effect on public health and the environment are exempted from the EIA process. This has contributed to the effectiveness and adequacy of the protection of public health from the effects of mining activities.

In addition, the regulations have addressed some of the strongest criticisms that were leveled against the previous Environmental Protection and Pollution Control Act.\(^{62}\) For instance the inadequacy in the access to information in the previous regime has been addressed by ensuring an emphasis on the extent to which the public can make meaningful decisions and consequently influencing adequate protection of public health from the effects of mining activities.\(^{63}\)

However, while it has been argued that the legal and institutional framework on the protection of public health from the effects of mining activities is comprehensive is difficult to ignore suggestions that this just reflects “paper commitment.” Hence the rest of the chapter discusses

\(^{61}\) Kidd, Environmental Law, 248-251

\(^{62}\) Environmental Protection and Pollution Control Act, 1990

the inadequacies of the protective legal and institutional mechanisms for public health from the
effects of mining activities.

4.2 The Inadequacies of the Mechanisms for the Protection of Public Health from the
effects of Mining Activities

It is worth noting that while various pieces of legislation comprehensively provide for the
protection of public health from the adverse effects of mining activities, by putting in place
certain guidelines such as the need to conduct Environmental Impact Assessments (EIA) and
involving the public in the process, as discussed in the preceding chapter, the practicability and
efficiency in the implementation of such protective mechanisms remain questionable.

For instance, it is evident that certain administrative decisions such that those made by the
Minister under part IV of the Environmental Management Act have been criticized mostly for
failing to follow basic principles of good policy making, for example, by failing to pay attention
to legitimate citizens’ interests and to take their concerns into account when granting an approval
for the commencement of a mining project. This therefore undermines the protection of public
health to the effect that mining firms would conduct their activities without due regard to likely
effect of such activities on human health and the environment.

The above preposition is substantiated by a newspaper report where farmers in Chambishi Farm
Bloc in Kalulushi District complained about mining activities being conducted by the Non-

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64 Kribet Benjamin, Impact Assessment of Mining and Processing of Coal on the Environment

65 Times of Zambia, 24th January, 2013
Ferrous Company Africa ("NFCA") Mining, saying their crops were being destroyed. The farmers complained that NFCA was conducting its mining activities 10 metres away from their fields without showing concern and failing to carry out consultations. As a result of the discharges from these mining activities, crops were turning yellow.

From the foregoing, it can safely be stated that the adequacy of the mechanism for the protection of public health goes beyond just providing comprehensive legal and institutional framework. It also calls for adequate consultation of the people who are directly affected by such mining activities. The inability to realize that effective consultation of the people affected or likely to be affected by the implementation of mining projects in their localities makes the protective mechanisms inadequate. This is due to the fact that even if there is a fully functional legal and institutional framework, the lack of co-ordination and communication between project proponents, relevant authorities and the general public in so far as an EIA process for mining projects is concerned, protection of public health cannot be adequately enhanced. It is therefore imperative that there is good communication and co-ordination among the stakeholders, mining project proponents and the relevant authorities so as to prevent conflicts.

In addition, the Zambia Environmental Management Agency (ZEMA), which is given the mandate to ensure that an EIA is conducted before mining projects are implemented, is mostly under-staffed. Moreover, the Agency does not have enough funds to maintain a well-managed and organised monitoring system. As a result, there seems to be lack of continuous monitoring process of the mining activities to ensure that such activities comply with the standards set out in the legislation. This has led to the inadequacy of the protection of public health due to the fact

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that in the long run of such mining activities, the general public is exposed to risks of pollution and other health hazards.\textsuperscript{67}

Worse more, it has been observed that role played by other agencies such as the local authorities in ensuring the protection of public health, is merely supervisory. The problem with this is that even if mining activities are conducted in a manner that negatively affects public health, there is lack of investigation regarding the same so as to ensure that public health protection is enhanced by making sure that environmental regulations are adhered to.

Unclear wording in legislation and guidelines for public health protection is yet another constraint to managing and encouraging protection of public health. It has been observed that complex and highly technical guidelines relating to protection of the environment and public health from the effects of mining activities can make the results inaccessible.

