



ST, MARY'S UNIVERSITY COLLEGE
FACULTY OF LAW

LL.B THESIS

**ENVIRONMENTAL POLLUTION IN RIVER KOLFE
KERANIO AREA THE LAW AND THE PRACTICES**

BY: FISSHA KELEM

ADDIS ABABA, ETHIOPIA

JULY 2010

ENVIRONMENTAL POLLUTION IN RIVER KOLFE KERANIO AREA
THE LAW AND THE PRACTICES

BY: FISSHA KELEM

ADVISOR:- SELMON G/EGZIABHER

**SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS
FOR THE BACHELOR DEGREE OF LAW (LLB) AT THE FACULTY OF
LAW, ST,MARY'S UNIVERSITY COLLEGE.**

ADDIS ABABA, ETHIOPIA

JULY 2010

CERTIFICATE OF AUTHOR SHIP

This paper is my original work and I certify that all source of information including tables and figures are clearly acknowledged in the text at the place where it appears.

Signed.....

Date.....

Content	III
List of Table and figures	V
Acronyms and abbreviations	VI
Acknowledgements	VII
Introduction	VIII

Chapter One

1	Statement of the problem	1
2	Objective of the study	2
2.1	General objective	2
2.2	Specific objective	2
3	Significance of the study	2
4	Scope of the research	3
5	Limitation of the research	3

Chapter Two

	General background and overview	9
2.1	What is environment?	9
2.2	Environmental law	10
2.2.1	Definition	10-11
2.2.2	Historical background	12
2.2.3	Function of environmental law	13
2.2.4	Source of environmental law	14
2.3	Environmental pollution	14
2.3.1	Definition	14
2.3.2	Source of environmental pollution	15
2.3.3	Types of environmental pollution	16-17
2.3.4	Objective of environmental pollution control	18

2.4	Environmental protection organ	18
2.4.1	Definition	18
2.5	General principles of environmental law	19
2.5.1	The right to live in a healthy and clean environments ...	20
2.5.2	Sustainable development	20
2.5.3	Environmental impact assessment	21
2.5.4	Environmental standards	21
2.5.5	Polluters pays principles and precautionary principles..	21-22

Chapter Three

	Environmental law and the practice	23
3.1	The effect of industrial investment on environment	28
3.2	The impact of water pollution in Kolfe Kernio area	37
3.2.1	Socio- Economic impact	37
3.2.2	Environmental impact	42
3.3	Ethiopian environmental pollution control proclamation and practical problems in Kolfe Kernio area	43
3.4	Major environmental actors and their mandates	47
3.4.1	Governmental organs	47
3.4.2	Non-governmental organ (NGOs) and	48
3.4.3	Private institute	48
3.5	Public participation in the environmental protection in Kolfe Keranio area	50
3.6	Cordination of E.P.A and other stakeholders	51
3.7	Offence and penalties for environmental crimes	52
3.7.1	Civil liability	53
3.7.2	Criminal liability	53

Chapter Four

	Conclusion and recommendation.....	55
4.1	Conclusion	55
4.2	Recommendation.....	57

❖ Bibliography

LIST OF TABLE AND FIGURES

	PAGE
Picture 1.	Photo showing movement of little Akaki river before pollution around Asko sub city 29
Picture 2.	Movement of Akaki river after pollution by A.A lazar factory 30-31
Table 1.	Major pollutants generated from industries around the river 32
Picture 3.	Liquid waste from industry flow to the little Akaki river ... 33-34
Picture 4.	Dire lazar and Ethio marble factory the primary treatment plants 35-36
Picture 5.	Photo showing animals use the polluted water 39
Picture 6.	Liquid waste from toilets and both rooms 45-46
Table 2.	Actors and actions required to Minimize the pollution loads 49

LIST OF ABBREVIATIONS AND SYMBOLS

Art	Article
AWSA	Addis Ababa water and Sewerage Authority
EPA	Environmental protection Authority
EIA	Environmental Impact Assessment
EPB	Environmental protection Bureau of Addis Ababa
FDRE	Federal Democratic Republic of Ethiopia
MOWR	Ministry of Water Resource
KM	Kilo meter
NGOs	Non governmental organization
PCD	Pollution control Department EPA
PEP	Preventive Environmental practice
PPP	Polluter pays principle
Temp	Temperature
TL	Treatment level
WEM	Water and environmental management
WHO	World Health organization

ACKNOWLEDGEMENTS

First and foremost I would like to thank my God. Secondly I would like to thank my advisor Ato Selmon.G He advice through out the preparation of this thesis.

I would like to thank staff members of EPA and APAP office in Addis Ababa Who helped me by facilitating necessary material. And also I would like to thank my Family and friends for all my success.

Finally my special thanks to Miss Genet Who helped me by writing the final version of this thesis.

INTRODUCTION

Addis Ababa, the capital city of Ethiopia, is sited at the geographical center of the country. The city is encircled by the Entoto Hills to the north, Mount Menagesha to the west. The topography of Addis Ababa is rugged with many typical volcanic features. The central part of the city is characterized by gentle and rolling topography. The several creeks which cross the urban area and the windy gorges and valleys of the great Akaki, little Akaki and Kebena rivers add further elements to this scenery.

The most important streams and rivers that converge to little and Great Akaki rivers also include Ginfillie, Bantiyketu, Buhe and Kechene streams. Addis Ababa is a tropical city. Trees, Gardens and urban agriculture have made Addis Ababa a Green city. Vegetation in Addis Ababa is not only an aesthetic element. It is also an important economic asset that must be preserved and improved.

Rain fall in the city is seasonal varying in amount, space and time. There is the long and heavy summer rain (called kiremt) and there are short and moderate rains in spring, autumn and winter. These are collectively known as the little rain or Belg. Though all the four seasons have their own period and climatic characteristics, the important ones which show remarkable differences in rain fall are the summer and winter seasons.

In the contrast to the summer (wet season), the winter is a season of lowest rainfall and hence is referred as dry season.

The city has an average maximum and minimum temperatures of 26⁰c and 6⁰c respectively, and an average temperature of 16⁰C. Between October and January, when skies are clear, temperature at night falls below freezing.

According to Federal Democratic Republic of Ethiopia population census commission 2007 the total population sizes of Addis Ababa urban + rural both sexes 2,738,248. Male 1,304,518 and female 1,433,730. This corresponds to an increase over that 1984 population. And among all persons 2,738,248 the population size of regions by

religion orthodox 2,044,481, protestant 212,806, catholic 13,185, Muslim/Islam 443,821 traditional 1,375 and other 22,580.

Many small streams that flow down from the ranges of Mt. Entoto and the adjoining suburbs converge to form two main rivers, the great and little Akaki Rivers. Small streams whose source starts from north western part of Entoto Mountain meet at its bottom on Gulele area. There is some serious issue of affect environment one of the major factor to affect environment is industrialization. Many of the industrial establishments in Addis Ababa are located alongside nearby rivers. Particularly the little Akaki river such as industrial establishments include the Addis Ababa and Dire Tanneries, Addis Ababa Glass factory, Ethio marble factory, TikurAbay Shoo factory Addis Ababa lazarus factory, Diloil and Gulele soap factories, Commercial activities are particularly dense in Woreda 7 (Kolfe area) from the upper catchments districts.

The intent of this paper is to analyze and assess issues relating to environmental pollution in river Kolfe Keranio area the law and the practices so as to avoid some specific problems. In doing so the study will examine the legal policy and institutional framework and coordination of EPA and other stakeholder. Related facts will be studied to find out what approach should be adapted and what measure should be taken to solve the problem.

This paper is divided in to four chapters in the first chapter I will try to show the statement of the problem objective of the study, significance of study, scope of the research and limitation of the research.

The second chapter deals with general background and overview. The definition of environment and environmental law, historical back grounds, function and source of environmental law, definition of environmental pollution objective of environmental pollution control and protection organ and Brief discussion of what principle of environmental law is appropriate for environment protection.

The third chapter is deal with Environmental law and the practice, the impact of water pollution, major environmental actors and their mandates to implementation of law at the administrative level based on the necessary institutional set-up, practical

problems of environmental pollution, coordination of environment protection Authority and other stakeholders, public participation in the environmental protection, the effect of industrial investment, offence and penalties. Finally conclusion and recommendation.

CHAPTER ONE

STATEMENT OF THE PROBLEM

The purpose of our environmental pollution control is the protection of the environment, in general and the safeguarding of human health and well being, as well as the maintaining of the biota and aesthetic value of nature, in particular, are the duty and responsibility of all. It is appropriate to eliminate or when not possible, to mitigate pollution as undesirable consequence or social and economic development activities.¹

The environmental pollution control says “No person shall pollute or cause any other person to pollute the environment by violating the relevant environmental standard.”² But practically this law not fully applied. There is a gap between the law and the practice. The problem of implementation of Environmental law is affect the citizens of Addis Ababa. Some of the problem is health problem, air and water pollution and land degradation.

The majority of industries discharged their waste in the form of solid and liquid, gaseous and sound, dust particles and smoke, with out any treatment.

For example the industries located in Addis Ababa 90% discharge their waste with out any treatment in to near by water bodies and open spaces. It can be assumed that there has been toxic impact on humans since many people use this water for various reasons directly from the streams.