The use of sophisticated technical jargon to reduce potential or actual impacts of mining projects on public health is one of the biggest problems contributing to the inadequacy of public health protective mechanisms. This is due to the fact that mining officers responsible for ensuring that environmental and public health standards are upheld, are unable to interpret and enforce such legislative measures and guidelines. An example of such was in the response to the questionnaire by an environmental officer at Mopani Copper Mines (MCM) site, who expressly stated that he could not interpret what was in the Legislation (Environmental Mining Regulation) and just ended up mouthing the words. While it can be argued that these mining officers could seek help from relevant officers from ZEMA, practically this may not possible. From the foregoing, it can

\textsuperscript{67} Times of Zambia, 22\textsuperscript{nd} July, 2013
be safely be stated that there are a number of common features in statutes that appear to undermine their value as guidance tools for public health protection.

Unfortunately, whereas the majority who are affected by the implementation of mining projects in Zambia are illiterate, EIA reports use English as a means of communication. The lack of having EIA reports for the implementation of mining projects in local language versions in Zambia is a further barrier leading to the inadequacy in ensuring protection of public health as it hinders effective participation of those who are likely to be directly affected by the negative impacts of mining activities.

In Zambia, it has been observed that public involvement in the EIA process and legislative making process for the regulation of mining activities is perceived as a threat to authority and widely viewed defensively by many government agencies and project proponents. The “we know better” approach by relevant authorities can also pose a constraint in enhancing protection of public health, and many agencies seem to have this attitude in respect of local people who are likely to be the direct victims of discharges as a result of mining activities.

From the analysis above, it can safely be stated that effective public health protection from the effects of mining will only occur or emerge in Zambia, from institutional learning processes and critical reflections on past performance. These processes will themselves need to involve various stakeholders, especially local people to serve their purposes. Without this change in direction, we can expect to see a continuation in the expansion of public health protective mechanisms literature, but little change in institutional behaviour and attitude towards it. Furthermore, there is

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68 Questionnaire interview to a resident of Mufulira, dated 14 February, 2013

69 The NFCA Article, Times of Zambia, 24th January, 2013
need to identify and select projects that require an EIA process so as to lessen administrative burden to conduct an EIA process for a mining project, hence ensuring its effectiveness in protecting public health.

4.3 Conclusion

It has been observed and argued in this chapter that greater attention to stakeholder involvement during the EIA process for a mining project leads to better environmental assessment and public health protection, and thus to the formulation of projects that deliver more social benefits. Too often are stakeholders perceived synonymous with local people, and too often are highly extractive forms of interrogation camouflaged under the clock of “participation”. It is one thing to be engaged in a two-way and transparent dialogue, but quite another to be accosted on a street by a clipboard-wielding stranger consultant. Sadly, in Zambia, the latter remains the norm and not the exception as many people are not fully informed about getting involved in the EIA process for the implementation of a mining project.
CHAPTER FIVE

CONCLUSION AND RECOMMENDATIONS

5.0 General Conclusion

This research set out to examine the effects of mining activities on public health and the adequacy of the mechanisms for protection in Zambia. In Chapter one, the essay discussed the basic aspects of the research and gave a preface to the subject. It also highlighted the salient features, the character and content of Chapters 2, 3, 4 and 5. Chapter two introduced the concept of public health. It also outlined the various aspects that promote public health which include; a clean environment, access to clean water, air and health services. The chapter further discussed the various mining activities and how such activities impact public health. It was noted and discussed in this chapter that the various phases involved in a mining project may adversely impact public health through pollution as a result of emissions from such mining activities. Lastly, the importance of protecting public health was highlighted in this chapter.