In general the problems are:

- Absence of waste water treatment system.
- High risk of population contamination by industrial waste.
- Weakness of institutional framework for implementation of environmental policies.
- Absences of environmental awareness and education.

1. proclamation No. 300/2002 Preamble

2. Cited at note 1 Art 2(1)

RESEARCH OBJECTIVE

General Objective

The research has general objective of critically investigating and analyzing the legal, policy and institutional factors and situations which open the door for environmental degradation and to fill the gap by identifying the problem and produce possible solution and enhance knowledge and understanding to stakeholders.

Specific Objective

This research specifically intended

- To analyze implementation of law and polices .
- Examine the cause of mis-application of practice of environmental pollution control.
- Identify environmental pollution control, problems of its application and its effect.
- Above all to come up with conclusion and special recommendations that may strengthen the focus on protection of environment pollution.

SIGNIFICANCE OF THE RESEARCH

The law of environment is implemented by environmental protection Authority. But the issue is not only the Authority. The government and non government organs that are involved directly or in directly with environmental pollution control. Environmental pollution affect the people at large. The importance of environmental pollution control is it is appropriate eliminate or when not possible, to mitigate pollution as an undesirable consequence of social and economic development activities.

This research there fore:-

1. By identifying the practical problem of environmental pollution in river around Kolfe Keranio give information for institution work in environmental pollution control.
2. To give awareness about environmental pollution to anther researchers, students, readers and to all peoples.
3. To contribute some ideas about environmental pollution control.

SCOPE OF THE RESEARCH

This research covers:-

1. Environmental pollution in river around Kolfe Keranio area.
2. The application of environmental law and administrative organs dealing with environmental pollution control in Kolfe Keranio area.

LIMITATION OF THE RESEARCH

- Lack of full cooperation and Time may be limit the research.

RESEARCH METHODOLOGY

The methodology of the study is analyzing the environmental pollution the law and practice. The method also includes gathering and examining different environmental laws and literatures, evidences about the environmental pollution and control through interviews with concerned governmental officials and peoples. Evaluating, evaluating same practices through observation. Finally the recommendation may forwarded shall be based on the out put of the Evaluation of the evidences gather through interviews and same other mechanisms.

COST OF THE STUDY

Items	Units of measurement	Quantity	Unit price	Total price
<i>1. Stationary</i>				
1.1 paper	Packet	1	80 birr	80 birr
1.2 Pen		5	1.50 birr	7.50 birr
1.3 Not book		1	11 birr	11 birr
<i>2. Materials</i>				
2.1 Flash Disk	2 GB	1	200 birr	200 birr
2.2 CD		1	20 birr	20 birr
<i>3. Personal cost</i>				
3.1 Internet service	Days	15 hours	25cent minute	225 birr
3.2 Transport			150 birr	150 birr
3.3 Mobil phone card		1	100 birr	100 birr
<i>4. computer service photo copy & binding</i>				
4.1 for the first draft	page	50-60page	3 birr	180 birr
4.2 for the final draft	Page	50-60page	3 birr	180 birr
4.3 photo copy	Page	160-200	30 cent	60 birr
4.4 binding		3	6 birr	18 birr
Total				1,231.50birr

WORK PLAN (TIME SCHEDULE) OF THE STUDY

	Tasks	Jan	Feb	Mar	Apr	May	Jun	Jul
1	Selection of the title	✓						
2	Preparation of research proposal		✓					
3	Review of related literature		✓	✓				
4	Collection and organizing data and information			✓	✓			
5	Writing the analyses and discussion of the study				✓	✓		
6	Preparation of the first draft					✓	✓	
7	Submission of the first draft						✓	
8	Preparation of the final paper							✓
9	Submission of the final paper							✓

REVIEW OF RELATED LITERATURE

Related literature can be reviewed from different books on the area of environmental law specifically, Environmental pollution. Among those FDRE constitution, Environmental pollution control proclamation, related research papers and books. In addition to this internet, websites, different journal and news paper will be used.

PRELIMINARY BIBLIOGRAPHY

I. Book and Journal

- MELLESE-D(2006) ENVIRONMENTAL LAW ST. MARY'S UNIVERSITY
- WORKU Damena Salient features of law & Environment in Eth
- Frederick R Anderson (1990) Environment protection law & policy
- Alan Wild (1983) Soils and the environment CAMBRIDGE university
- Dr. Tapan Biswal (2006) Human rights Gender and environment
- SUSAN wolf and AnnA whife Environment Law
- Veronica Mutikani Enosshumba and sibongile Baker (2002) Environment Management

II. TABLE OF LAW

- FDRE constitution 1994
- Environmental protection organs establishment proclamation No. 295/2002
- Environmental pollution control proclamation No. 300/2002
- Environmental impact Assessment proclamation NO. 299/2002
- Investment proclamation proclamation No. 280/2002
- Investment Amendment proclamation No.373/2003

III. POLLCIES

- Population policy
- Environment policy

TENTATIVE TABLE OF CONTENT

Acknowledgment

Table of content

Introduction

CHAPTER ONE

1.1 Statement of the problem

1.2 Objective of the study

1.3 Significance of the study

1.4 Scope of the research

1.5 Limitation of the research

CHAPTER TWO

2.1 Definition of environment

2.2 Definition of environment law

2.3 Meaning of environmental pollution

2.4 Principle of environment law

2.4.1 The right to live in a healthy clean environment

2.4.2 Sustainable development

2.4.3 Environment impact assessment

2.4.4 Environment standard

2.4.5 Polluters pay principles and precautionary principles

2.5 History of environmental control

2.6 Function of the environment law

CHAPTER THREE

3.1 Practical problems of environment pollution

3.2 The effect of industrial investment of environment

3.3 Objectives of environmental pollution control

3.4 Environment Law and the practice in Kolfe Keranio

3.5 Major Environmental actors and their mandates

3.6 Public Participation in the environmental protection in Kolfe Keranio

3.7 Coordination of environment protection authority and other stake holders

- Conclusion
- Recommendation
- End Notes
- Bibliography
- Annex

CHAPTER TWO

General Background and an Overview

2.1 What is Environment

The word environment is derived from an ancient French word *environner* means to encircle. By broadly applying to surroundings environment can include the aggregate of natural, social and cultural conditions that influence the life of an individual of community. Thus, environmental problems can be deemed to include such problems as traffic congestion, crime, and noise, Geographically Environment can refer to a limited area or encompass the entire planet, including the atmosphere and stratosphere, of course defining an environment is not an easy task. Most treaties, declarations, codes of conduct, guidelines, etc don't attempt to define it directly. No doubt because, it is difficult to identify and to restrict the scope of such an ambiguous term. Which could be used to encompass any thing.³

Some other treaties and other instruments define the environment in different ways considering the subject matter they want to address. For example the Declaration of the 1972 stock-holm conference on the human environment (UNCHE) merely referred obliquely to man's environment adding that both aspects of man's environment, natural and man-made are essential for his well-being and enjoyment of basic human rights.⁴ In broadly speaking Environment may be considered as everything that surrounds us. It is composed of both living and non living things. living things form the biotic factors of the environment and non living things form the a biotic factors of the environment. There are continuous and interrelated interactions between the biotic and biotic factors. If all life forms are to exist in the environment these complex interactions should not be interrupted. Environment comprises the living things, the non living things and the interactions that occur among these factors.⁵

3. St. Marry's university college Environmental law teaching material P.4

4. Mellese D. environmental law, SMUC(unpublished) 2006

5. Id, P.5

Proclamations 295/2002, 299/2002 and 300/2002 similarly define the word environment as:

“Environment means the totality of all materials whether in their natural state or modified or changed by humans, their, internal spaces and the interactions which affect their quality or quantity and the welfare of human or other living things, including but not restricted to, land, atmosphere, weather and climate, water, living things, sound, odors, taste, social factors, and a esthetics.”⁶

This is clearly a very wide definition which encompasses all naturally existing things, generally, environment consists of biotic (living components) and a biotic (non living components) factor, which together form a dynamic biological, chemical, and physical system. The environment’s biotic constituents include plants, animals fungi, and microorganisms,, while the a biotic are the chemical and physical factors that influence an organism, such as temperature, precipitation, humidity, and sunlight. Generally with in any biological community the environment’s influence results from the interaction of many biotic and a biotic factors.

2.2Environmental Law

2.2.1 Definition

To combat the wide ranging environmental challenges, we need to have systematic mechanism which can stop or mitigate the environmental pollution. We can make our development sustainable. This can not bed one with out effective environmental law.

Environmental law is a very young branch of law and it did not complete its formation stage until now. That is, environmental law is in its infantile stage. It has both domestic and international law aspects. In many countries there is no comprehensive environmental law. Instead, there are sect oral laws such as forest protection laws, Wildlife conservation laws, pollution control laws, etc.

6. Environmental protection organ establishment proclamation, p. No. 295/2002

In our country Ethiopia also, there is no separate branch of environmental law, although we have an environmental policy.⁷

The law that may legitimately be considered environmental policy is not all the law that has any bearing on environment, with environmental issues many elements of law, For example tort, property, criminal law, principles and remedies, etc may contribute to the administrative law resolution of environmental problems.

One of the objectives of the constitution of the Federal Democratic Republic of Ethiopia (proclamation 1/1995) is ensuring a clean and healthy environment. It states that every citizen has the right to live in a healthy environment. Based on the constitution, the environmental protection authority (EPA) established to cater for environment matters. There are three different enabling proclamations, which were enacted by the federal council of peoples Representatives to wards the end of 2002. The environmental guidelines seen as needed to implement these laws have been prepared or are under preparation by the EPA.

Examples include guidelines designed to help in the implementation of environment impact assessment in the agricultural, transport and industrial sectors like leather processing plants and other that helps rapid development of the country.

In addition construction industry, standards have also been developed to enable pollution control.

The recently enacted proclamations which pertain to environmental impact assessment, pollution control and the establishment of environmental protection organs, have also given adequate attention to environmental audit procedures and that government organs with environmental mandates use environmental auditing as a tool for the enforcement of the laws.⁸

The main aspect of environmental law is to manage the relation ship between human kind and the earth. Now a day's environmental law has emerged as a branch of public law.

7. Melese Damtie, the need for environmental law. (unpublished) 1999, p. 3

8. State of the environmental report for Ethiopia published by EPA. Page 8

2.2.2 Historical Back Ground

Although there were attempts to protect the environment long time ago. It is only recently that well organized environmental laws come in to force various parts of the world.⁹ An extensive range of environmental problems is now the subject of serious international concern. The international concerns include the loss of biological diversity, global warming, atmospheric pollution, etc. Such problems have an international dimension in two obvious respects.

I. Pollution generated from a particular state often has a serious impact up on other countries. The first example would be describe acid rain; where by chemicals emitted from factories rise in the atmosphere and react with water and sunlight to form acids. These are carried in the rain, often thousands of kilometers away from the initial polluting event.

II. It is now apparent that environmental problems can not be resolved by states acting individually. Accordingly, cooperation between the polluting and polluted state is necessitated. However, the issue becomes more complicated in those cases where it is quite impossible to determine from which country a particular form of environmental pollution has emanated.

The international communities take placed conference in Stockholm in 1972 on the issue of the Human Environment. The international communities made that confrontation response to a growing realization of limited nature of Earth's resources.¹⁰

The Declaration further describes that in the developing countries most of the environmental problems are caused by under-development and in developed countries environmental problems are related to industrialization and technological development.

9. Cited at note 4 P. 2

10. Id. P. 2

The other concern of the Declaration is the problem caused by population growth on the environment. It suggested that adequate polices and measures should be adopted, as appropriate, to face population explosion. The Declaration imposes the greatest responsibilities in national governments as far as protecting the environment is concerned.

It also underlines the roles played by individuals and organizations as NGOs in shaping the world's environment of the future. Finally, the conference called up on governments and prepares to exert common efforts for the preservation and improvement of the human environment for the benefit of all the people and their posterity.¹¹ Since combination of factors Elevated global concern for the environment including increased acceptance, especially by developing states, of the link between poverty and environmental degradation. Many countries enacted environmental law in 1980s.¹² To day most countries of the world included environmental rights in their constitutions.¹³ The constitution of the federal Democratic Republic of Ethiopia has included provisions that are aimed at ensuring the existence of a clean and healthy environment. It also provides that all persons have the right to a clean and healthy environment. Based on the constitution, various proclamations have been enacted. But, those laws are not fully implemented because of the week controlling system.

2.2.3 The Function of Environment Law

Environmental law can be said to have three main functions

1. Prevention,
2. Setting environment quality standards,
3. Clean-up/remediation¹⁴

2.2.3.1 Prevention:-

Prevention of pollution and environmental damage must surely be the optimum objective of environmental regulation.

11. Cited at note 7 P. 7

12. Ibid

13. Id P.2

14. Susan Wolf and Anna White, Environmental law (Cavendish publishing Limited 1995) P.9

2.2.3.2 Setting environmental quality standards

Falling between the objectives of prevention and cure lays the environmental legislation that establishes acceptable levels of pollution, or environmental quality standards. This is probably the most acceptable type of pollution control for industry, as it recognizes the need to allow the operation to continue, whilst monitoring and controlling its harmful emissions.

2.2.3.3 Clean-up/remediation

Clean-up of environmental damage is also an objective of environmental legislation. It is necessary to state guard against the failure of the previous objectives, where pollution has caused environmental damage.¹⁵

2.2.4 Source of Environmental Law

The main sources of environmental law are:-

- Conventions and protocols,
- Case law,
- Governmental departmental notes such as planning policy guidance notes,
- Governmental circulars,
- Codes of practice,
- Enforcement Authority Guidance notes¹⁶

2.3 Environmental pollution

2.3.1 Definition

According to Art 2(12) of proclamation No 300/2002 “pollution means any condition which is hazardous or potentially hazardous to human health, safety, welfare or living things created by altering any physical, radioactive, thermal, chemical, biological or other property of any part of the environment in contravention of any condition, limitation or restriction made under this proclamation or under any other relevant law.”¹⁷

15. Cited at note 14 P.10

16. Id P. 29

17. Environmental pollution proclamation No. 300/2002 Art 2(12)

This definition implies that environmental pollution is any substance whether liquid, solid or as which directly or indirectly alters the quality of any part of the receiving environment so as to affect its beneficial use adversely or produces toxic, substances, diseases, objectionable odor, radio activity noise, vibration, heat or any other phenomena on that is hazardous or potentially hazardous to human health or to other living things.

There is not a single definition of 'pollution' The Royal commission on environmental pollution believes that it is neither practicable nor helpful to seek a comprehensive simple definition of pollution. "The introduction by man in to the environment of substances or energy liable to cause hazards to human health, harm to living resources and ecological systems, damage to structure or amenity or interference with legitimate uses of the environment."¹⁸ On the basis of this pollution is defined by reference to the potential effect of the introduction of substances or energy in to the environment, rather than by the fact of the introduction itself. This emphasis on effect is echoed in the EPA 1990 which provides the following definition of pollution.¹⁹

"The release (in to any environmental medium) from any process of substances which are capable of causing harm to man or any other living organisms supported by the environment" pollution occurs when there is the potential for harm.

Harm to man is not confined to physical injury but encompasses 'offence caused to any of his senses or harm to his property; there fore smells and noise which may not cause injury can constitute pollution. Harm to living organism can include harm to their health or interference with the ecological systems of which they form a part.²⁰

2.3.2 Source of Environmental pollution

- Industrial pollutant source
- Municipal source
- Medical /clinical and non point source
- Others (such as agricultural, chemical, fuel stations and garages)²¹

18. Cited at note 14 P.2

19. Id P.2

20. Akaki and Mojo Rivers pollution and impact Assessment report Feb, 19, 2006 P. 13

21. Id P. 13

2.3.2.1 Industrial Pollutant Sources

Factories close to the rivers discharge their waste water direct and those located slightly far from the river, discharge their liquid effluents in to open ditches or municipal drainage which finally flows in to the river. Almost all the industrial effluents discharged are untreated and their pollutant loads, both organic and inorganic are observed to be high. Therefore, industrial effluents are open one of the major pollution sources.

2.3.2.2 Municipal source

Solid and liquid waste

- Solid waste is that type of waste that is non liquid and is believed to comprise organic as well as non-organic materials.
- Liquid waste from over flowing and seeping pit latrines septic tanks, public and communal toilets, open ground excreta detection and gray water from kitchens and bath rooms are mixed.

2.3.2.3 Medical/clinical source

Some of the wastes from medical centers (like hospitals, out patient's clinics and any other medical consultation, diagnosis of treatment) pose specific and sometimes-severe health hazards.

2.3.2.4 Other waste sources

The sources for pollution to the rivers are, agricultural practices, chemicals and fuel stations/Garage operations.²²

2.3.3 Types of Environmental Pollution

Commonly pollution is classified according to the environment in which it occurs a water pollution, soil pollution, air pollution. According to the type of pollution it is lead pollution, mercury pollution, thermal pollution, noise pollution etc. It may be classified according to origin such as natural and artificial pollution. But for practical purpose and for the sake of convenience, we may classify environmental pollution as follows.²³

22. Ibid

23. H.V sad hav & Dr.S.H Global Warning & Environmental law puroht 2007 P. 11

Water pollution:-

Is caused by industrial waste poisonous chemicals, sewage, contaminants such as parasitic agents which renders it harmful and injurious to health and safety.

Air pollution:-

Is a result of combustion of fuels, automobile and vehicular traffic, commercial processing, incineration of waste, rubber, plastics, etc.

Soil pollution:-

Is due to destruction and erosion of soil, depositing solid waste, refuse, plastic components such as bags, papers, chemicals, etc. Agricultural, mining operations and construction activities etc.

Noise pollution:-

Means the undesired level of sound which also has bad effect on health such as loss of hearing, fatigue, blood pressure ulcers etc. the noise pollution can be from industries, Loudspeakers, Automobiles, Aircraft, Trains, Construction works, Radio, TV etc.

Radioactive pollution:-

Is caused by the blasts of the atoms in nuclear power plants, machines and radioactive materials. The radioactive materials are used in food preservation, sterilization of industrial products and in treatment of diseases such as cancer etc. radioactivity, if not properly controlled can cause irreversible damage to the health and life of people and animals and completely pollute the environment.