In Chapter three the essay highlighted a number of relevant laws which regulate mining activities and public health protection in Zambia, as well as the institutional framework for the implementation of the legal regime. The chapter gives an appraisal of the functions of institutions such as the Zambia Environmental Management Agency (ZEMA) in protecting public health from the adverse effects of mining activities. The chapter outlines the meaning of environmental impact assessment ("EIA"), as well as public participation in the implementation of a mining project and what aspects of that have been upheld in ZEMA’s discharge of functions.
Crucial issues arising from the chapter range from defining the concepts of Environmental Impact Assessment (EIA) and public participation and outlining their parameters and that of other laws. The Chapter then indicated that based on the above, the Zambia Environmental Management Agency (ZEMA) and other relevant institutions such as the Local Authority occupy a crucial position in as far as upholding the protection of public health from the adverse effects of mining is concerned despite the challenges and weaknesses in the manner they carry out their functions.

Chapter four provided an attempt to analyse the adequacy of the mechanisms for protection of public health from the adverse effects of mining. The chapter logically argued that the various challenges in the implementation of protective mechanisms are linked with the government’s policies and political motives. It also highlighted how other jurisdictions have implemented such protective mechanisms, especially the concept of environmental impact assessment and public participation and whether this is obtaining in Zambia. The chapter then argued that greater attention to stakeholder involvement during the EIA process for a mining project leads to better environmental assessment and public health protection, and thus to the formulation of projects that deliver more social benefits. Yet the language of stakeholder involvement is peculiar in the degree to which it is abused.

The chapter pinpointed and discussed that too often are stakeholders perceived synonymous with local people, and too often are highly extractive forms of interrogation camouflaged under the clock of “participation.” It is one thing to be engaged in a two-way and transparent dialogue, but quite another to be accosted on a street by a clipboard-wielding stranger consultant. Sadly, in
Zambia, the latter remains the norm and not the exception as many people are not fully informed about getting involved in the EIA process for the implementation of a mining project.

Finally, Chapter five presents the overall conclusion based on the specific conclusions established in chapters two, three and four, and offers recommendations for enhanced public health protection, practice and mechanisms.

5.1 Recommendations

Having examined the effectiveness and efficiency of the legal and institutional framework for the protection of public health from the effects of mining activities, and based on the conclusions above, the following are now proposed for purposes of reform;

5.1.0 Consistent and Continuous Monitoring Process

This research observed that there is no consistency in the monitoring process of the effects of mining activities on public health. It is therefore recommended that in order to adequately protect public health from the effects of mining activities, the monitoring process should be consistent and continuous. This is to ensure that mining activities are conducted in a manner that complies with environmental standards required in the Environmental Management Act and other pieces of legislation. Further, the continued monitoring process would ensure that the Zambia Environmental Management Agency respond to emerging challenges concerning protection of public health, as far as mining activities are concerned.
Zambia, the latter remains the norm and not the exception as many people are not fully informed about getting involved in the EIA process for the implementation of a mining project.

Finally, Chapter five presents the overall conclusion based on the specific conclusions established in chapters two, three and four, and offers recommendations for enhanced public health protection, practice and mechanisms.

5.1 Recommendations

Having examined the effectiveness and efficiency of the legal and institutional framework for the protection of public health from the effects of mining activities, and based on the conclusions above, the following are now proposed for purposes of reform;

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institution in promoting and protecting public health in Zambia has been viewed as a “toothless bulldog” lacking in status and political influence. This stems from the fact that, as far as EIA for the implementation of a mining project is concerned, political decisions seem to take precedence over environmental interests.

The lack of political independence of the Agency also explains why EIA for a mining project is largely viewed as a “top-down” requirement imposed by external agencies. The Agency is therefore not able to fully discharge its mandate as a result of the aforementioned challenges it is faced with in as far as protection of public health from the effects of mining activities is concerned. These need to be addressed accordingly by ensuring that the relevant and important factors are put in place so that the Agency can be responsive to its ever changing role in society.

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GENERAL QUESTIONNAIRE TO ZEMA INSPECTORS.

INTRODUCTION

I am a graduating student of the University of Zambia school of Law. Am carrying out a research on the subject: “Mining Activities and their Effects on Public Health: How adequate are the mechanisms for protection?” The main objective of the research is to highlight the effects of mining activities on public health in Zambia, and assess whether or not there are adequate mechanisms for protection of public health.