Food pollution:-

Is due processing, storage, and transportation of the products. It is obvious that the adulterated food, it consumed by the people it will have adverse effect on their health.²⁴

24. Ibid

2.3.4 Objective of environmental pollution control

The main purpose of our environmental pollution control is some and social and economic development endeavors may inflict environmental harm that could make the endeavors counter-productive, and the protection of the environment, in general, and the safeguarding of human health and well being, as well as the maintaining of the biota and the aesthetic value of nature, in particular, are the duty and responsibility of all, It is appropriate to eliminate or, when not possible to mitigate pollution as an undesirable consequence or social and economic development activities.²⁵

2.4 Environmental protection organs

2.4.1 Definition

“Environmental protection organs” means the Authority, the council, the sectoral and regional environmental units and agencies mentioned the following coordinate, promote and, as may be appropriate, carry out research on environmental protection, in accordance with the provisions of the relevant laws, enter any land, premise or any other place that falls under the federal jurisdiction, inspect anything and take samples as deemed necessary with a view to discharging its duty and ascertaining compliance with environmental protection requirements,²⁶

The Environmental Protection Organs Establishment proclamation (proclamation No. 295/2002) established the institutions responsible for regulation of EIA; these include the Environmental Protection Authority, Regional Environmental Agencies and the sectoral Environmental units.²⁷

2.4.2 Environmental protection authority

The Environmental Protection Authority (EPA) is the lead federal environmental organ with the objective of formulating policies, strategies, laws and standards to ensure social and economic development activities in the country sustainable enhance human welfare and the safety of the environment (Art 6). The regulation of EIA is one of the key responsibilities entrusted to the EPA.²⁸

25. Cited at note 1 preamble

26. Id Art 2 (4)

27. Id Art 14

28. Melles. D & Mesfine Baya, [Overview of EIA in Ethio](#)- P. 31

2.4.3 Regional Environmental Agencies

The environmental protection organs establishments' proclamation (proclamation No.295/2002) requires regional states to establish or designate their own regional environmental agencies. The regional environmental agencies are responsible for coordinating the formulation, implementation, review and revision of regional conservation strategies.

2.4.4 Sect oral Environmental Units

The other environmental organs created by the environmental protection organs establishments proclamation (proclamation No.295/2002 are the "Sect oral environmental units," which are mandated to be established at every competent agency with the responsibility.²⁹

Coordinating and following up activities in harmony with environmental protection laws and requirements (Art 14) such sect oral environment units can play important role in ensuring that EIA is carried on development projects and public instruments initiated by government institutions. However, sect oral environments units have not been established as yet in most of the relevant, Ethiopian electric power corporation and the ministry of water resources. At the regional level, not a single sect oral environmental unit has been established as yet.

2.5 General Principles of Environmental Law

A principle is a source of action or a general law or rule adopted or professed as a guide to action. Principles are useful as general guides for the development of specific rules, and have a normative character in novel situations.

Environmental law has many principles at present and most of these principles are increasing in number and in depth from time to time. Many countries have included these principles inter their national environmental laws or even in to their constitutions.³⁰

The following are principle of environmental law

29. Ibid

30. Cited at note 4 P.49

2.5.1 The Right To Live In A Healthy Environment

Many countries in the world, including Ethiopia have included the notion of the right to live in a healthy environment in their national constitution. The FDRE constitution recognized this right as one of the fundamental rights of the Ethiopia subjects. This is a very good beginning for the protection of the environment. Most constitutions including the Ethiopia one mainly based on anthropocentric view while framing their constitutional provisions. Whatever the case may be, the fact that environmental issues are recognized by national constitutions is a positive step that should be encouraged.

Stated in Art 44 FDRE constitution, all persons have the rights to live in a clean and healthy environment. This means, every one has the right to an environment that is not harmful to their health and well being. This constitutional provision fits well in to the spectrum of internationally accepted principles protecting the quality of life of people.

2.5.2 Sustainable Development

Sustainable development as "Development that meets the needs of the present generation with out comprising the ability of future generations to meet their own". The terms 'sustainable development' is frequently addressed contested. At one end of the spectrum sustainable development is regards as an empty platitude intended to provide a formula acceptable to most ethical and political points of view.

Distinctions can be made between strong and weak sustainability. According to strong sustainability we should leave future generations the same environmental resources as we ourselves inherited This is strictly impossible since resources such as oil are non renewable and the loss of species is irreversible.

Weak sustainability means that distinctive justice between generations requires each generation to pass on to the next generation an equivalent or better total stock of over all resources including infrastructure, knowledge and technological capacity than if inherited.

2.5.3 Environmental Impact Assessment

EIA-is one of the major types of environmental management tools, which is applied at the planning process of a development project. It is defined as the process of identifying predicting, evaluating and mitigating the biological, physical, social, cultural and other relevant effect of proposed projects and physical activities prior to major decisions and commitments made

Environmental impact assessment is a formal study process used to predict the environmental consequences of a proposed major development project. Such projects may include for example building a hydroelectric dam or a factory, or irrigating a large valley.

An EIA concentrates on problems. Conflicts or natural resource constraints that could affect the validity of a project. It also examines how the project might cause harm to people, their homeland or their livelihoods or to other near by developments.

The aim of an EIA is to ensure that potential problems are for seen and addressed at an early stage in the project's planning and design. Some of the fundamental principles which underline this management tool are the necessity of undertaking EIA at the early state of the project cycle, the need to give due consideration of a number of reasonable alternatives, involving the public through out EIA process sustainability etc.³¹

2.5.4 Environmental Standards

A standard may be defined as “an object or quality or measure serving as abases or example or principle to which other conform or should conform or by which the accuracy or quality of others is judged”.

The performance of most activities that exert impact on the environment has to be measured against some standard. This standard may be used as a guideline or it may be used as a means of defining whaps an individual or firm may do.

2.5.5 Polluters Pays And Precautionary Principles

There are various mechanisms by which the developer would redress the

31. Yonas EIA Guideline Document 2000

problems of pollution. The polluter may be forced to pay the cleaning cost or he/she may be required to use a technology that would avoid or reduce pollution. The precautionary principle underlines the taking of every effective measure to reduce any impact on environment as a result of a certain activity.

2.5.5.1 Polluter Pays Principle

The polluter pays principle is one which is aimed at ensuring that the cost of environmental damage caused by polluting activities are borne in full by the person responsible for such pollution, the polluter. The principle means **I.** the polluter should pay for the administration of the pollution control system, and **II.** The polluter should pay for the consequences of the pollution. Fore example compensation and clean-up
The polluter pays principle basically means that producer of goods or other items should be responsible for the costs of preventing or dealing with any pollution which the process causes. This includes environmental costs as well as direct costs to people or property. It also covers costs incurred in avoiding pollution.³²

2.5.5.2 Precautionary principle

In general the precautionary principle applies when it is uncertain. On available information, it an impact will be detrimental to the environment. The principle is based on the premise that the impact will be detrimental when the available information is uncertain. The principle needs to avoid potential adverse long-term effects of future development that are not expected, contemplated foreseen when the development are launched. At present we do not have a complete information about the impacts of our projects on the environment. Lack of such information has suggested the development of a principle known as precautionary principle.³³

32. Cited at 14 P. 15

33. Id P. 54

CHAPTER THREE

Environmental law and the practice

In Ethiopia, laws that affect man's relationship with his environment were made a century ago. Since then many laws were enacted in the area of environmental law, although they were not made under the head of environmental law, we do not have a comprehensive environmental law even today. But many countries at present have environmental law; previously there was no reason to bring to gather all environmental law rules in one convenient branch. The management of environment was not dealt with in an integrated and over acting manner. It was only recently that an integrated environmental management was accepted as an important discipline. With the proliferation and growing sophistication of environmental rules, it has now become necessary to collect all rules and laws applicable to or affecting environmental management and to arrange them under the convenient heading of environmental law. It is now generally accepted that environmental laws has become a fully-fledged branch of law. The main aspect of environmental law is to manage the relationship between humankind and the earth. Now environmental law is emerged as a branch of public law.³⁴

There are a number of advantages in the development of environmental law as a separate branch of law. These include

- A. Environmental law will be more accessible to people who need to know what the applicable rules are. It will also become easier to co-ordinate and integrate the different environmental legal structures laws and rules. Moreover, it will become easier to develop structures for the effective and coordinated implementation of environmental measures.
- B. Lawyers or other people who are involved in environmental work will find it easier to study existing rules and to develop new ones. The improvement of environmental management will be facilitated by the fact that the rules are conveniently grouped together.
- C. It will encourage the teaching of environmental laws as a separated subject at educational institutions. Such training courses develop the capacity of people

34. cited at note 7 P. 3&4

Such as government officials applying environmental legislations environmental managers and mine managers, to do their work effectively.³⁵

It has to be noted here that, however, environmental law has emerged, as a branch of law does not mean that it should be considered in isolation from other branches of law. In fact, many principles forming part of property laws administrative law, criminal law, the law of tort, constitutional law and other branches of law also form part of environmental law. Particular care should therefore be taken not to compartmentalize environmental law. For effective environmental management it is necessary to bear in mind that no other branch of law interacts quite as extensively and regularly with other legal & non legal disciplines.³⁶

Constitutional law

On the national level, many constitutions now contain provisions establishing environmental rights or set forth governmental duties to protect the environment and the state's resources.³⁷

One of the objectives of the constitution of the FDRE proclamation 1/1995 is to ensuring a clean and healthy environment. It states that every citizen has the right to live in a healthy environment. Based on the constitution, the EPA established to cater for environmental matters, now has three different enabling proclamations towards the end of 2002. The environmental guidelines seen as needed to implement those laws have been prepared or are under preparation by the EPA examples include guidelines designed to help in the implementation of environmental impact assessment in the agricultural, transport and industrial sectors as well as for the leather processing plants and rapidly developing construction industry. Standards have also been developed to enable pollution control.³⁸

The recently enacted proclamations, which pertain to environmental impact assessment, pollution control and the establishment of environmental protection organs, have also given adequate attention to environmental auditing. The laws

35. ID P.4

36. Ibid

37. Cited at note 3 P. 18&19

38. FDRE Con't P.No 1/1995

Require that developers establish their own internal environmental audit procedures and that government organ with environmental mandates use environmental auditing as a tool for the enforcement of the laws.³⁹

Environmental legislation

Most environmental cases probably appear before judges as part of an effort to enforce statutory or administrative law or as an appeal from administrative decisions. Such as denial of a permit or an order to halt emissions Legislative texts often establish general environmental policy, supplemented by specific laws and administrative regulations. Broad frame works of environmental statutes have been adopted in many different countries.

These statutes use common techniques and procedures of environmental protection, including environmental impact and risk assessment prior licensing and emission standards. At the same time they often respond to specific environmental concerns in the particular country such as the safety and environmental consequences of nuclear power plants large dams or extractive industries like oil or coal in most countries environmental legislation is supplemented and given greater specificity in administrative regulations. In addition to general frame work laws, national laws often regulate a single environmental milieu or medium.

Promulgation of standards for various pollutants is often a critical component of the legal framework for environmental protection standards may be expressed in terms of ambient standards. Which are often healths based and normally embody broad objectives and performance standards or technology based standards to achieve those goals countries may use permit systems to elaborate the application of broad standards to specific facilities.⁴⁰

39. State of Environmental Report of Eth by EPA P. 8

40. Ibid

Increasingly as government are elaborating their legislative and regulatory treatment of key sectors and pollution sources. They are also moving towards a more comprehensive approach to environmental protection that seeks to integrate pollution prevention and control. i.e. protection against pollution of all natural systems necessary to support the biosphere. The focus of “integrated pollution prevention and control” is on eliminating or at least reducing the input of each polluting substance, nothing its origin and geographical get integrated pollution prevention and control aspires to a cradle to grave approach that considers the whole life cycle of substances and products, anticipates the effects of substances and activities on all environmental media, minimizes the quantity and harmfulness of waste uses a single method such as risk assessment for estimating and comparing environmental problems and involves complementary use of objectives and limits.⁴¹

Administrative regulations

Legislation on environmental matters often delegates to administrative agencies regulatory powers. Including rule making standard setting and enforcement to achieve the legislative mandate in order to achieve environmental protection, Many

Administrative agencies and officers have new powers to obtain information and a wide range of civil enforcement options from orders to injunctions. In many instances citizens have been granted the right to initiate lawsuits to obtain information about the environment or participate in decision making as well as enforce environmental laws and regulations, including suits against government officials who fail to perform their duties properly. As a consequence courts and judges increasingly exercise oversight of administrative agencies.⁴²

In permit or licensing proceedings the court is typically asked to determine whether an administrative agency or governing body’s licensing decision was consistent with the legal requirements. Frequently, in assessing the consistency of agency action

41. Ibid

42. Id p.20

with legal requirements, courts will confine their review to the administrative record of decision that body of information and facts that was before the agency at the time the decision was made. A court may need to reject an administrative decision by an administrative agency or governing body if it determines that the law has been applied in an arbitrary manner or one that infringes basic rights.⁴³

International law

The relation ship between national law and international law varies considerably from one legal system to another.

International law is considered the supreme body of law by international tribunals and in international relations among states thus, a state may not invoke a provision of its national law to excuse its violation of international law. The law of state responsibility provides that each breach of an international obligation attributable to a state automatically gives rise to a duty to cease the breach and make reparation for any injury caused irrespective of national law. With in states international law may be legally binding and applied by courts as a result of one or more means that are usually specified in the constituent.⁴⁴

Even if there is different laws but practically there are money problems. Some of the problems are the following

- Lack of government commitment to implement EIA law with out government commitment individuals can not do any thing to implement EIA law.
- Lack of qualified people in the field of environmental protection and management
- Lack of man power in EIA specially lack of experts EIA have very few experts those experts are not enough done EIA's work adequately
- There is no public participation currently projects supported by government

43. Id P. 21

44. Id P. 21

3.1 The effect of industrial investment on environment

Industrial pollution in Ethiopia is mainly observed around urban areas. Urban areas have better infrastructures and they are home for small and medium scale industries. Consequently they are the primary areas to be affected by industrial pollution. Most of the industries of Ethiopia are found in Addis Ababa. When looking at the types of industries, the major constituent industry types are food and beverage, textile, tanneries, chemicals, metal, rubber and plastic, paper and paper product metallic, non metallic mineral products and wood industries.

Most of the industries are distributed along the rivers bank. In kolfe area the following industries are located a long side near by rivers. Particularly the little Akaki river. Such as Addis Ababa and Dire lazar factory, Addis Ababa Glass factory, Ethio marble factory, TikurAbay Shoa factory Diloil and Gulele soap factory.

Major pollutants generated from industries around little Akaki, Jemo hanjso, Melke Korana , Repi, Bururu rivers include solids organic pollutants such as oil, pesticide, cleaning solvents, detergents and organic pollutants such as traits phosphates, sulphates, chloride and others. In addition heavy metals, acids and alkalis are the most pollutant substances generated from the industries.⁴⁵

45. Akaki river management strategic implementation plan for 2005-2015

**Picture 1. Photo Showing Movement Of Little Akaki River
Before pollution Around Asko Area**



46

Picture 2. Movement Of Little Akaki River Polluted By Addis Ababa Lazar Factory



47

Picture 2.1. Polluted Water By Addis Ababa Lazar Factory



48

Table 1. Major Pollutants Generated From Industries Around The River

Industry sector	Major pollutants
Food and beverages	<ul style="list-style-type: none"> - Food preservatives - Cleaning chemicals, - Air pollution from dust and fuel combustion
Textile, clothing, tanning and leather goods	<ul style="list-style-type: none"> - Waste water from scouring, mercerizing, bleaching and dyeing - Waste water from tannery, chrome, sulphides, ammonium salts, chlorides - Solid wastes from dehorning, fleshing and trimming of hides and skins
Wood and wood products	<ul style="list-style-type: none"> - Sawdust/wood preservatives, paints, varnishes
Paper, paper products and printings	<ul style="list-style-type: none"> - Printing chemicals, leading granule form - Trimmed papers and inorganic chemical wastes
Chemical, rubber and plastic products	<ul style="list-style-type: none"> - Solid wastes of scorched rubber, scraps of rubber and PVC, plastics, dust - Organic and inorganic chemical wastes
Non-metallic mineral products	<ul style="list-style-type: none"> - Dust and particulates, air pollution from fuel combustion
Basic Iron and steel	<ul style="list-style-type: none"> - Scrap metal, air pollution from combustion
Machinery and equipment	<ul style="list-style-type: none"> - Inorganic waste water, scrap metals

49

Most of industries in Addis Ababa are planted very close to the river banks of which the majority of them are concentrated in the southern and western part of the city where little Akaki river drains.

Those factories close to the rivers discharge their waste water direct and those located slightly far from the river, discharge their liquid effluents in to open ditches or municipal drainage, which finally end up in to the river. Almost all the industrial effluents discharged are untreated and their pollutant loads, both organic and inorganic, are observed to be high. There fore industrial effluents are one of the major pollution sources of these rivers.

Picture 3. Liquid Waste From Industry



Picture 3. Liquid Waste From Industry Flow To The Little Akaki River



51

The located of Addis Ababa lazard factory is around the two stream those streams flow to little Akaki river. There is no treatment plants simply discharges their wastes in to the little Akaki river. But when we see the Dire lazard factory and Ethio marble factory both located the smile streams and flow to the little Akaki river. There is a primary treatment plant and different flowing lines such as sulfide line, chrome line, General effluent line. Those different lines to minimize chemical pollution substances.

But, Dire lazard factory treatment plants are not fully worked, because of the engering problems those primary treatment plants not worked perfectly. So discharge their waste directly to the river. In addition to this it needs secondary treatment plants. Because of the above two problems the treatment system not fully worked.

Picture 4. Photo Showing Dira Lazar Factory Primary Treatment Plant



52

Generally, due to lack of appropriate treatment plant, most of the industries discharges their wastes in to the little Akaki river and the near by open drainage with out treatment. This creates a negative impact on the river ecology.

Picture 4. Ethio Marble Factory Treatment Plant



53

3.2 The impact of water pollution in Kolfe area

The major water pollution in kolfe area is the little Akaki River. Due to the pollution problem of little Akaki river a negative impact on the social, economical and environmental condition could be observed.

3.2.1 Socio-economic impact

In all cases, Kolfe.Kernio areas, all beneficial uses of the rivers and streams were precluded by their appalling quality. Since a very large number of peoples have no other source of water for domestic, agricultural or lives tock watering purposes, it is not surprising to see social, economical and environmental problems in evidence as a result.