Please note that the information required will be used solely for academic purposes and your assistance will be highly appreciated.

INSTRUCTIONS TO THE RESPONDENT

This questionnaire contains both open and closed-ended questions. Open-ended questions require you to write down your answer/opinion while closed ones only require you to tick your answer.

Date ........................................................................................................................................

Respondent’s name..................................................................................................................

Respondent’s position................................................................................................................

1.0 What are the major public health hazards associated with mining activities? Give four to the most

a) ........................................................................................................................................

b) ........................................................................................................................................

c) ........................................................................................................................................

d) ........................................................................................................................................

2.0 What measures has ZEMA put in place to ensure mining firms effectively manage the hazards you have mentioned above?

a) ........................................................................................................................................

b) ........................................................................................................................................

c) ........................................................................................................................................

d) ........................................................................................................................................
GENERAL QUESTIONNAIRE TO RESIDENTS IN MINING AREAS

INTRODUCTION

I am a graduating student of the University of Zambia School of Law. Am carrying out a research on the subject: “Mining Activities and their Effects on Public Health: How adequate are the mechanisms for protection?” The main objective of the research is to highlight the effects of mining activities on public health in Zambia, and assess whether or not there are adequate mechanisms for protection of public health.

Please note that the information required will be used solely for academic purposes and your assistance will be greatly appreciated.

INSTRUCTIONS TO RESPONDENT

This questionnaire contains both open and closed-ended questions. Open-ended questions will require you to fill in your answer/opinion while closed ones only require you to tick your answer.

Date .................................................................................................................................

Respondent's name........................................................................................................

1.0 Are there any public health complications arising from mining activities in your area?

☐ Yes ☐ No

1.1 If Yes to the question above, what are some of the public health complications that you experience which you think are as a result of mining activities in your area?

a) ........................................................................................................................................

b) ........................................................................................................................................

c) ........................................................................................................................................

d) ........................................................................................................................................

2. Do you think mining firms are doing enough to reduce or eradicate the complications mentioned above?

☐ Yes ☐ No
3. In line with the mining activities, do you know that an Environmental Impact Assessment (E.I.A) must be conducted?

☐ Yes  ☐ No

Others, specify ..............................................................................................................................

4. If the answer to the above is Yes, was an E.I.A conducted here or has there been any information suggesting that it was conducted?

☐ Yes it was conducted

☐ Information suggest that it was conducted

☐ No it was not conducted

Others, specify ..............................................................................................................................

5. If the answer to the above is Yes it was conducted, were you involved in the assessment process and how?

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6. How often does ZEMA consult and educate you on the effects of mining activities in your area?

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NB: I wish to sincerely thank you for your time and valuable information you have provided.
GENERAL QUESTIONNAIRE TO ENVIRONMENTAL OFFICERS OF MINING FIRMS

INTRODUCTION

I am a graduating student of the University of Zambia School of Law. Am carrying out a research on the subject: “Mining Activities and their Effects on Public Health: How adequate are the mechanisms for protection?” The main objective of the research is to highlight the effects of mining activities on public health in Zambia, and assess whether there are adequate mechanisms for protection.

Please note that the information required will be used solely for academic purposes and your assistance will be highly appreciated.

INSTRUCTIONS

This questionnaire contains both open and closed-ended questions. Open ended questions will require filling in while closed ones only require ticking.

Date .........................................................................................................................

Respondent’s name................................................................................................

Respondent’s position............................................................................................

1.1 In your own opinion, do you think there are any public health hazards associated with the mining activities being carried out in your area of operation?

1.2 If yes to the question above, what are some of the major public health hazards associated with your mining firm? Give at the most four

   a) ............................................................................................................................

   b) ............................................................................................................................

   c) ............................................................................................................................

   d) ............................................................................................................................

2.0 How do you manage the hazards mentioned above to ensure that they do not affect public health?

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3.0 What components of public health are usually affected by your mining activities which you aim at protecting?

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NB: I wish to sincerely thank you for your time and valuable information you have provided.