3.2.1.1 Impacts on human health

Fresh Water Rivers used to provide drinking water and to act as a sanitation system although use as humans recognize this fact, we disregard it by polluting our rivers. Water pollution could have both acute and chronic effect on animal and human health. As a potential carries of pathogenic microorganisms, water can endanger health and life. The pathogens most frequently transmitted through water are those which cause infections of intestine at threat, namely typhoid, paratyphoid and bacteria dysentery and cholera etc.⁵⁴

The socio-economic survey revealed that all people using the little Akaki river water are affected. The most common type of symptoms regarding human health problems were gastro intestinal disorders, diarrhea, abdominal pain, respiratory problems such as asthma, cough, wounds lesions, rashes on skin and weakness. Problem of gastro-intestinal disorders were the major ones that affected the dwellers. Feed backs from clinics and health centers also indicated the most cases from the area were due to water born diseases like typhoid, amoebic dysentery in children possible due to their lower resistance to infections.

54. Assistant professor and PG coordinator, Ambo University College, Ambo. Eth Prabupc @ mail.com

3.2.1.2 Impacts on animal health

These toxic substances could be health hazard to livestock when ingested with water. Sick animals should symptoms like gastrointestinal disorders bloat bloody diarrhea, nerves signs like tremors and paralysis. Edematous swelling, dermatitis and loss of hair were also reported some of the symptoms are similar to that of poisoning specially due to nitrate/nitrite poisoning. Ruminants are highly vulnerable to nitrate poisoning due to luminal micro flora that produce nitrite (10 times more toxic). Water with high nitrate level and significant coli form concentration has greater potential to adversely affect health and lower the productivity.

The problem is further worsening by the fact that the river water has bad odors and taste, so that animals do not water on regular bases until they are very thirsty.⁵⁵ Thirsty animals consumed high volume of water together with substantial amount of pollutants that could result in health problem.

On the other hand, the veterinary services of the district give treatment for sick animals when they appear at clinic. There is no out reach service or on call service expect for vaccination.

As the area is mainly crop dominated area, farmers keep very essential animals on limited like oxen for ploughing (drought power) and cows as the source of milk for children. For this matter the death of one animal is not tolerable by owners. The whole area riverside is completely covered with pieces of plastic bags that can be injected with grass and block intestine of animals leading them to death. The respondents in each peasant associations have indicated that getting plastic bags in the intestine of slaughtered animals is a common phenomenon than aggravates animal deaths.

Abortion and maternal mortality are the most common types of health problems. Diarrhea, scariest and trachoma on children and elders are common health problems of the area. The abortion and maternal mortality cases resulted not only because of drinking polluted water, but also because of the bad smell of the river and the

55. Id P. 22

Distance they travel to fetch the river water. Women who were affected by abortion cases were explained during the discussion, how much the problem is serious. They further notified that abortion cases are kept secret in the community and difficult to know the magnitude of abortion in the community.

Child mortality is also increasing from year to year due to health problems related to polluted river water consumption. That children's death is more as compared to women adults and elders because of their low resistance. A seven years old child died of swallowing condom obtained from the river and another child was found having lesson around his mouth after history of blowing and playing with condoms he got in field. Therefore, the community explained that they are not sure of weather they are free of HIV/AIDS or not since they are drinking water that brings a lot of condoms from Kolfe Keranio. in Addis.Ababa.⁵⁶

A part from fear of health problems associated with condoms, having condoms in drinking water is highly non-aesthetic for human being and severely affects the psychology of communities utilizing the river water.

Picture 5. Photo Showing Animals Use The Polluted Water



56. Id P. 24

57. Id P. 69

3.2.1.3 Impact on education

The health problem due to river water is more renounced problems on children of school age that may have negative impact on their school attendance and educational performance.⁵⁸

The symptoms of disease are associated with river water consumptions such as stomach solders, diarrhea and respiratory problems. It was identified that these disease are left it frequent ones is the schools.

One of the causes for school dropout of students of the study areas might be a water borne daises related health problem due to the rivers water pollution. Teachers are also exposed to health problems due to using the river water. Therefore little Akaki river pollution is affecting the teaching and learning process of the study areas.

3.2.1.4 Labor participation

The effect of the polluted river water on government staffs such as teachers, policemen, health workers and development worker working in those peasant associations is also serious.⁵⁹

It decreases their interest and working initiations by affecting their health and economy most of the workers use to drink local alcohols that have negative health and economic impacts on them and adversely affect their behaviors.

3.2.1.5 Economic impacts

Part from causing serious public health problems to the dwellers living along the river use, there is also existed a continuous economic loss, due to problem related to water pollution. Financial loss (cost incurred) for treatment and when an ox or cow dies farmers are forced to new ones or rent an ox and milks for 500-1000 birr per month. According to Ato Tekmachew Damsa his neighbor W/ro Askalch she lives many ox and caws she rent and sale milks for 500-1000 birr per month. When an ox or cow dies she is forced to new ones or loss her income for sale milks.

58. Ibid

59. Id P.25

The polluted of little Akaki, Jemo river, milka Kerno, Repie river and Bururu river causes significant economic losses to animal production in the area through different ways.

Direct economic losses could be attributed to death of an animal due to toxic or pollutant effect or loss body condition, production such as milk, drought power of effected animals. Indirect economic losses could as a result of treatment cost or sick animals, loss of production such as crop yield as drought power decreases due to affected animals market value (price) of those animals as a result of poor body condition often low, and cost incurred due to renting /hiring drought animals on daily payment bases.⁶⁰

In such affected area, the reproduction performance of animals also substantially decreases as a consequence of elongating the productive age or age of maturity.

3.2.1.6 Human health expenses

The prime issue concerning human health is not economic losses associated to cost of treatment, health care and production losses, but the human health problem it self and the incalculable death losses of men or women that could not be comparable to other problems. Thus the crisis brought about by those river pollution should be considered with respect to the life (survival) of human being or the value of human being in that affected area which is by far beyond the economic interpretations so for indicated In the previous sections.⁶¹

3.2.1.7 Other expenses

A part from labor costs due to sick productive family members, the other indirect economic losses such as the estimation of production damage losses on fields because of untimely collection due to productive family members sickness, animal, market value losses, decrease in reproduction performances of animals that brings

60. Ibid

61. Id P. 27

decreases in animal population due to pollution impacts are not considered in monetary.⁶²

Vegetables are cultivated in some kolfe areas along the river by irrigation. The existence of some chemicals and the polluted river water may disturb the normal growth of vegetables. This could be due to a variation of excessive amount of some chemical compounds that could reduce production.

Therefore, irrigation user's farmers participated show that the productivity is decreased over time.

3.2.2 Environmental impact

One of the problems of little Akaki and other rivers pollution in kolfe kernio are expression in terms of environmental degradation. Excessive algae growth has caused death to fish and other aquatic biota. The other effect observed due to the little Akaki rivers pollution is Eutrophication, due to eutrophication, unpleasant taste and odor has occurred to little Akaki water.⁶³

Organic waste found in sewerage cause the absorption of the oxygen in the rivers and Lake Rivers water by bacteria which live on the sewage and as a result any form of organism in the water dies.

Age proportion and various species of fish which were produced in the lake were reduced number and species due to increasing pollution and water hyacinth cover in lake Akaki now-a-days fishing is in possible not only due to water hyacinth but also availability and reduction is species due to pollution.⁶⁴

Now a days water hyacinth plant totally inaccessible. The water is becoming a problem in different ways. It also becoming a shelter for different insects, and developing bad smell during the dray period as a result of reduction in water volume. Therefore the water hyacinth of the river in Kolfe Kernio area and the pollution is restricting the society around the river from using the resource in the area.

62. Ibid

63. Id P. 30

64. Ibid

3.3 Ethiopian environmental pollution control proclamation and practical problem in Kolfe Kernio sub city

The purpose of our environmental pollution control P.No. 300/2002 is the protection of the environment in general and some social and economic development endeavors may inflict environmental harm that could make the endeavors counter-productive, the protection of the environment, in general and the safeguarding of human health and well being as well as the maintaining of the biota and aesthetic value of nature, in particular, are the duty and responsibility of all, it is appropriate to eliminate or, when not possible, to mitigate pollution as an undesirable consequence or social and economic development activities.

The environmental pollution control Art 3 says “No person shall pollute or cause any other person to pollute the environment by violating the relevant environmental standard and any person who causes any pollution shall be required to clean up or pay the cost of cleaning up the polluted environment in such a manner and with in such a period as shall be determined by the authority or by the relevant regional environmental agency”. The law clearly stated to protect the environment but practically this law not fully applied. There is a gap between the law and the practice.⁶⁵

According to the same proclamation Art 5 says “All urban administrations shall ensure the collection, transportation, and as appropriate the recycling, treatment or safe disposal of municipal waste through the institution of an integrated municipal waste management system. In collaboration with the relevant regional environmental agency, the authority shall monitor and evaluate the adequacy of municipal waste management systems and ensure the effectiveness of their implementation, any person responsible for the maintenance of any premise to which the public has access shall, at all times ensure that adequate and suitable toilets and containers and other required facilities are provided for the disposal of waste. And the authority shall in collaboration with the relevant regional environmental agencies and any other competent agencies, monitor the situation with regard to the availability of waste⁶⁶

65. Cited at note 1 Art 3

66. Ibid

disposal facilities and take the necessary measures to ensure that their availability is satisfactory. But the relevant authorities not applied the above not control. According to miss AlemAkef Afram, Kolfe Keranio Keble 07 health department head melka korna and Akaki river polluted by different things such as the payilet project house toilette, hose waste material industries are the major factor and it affects to health, odor and died fish, she says report give to the Kolfe Sub city EPA sector but there is no response to control the pollution.⁶⁷

According to Ato Tekmachew Demsa general service department head to Awashe winery around his village kara kore kebele 04 live Jemo River this river polluted by konduminium ripi No. 1 site around 1300 peoples live. The toilet tanker damage and flow to the Jemo river and different house wastage srowe in to the river in addition to this different industries live in the area such as role shape factory, Nat ran plastic factory, Zenbaba carbon factory, Iron factory, lazier factory are some of the cause to pollute the river, kara kore kebele 04 drinking water tanker around 50-100 m to the jemo river because of the jemo river polluted the drinking water is not pure there is health hazards because of this fire to use water treatment (weha agave) the EPA no control to protect the cause of pollution.⁶⁸

The above two person says one of the major problem the authority not control to the pollution the other problem is financial problem (budget) to give education programs, to raise awareness to the people and both the federal and Addis Ababa EPA not strong control to the lower institution.

67. Interview with, Ato Tekmachew Damera general service department head to Awashe winery May 12,2010

68. Interview with, miss Alem Akef Aftam K.K Kebele 07 health department head May 20, 1010

Picture 5. Showing The Liquid Waste From Toilets And Gray Water From Kitchens And Both Rooms Are Mixed Little Akaki Rivers Water



69

Picture 5.1. Kolfe 08/09 Keble Abajala Living House Their Waste Flow To The Little Akaki River



70

3.4 Major Environmental actors and their mandates

The government and non governmental organs that are involved directly or indirectly with environmental management and conservation. Several ministries are responsible for environmental and natural resources management. Public institution and non governmental organization (NGOs) play an important role in environmental protection.⁷¹

3.4.1 Governmental organs (ministry's)

A number of ministries are involved in various environmental issues such as

- Ministry of land
- Ministry of transport and communication and health
- Ministry of agriculture, livestock and forestry
- Ministry of energy, water and natural resources
- Ministry of commerce, industry and tourism
- The prime ministry office

All the above ministries play an important role in environmental protection. For example, when we see the prime ministers office the prime ministers office coordinates and follows up the governments activities as well as international organization, NGOs and public or private institutions involved in socio-economic development. All the above ministries concerns environmental issues but not all ministries fully concerns to environmental control at local level.⁷²

71 Cited at note 14 P. 13

72 Ibid

3.4.2 Public institutions

Public institutions that are involved in environmental protection in Ethiopia are office for tourism and national parks, national university, course related to the environment are given in different faculties, research is conducted on various environment related topics such as water, forestry, soil and animal science, climate change and environmental policies.

3.4.3 Private institutions and non governmental organizations (NGOs)

A number of financial institutions such as commercial banks and other private institutions have started to get involved in environmental promotion activities especially by sponsoring events related to environmental awareness campaigns local NGOs are also involved in environmental activities in promoting research tourism and education for sponsored a natural resource conservation project. In Kolfe area GTZ and Kelze to participate the environmental promotion activities.

However given that there is no monitoring and control mechanism the conditions may not be translated in to action⁷³

So the problems are:-

- Lack public sensitization programs on the problem of the environment and sustainable development;
- Absence of political awareness on the importance of environmental protection;
- Absence of decentralized services that deal with environmental matters
- Lack of material and financial resources;
- Lack of a coordinating body dealing with environmental issues

73 Ibid

Table 5. Actors And Actions Required To Minimize The Pollution Loads

Actors	Actions required
<ul style="list-style-type: none"> • Environmental protection Authority • Environmental protection Bureau of A.A (EPB) • Others, like MOWR 	<ul style="list-style-type: none"> • Development of water quality monitoring strategy throughout the little Akaki Basin. • Approval and enforcement of draft pollution control regulation • Development of a combination of ambient and effluent standard • Training and promotion of cleaner production concepts • Awareness creation about the current water quality status for the users as well as the polluters • Development of water quality criteria particularly for irrigation livestock watering and recreation
<ul style="list-style-type: none"> • A.A water and sewerage Authority (AWSA) 	<ul style="list-style-type: none"> • Up grade quality waste water treatment facility to treat both domestic and industrial wastes • Up grade the existing sewer lines • Up grade water supply for the people living
<ul style="list-style-type: none"> • Industry 	<p>Development of environmental action plan which includes</p> <ul style="list-style-type: none"> • Promotion of waste management hierarchy • Waste audit • Identification of potential waste sources • Identification of toxic pollutants to the ecosystem • Targets to minimize toxic pollutants before discharging in to the river • Support for water quality objectives and regulations

3.5 Public participation in the environmental protection in

Kolfe Kernio sub city

Public participation is very important to control environmental pollution and it should be allowed to be part of the EIA to ensure the real assessment of social, economic and environmental costs and benefit from the proposed development and understand interest of the public. The fact that environmental laws are recorded in books does not ensure the goals of their intended achievement; the people need to be motivated to accept the environmental practices. Public participation in EIA is important to achieve, sustainable development.

In accordance with Art 15 of EPA proclamation public participation

1. "The Authority or the relevant regional environmental agency shall make any environmental impact study report accessible to the public and solicit comments on it"
2. The authority or the relevant regional environmental agency shall ensure that the comments made by the public and in particular by the communities likely to be affected by the implementation of a project are incorporated in to the environmental impact study report as well as in its evaluation.

In light of the EIA proclamation the public must participate in two stages during the making and review of the EISR. But actually in the first stage, some project owners list the names of a few individuals together with their signatures or thumb marks, as those who have participated EISR. As examination of some documents prevail the participants name are predominant of male and ill treating. In addition to that, EPA can not be sure weather the lists attached to the EISR, by the projects owners, are genuine or not.

Hence, the EPA added another criteria requiring public participation to be endorsed by woreda administration officials. But since woreda administration officials have little understanding on the importance of EIA, the system fails to guarantee genuine public participation and it presents the EPA service department of EPA requiring video clip to ensure the public participation.⁷⁴

74 EPA Proclamation Art 15

As there are no specific guidelines for public participation, it is not possible to determine what actually constitutes public participation and there is no either priority or limitation on those parties who can participate and get access to documents and decision to the agency, the public has to participate in the review process but this aspect is totally neglected and review process is now only for expertise not for citizens due to lack of time and budget to solicit public participation.

3.6 Coordination of EPA and other stakeholders

The environmental protection authority (EPA) has the power and responsibility of preparing, formulating and implementing environmental policies, strategies, laws and standards which foster social and economic development as well as environmental protection. It is the sole body responsible to take any coordination measures, to ensure the basic policy and constitutional objective, laws, strategies, standards and guidelines, in consultation with the competent agencies, other concerned organs and the public at large and it also monitors and enforces their implementation.

EPA is responsible for establishing a system for undertaking EIA on public and private projects as well as social and economic policies, strategies, laws and programs. EPA is also responsible for developing a directive that identifies categories of projects likely to have negative impacts and require EIA or do not have negative impacts and not require EIA.

It is also responsible for evaluating the EIA study reports on projects subject to federal licensing, execution or suspension and on projects likely to create inter-regional impacts, auditing and regulating the implementation of such projects.⁷⁵

With regard to controlling pollution, EPA and other competent regional environmental agencies take administrative or legal measures against any person who pollutes the environment unlawfully.

It is also responsible to monitor and evaluate the adequacy of municipal waste management systems and ensure their effective implementation. And also coordination and planning of all environmental related activities not only EPA but other public institutions that are involved in environmental protection, private institutions and

⁷⁵ Id Art 6

NGOs could play an important role in environmental protection and conservation the Communists also participate to the pollution control but there is no adequate coordination mechanism to ensure a holistic approach to the environmental issue and not give. In adequate environmental awareness, education and training at the various stake holder levels.⁷⁶

3.7 OFFENCES AND PENALTIES FOR ENVIRONMENTAL CRIMES

Generally, in legal litigation remedies are broadly categorized as civil and criminal liability. Similarly, in environmental law, the legal remedies that are designed to maintain the status quo are provided in the criminal code, Tort law, and other Enabling statutes of environmental law.

The legal remedies in those different legal instruments are devised in a way they could address any actual or potential damage to the environment and provide a full-fledged legal remedy to keep up the natural cycle of environment.

Human needs and wants are unlimited and these unlimited human needs and wants are highly dependent on the scarce resources of the environment. As a result of the above fact, the mordant race between and among people to accommodate their interest would inevitable cause damage to the environments.

So much so that such situation will create dispute between and among the different personalities and ultimately it could result in un warranted exploitation and over depletion of natural resources. In such scenario, the law provides different types of remedies to regulate and cease the unfair relation, and to strike the happy balance between and among the parties who have conflict of interest in relation to environment. To regulate the unfettered acts of man. Our legal system devised the civil and criminal liabilities with different mechanisms but the same objective, which is taking reactive and proactive measures in case when there is actual or potential damage to the environments.⁷⁷

76 Ibid

77 Ibid

3.7.1 CIVIL LIABILITY

Torts law is fashioned as an instrument for making people adhere to standards of reasonable behavior and respect the rights and interests of one another. Thus, it does this by protecting the legal interests and by providing compensation for the loss suffered by him from the person who has violated the same. There fore to constitute a tort or civil injury:

1. There must be a wrongful act committed by a person
2. The wrong act must give rise to legal damage or actual damage, and
3. The wrongful act must be of such a nature as to give rise to a legal remedy in the form of an action for damages.

In environmental law liability for a tort arises when a wrongful act complained of amounts either to an infringement of a legal private right or a breach or violation of a legal duty. That is, when there is public or private nuisance (damage) ⁷⁸

3.7.2 CRIMINAL LIABILITY

As a reflection of growing awareness among the judiciary of seriousness of environmental wrong doing laws and courts are increasingly punishing wrong doers by imprisonment.

The most important function of the state is acting as the guardian of the law and orders preventing and punishing all injuries to it self and all disobedience to the rules, to Ethiopia Environmental law criminal liability is encompassed in the criminal code and other enabling environmental statutes.

In addition to enjoining harmful environmental conditions and granting compensation for the damages caused by such conditions. The other critical function performed by judges in fashioning remedies in environmental case is penalizing environmental wrong doing. As is the case with all law enforcement, the objective in punishing violators is not so much punishment for punishment's sake. Rather it is to express community rejection of the conduct and send a message of "deterrence" that discourages similar misconduct in the future.⁷⁹

78 Environmental law teaching material St, Mary's university college 2009 Page 144

79 Ibid

The purpose of criminal law is usually to punish the wrong doer or to protect the public, whereas the purpose of environmental law is largely to prevent or control pollution. In light of criminal code of Ethiopia “whoever with out obtaining authorization from the competent authority implement a project on which environmental impact assessment is punishable with simple imprisonment not exceeding one year.⁸⁰

According to the EIA proclamation any person who, with out obtaining authorization from the authority or the relevant regional environmental agency and if he fails to keep records or to full fill conditions of authorization issued pursuant to this proclamation and shall be liable to affine. When we see this the proclamation doesn't impose liability on government officials even if it is clear that who licenses or permits individuals should primarily be held liable. The proclamation is silent about that the accountability also must go to the advisors but here also the proclamation is silent since implementation of a project with out authorization is not totally possible.

In the absence of issuance of license or permit by the licensing agencies the government officials also liable not only the private developer who should be held liable.

When environmental offence committed courts have the power to impose penalties. However, both any person and government officials' commits an offence do not actually get penalized due to various reasons some of the reasons are

- Financial problems
- There is no strong controlling system
- Lack of awareness of the environmental issues and its impact.
- To conclude, when a person commits an offence there must be liable.

80 Criminal code of Ethiopia

CHAPTER FOUR

Conclusion and recommendation

4.1 Conclusion

One of the very crucial challenges of environmental law is integrating environmental protection with development activities. We need to develop economically. Also we need to protect our environment. Environmental law deals with challenge to have both at once.

Ethiopia has different levels of policy and legislative frame work that covers different aspects of environmental management, Article 44 of the Ethiopian Federal Democratic Republic Constitution provides the basic principles for environmental protection. The constitution says, "All persons have the right to live in a clean and healthy environment". Accordingly the government of Ethiopia has established an environmental protection authority by the proclamation No. 9/1995 with responsibility for over all protection of the environment. The environment policy of Ethiopia was formulated and approved by the government in April 1997 Besides these a number of proclamations and supporting regulations were made that contain provision for the protection of the environment, these include environmental impact assessment, investment proclamation, Environmental pollution, Industrial pollution control regulation control.

Generally all the proclamations will help to minimize the pollution load generated from various industries and other sources. But when those laws are break or not respect by any individuals or by any institution or organs the responsible governmental organ began to act against violator of the law. In environmental law the legal remedies are stated in the criminal code, tort law and others enabling statutes of environmental law. But both any person and government officials' commits an offence do not actually get penalized. Because of this the law is not fully implemented.

One of the tools used to implement suitable development is the application of EIA. EIA is a process of identifying and minimizing on it possible avoiding adverse impacts on environment and a tool to achieve sustainable development. But, when we see its

application (implication), It is poorly applied because, on the one hand the implementing institution lacks power, adequate budget and expertise. We can also raise lack of effective coordination of EPA with the local administration, private institution and non governmental organisation. Both organisations have a great role to the country development. Because, public participation is very important to control environmental pollution but, with out coordination of those institution our environmental policy and sustainable objective will not be successful.

Ethiopia is facing serious environmental problems. The extent and severity of water pollution problem is more amplified in major areas like Addis Ababa where pollution and industries are growing at a faster rate. And the state of water pollution is at its highest state at present. In Addis Ababa city specially in Kolfe Kernio sub city there are many rivers some of them are little akaki, jemo river, Bururu river, Reipe river and Melka Korena river. One of the major polluted in Kolfe Keranio is little Akeki river.

The source of pollution to these rivers includes pollutants discharged from the receiver of untreated industry plants, municipal, clinical and other sources of liquid waste, irrigation drainage, from construction land cleaning poor land management, inefficient water use and sediments via stream water during rainy season. Faecal contamination from animals and poorly maintained septic tank systems are also causing the water pollution problems, because of this those river waters are now highly contaminated and crates a negative impact on the river ecology. Polluted water is not only unfit for consumption but also very dangerous to use. Using this polluted river water, water related human health problems such as diarrhea, dysentery, amoebiasis, ascariasis and others.

4.2 Recommendation

For the implementation of environmental protection, the researcher of this issue recommended the following measures.

- Environmental protection authorities and agencies at each level in their hierarchies should properly execute their duties and responsibilities given by law.
- The authorities should provide priority and pay particular attention to the little Akaki river, Jemo river, Ripi river and Melke Korna river by considering the seriousness of pollution problems of these rivers,
- Establish coordinating committee at local levels and promote coordinating committee at non-governmental and governmental, private companies and enterprises in pollution monitoring.
- Governmental institution, non governmental organization human rights advocators etc also should work together to create awareness among the officials and policy makers. Environmental awareness programs should be introduced in education curricula from primary school level and creation of intensive awareness programmers about environmental pollution control among the major stakeholders.
- Public education through news letters, journals and other publications,
- Sponsoring educational trips, symposium, work shops that are mostly directed to schools and the public,
- Adequate co-ordination mechanisms need to be put in to place to ensure a holistic approach to the environmental issues,
- Give comprehensive and up to date information on the environment,
- Institutions (EPA) have to be given enough power and budget, to the EPA sectors
- The environmental protection authority (EPA) should prepare environmental standard each and every industrial project to work accordingly.
- Policies and laws related to environment should be accompanied by appropriate implementation mechanisms of all administration levels and upgrade the capacity of environment protection authority

- Policy implementation should be hand in hand with the educational programmers to raise awareness on importance of environmental protection and conservation
- Increased research in environmental matters should be encouraged and policies and laws should be updated based on the results of the studies to achieve sustainable development by environmental control.

Bibliography

Books

- Melese Damtie unpublished material the need for environmental law, 1999
- Bisual D, Human rights gender and environment new Delhi, viva books private limited 2006
- Environmental protection authority, state of environment report for Ethiopia August 2004
- Zenebework Tadese, Environment and development in Ethiopia, Addis Ababa 2001
- Susan Wolfe and Anna White, Environmental law (Cavendish publishing limited, University of North Umbria, 1995)
- Mellese Damte Environmental law (unpublished 2006)
- Mellese Damte and Mesfine Bayou Overview of environmental impact assessment in Ethiopia (2007)
- Worku Damena salient features of law and environment in Ethiopia
- Alan Wild (1983) soils and the environment CAMBRIDGE university.(1983)
- Lesson D. Environmental Law, great Britain, Pitman Publishing, 1995
- Sadleye b, Environmental assessment to wards improved effectiveness of environmental assessment Canada,1995
- Mohamed Suhlih, environmental planning politics and politics in eastern and southern Africa Great Britain, Macmillan press LTD 1999
- Marquita K. HILL, understanding Environmental pollution (Cambridge university press 1997)
- Yonas Teklemichael, The role status and effectiveness of environmental impact assessment and strategic environmental assessment in Ethiopia, (EPA Library 2002 unpub ished)
- State of the environment report for Ethiopia. (Published by EPA)
- H.V. Sadhav & Dr, S.H. purohit, Global warming and environmental laws 2007

JOURNALS

- Mkobi M. Moleele and Tidimane Ntsabane Environmental forum publications series, no.5
- Veronica mutikani and sibongile Baker Environmental forum publication series, no.4
- Therese Musabe and innocent Kebenga environmental forum publications series , no.3
- Forum for environment, AKIRMA, No. 15/1999
No. 17/1999
No. 21/2001
No. 25/2002

TABLE OF LAWS

- Constitution of the FDRE, 1994
- Environmental impact assessment proclamation No. 299/2002
- Environmental protection organs establishment proclamation No. 295/2002
- Investment proclamation No. 280/2002
- Investment (amendment) proclamation No. 337/2003
- Environmental pollution control proclamation No. 300/200 2
- Establishment of the EPA proclamation No. 9/95A
- Proclamation to provide for the utilization of water resources proclamation No. 92/94

POLICIES

- Population policy 2007
- Environmental policy of ETHIOPIA