



ST. MARY'S UNIVERSITY COLLEGE

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LL.B THESIS

**LEGAL AND INSTITUTIONAL PROBLEMS
ASSOCIATED WITH ENVIRONMENTAL
POLLUTION WITH SPECIFIC REFERENCE
TO SEWERAGE DISPOSAL IN ADDIS ABABA**

BY: NUROYE ABTEW

**ADDIS ABABA, ETHIOPIA
JULY 2008**

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BY: NUROYE ABTEW

ADVISOR: MELESE DAMTE (ASS. PROF)

**Submitted in partial Fulfillment of the requirements for
the Bachelors Degree of Law (LL.B) at the Faculty of
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JULY 2008**

I hereby declare that this paper is my original work and I take full responsibility for any failure to observe the conventional rules of citation.

Name: _____

Signed: _____

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Introduction

Now a days the major urban centers of the third world countries face with a serious problems of environmental pollutions. Environmental pollution caused by excessive gas emission of industrials, cars, fuel-wood, burning etc. pollution caused by disposal of factory products untreated liquid wastes, dangerous chemicals from garages and factories etc ...

This situation is getting worse from time to time because of the rapid expansion of urbanization which placed increasing strain on the resources of countries to provide adequate infrastructure and sanitary services to their inhabitants. Again this unsanitary environmental conditions exacerbated by rapidly increasing urban congestion. Many houses of third world cities are illegal where raw sewages are untreated and improperly disposed. As a result, underground and surface water is frequently contaminated and threatening public health. The same is true for Addis Ababa.

The majority of the population lacks access to waste treatment facilities. Approximately 70% of the inhabitants disposed wastes near or around their homes business centers, hotels, etc... (Florian, 1995: P.1) on open areas which could wash away in to rivers and ground waters.

There is a growing recognition that insufficient action has been taken to reduce environmental hazards through the provision of sanitary services. When we say that sanitary services we mean to say that both the provision of infrastructures and management of collection and disposal services.

In Addis Ababa, in the writer's point of view, it is hard to say that the problem is getting worse because of lack of infrastructures and provision of

sanitary services. But, because of the absence of strong legal legislation system. Even though the service is available the cheapest way to dispose unwanted byproducts is usually to release them untreated in to the air and water ways or to dump them on the ground where, run off is free to sink in to ground water of wash in to rivers.

The penalties in all regulations and proclamations are cheaper than the service charge it requires to discharge it properly. Besides there is no effective controlling government body that control and duly handling disposal of wastes. There fore there is a problem of provision to minimize the problem.

As a matter of fact the problem is not only lack of infrastructures as it is tried to point out. Environmental law of the country, particularly with the sewerage disposal has a big vacuum to cause in effect the physical solution.

CHAPTER ONE

1. General Definition and Concepts of Environment and Environmental Pollution

1.1 Environment

Environment is a wide concept which has different meanings as defined by many scholars.

The "Environment" consists of all, or any of the following media namely, the air; water and land; and the medium of air includes the air within buildings and the air within other natural or man-made structures above or below ground.¹

The Environmental Pollution Control proclamation Number 300/200 defined the environment as "the totality of all materials whether in their natural state or modified or changed by human; their external spaces and the interaction which affect their quality or quantity and the welfare of human or other living beings, including but not restricted to land atmosphere, weather and climate, water, living things, sound, odor, taste, social factors and aesthetics".

Whereas, the Encyclopedia Britannica, volume 4-15th edition defined Environment as the complex of physical, chemical, biotic factors that act upon an organism or an ecological community and ultimately determine its form and survival.²

As to the Black's Law Dictionary, 6th edition "environment is the totality of physical, economic, cultural aesthetic and social circumstances and factors which surround and

¹ Susan Wolf and Anna White, environmental law ; lecture notes, 1995 p.21

² Eysenek, Hars Jartge, (ed) Encyclopedia Britannica 13th Ed

affect the desirability and value of property and which also affect or modify peoples' lives and the surrounding conditions".³

From the above definitions, although they are interpreted in different ways, Environment is the sum total of all living and non-living things which includes all ecosystems which are linked each other to form a natural system.

1.2 Environmental Pollution

Environmental pollution is not a single definition "pollution" is the introduction of any substances or energy liable to the environment which cause hazards to human health, harm to living resources and ecological systems, damage or retextures or amenity of interference with legitimate use or not.⁴

Environmental pollution is a term that refers to all the ways that human activities harm the natural environment. Most people have witnessed environmental pollution in the form of an open garbage dump or a factory pouring of liquid substances to the ground or out break of smoke.

However, pollution can also be invisible, odorless and tasteless. Some kinds of pollution do not actually dirty the land, air or water, but they reduce the quality of life of people and other living things.⁵

The main types of environmental pollution include air pollution, soil pollution, noise pollution, water pollution and caused by solid waste and hazardous waste are the major ones in our world, from these kinds of pollutions are shall we see some of them:-

³ Nola Joseph and W. Nola Jaceae line, Black's law dictionary 6th Ed p.534

⁴ Susan Wolf and Anna White, Environmental law: lecture notes, 1995 p.3

⁵ The world book of Encyclopedia V: 6/2001 p.330

- A) Air pollution is the contamination of the air by such substances as fuel exhaust and smoke. It can harm the health of plants and animal's damage buildings and other structures .According to the world health organization, about one fifth of the world's people are exposed to hazardous level of air pollutants.
- B) Soil pollution is the destruction of the earth's thin layer of healthy, productive soil farmers could not grow enough food to support the world's people healthy soil depends on bacteria, fungi and small animals to breakdown wastes in the soil and release nutrients. These nutrients help plants grow fertilizers and pesticides can limit the ability of soil organisms to process wastes. As a result farmers who over use fertilizers and pesticides can destroy their soil's productivity. A number of other human activities can also damage soil.
- C) Noise pollution comes from such machines as air planes, motor vehicles construction machinery, and industrial equipment .Noise does not dirty the air, water or land, but it can cause discomfort and hearing loss in human being and other animals.
- D) Water pollution is the contamination of water by sewage, toxic chemicals, metals, Oils, or Other substances. It can affect such surface water as rivers, lakes, and oceans, as well as the water beneath the earth's surface caused ground water.

Water pollution occurs when people put so much waste in to a water system that its natural clearing processes can not function properly. Some waste, such as oil industrial acids, or farm pesticides poisons aquatic plants and animals.

Some water pollution occurs when there is improper separation of sewer waste water from clean drinking water. In parts of the world that lack modern sewage treatment plants, water carrying human waste can flow in to drinking water supplies.

Now -a- day's environmental pollution is one of the most serious problems facing humanity and other life forms. This is due to the release of 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 a potential harm-added to the environment 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 living organisms can include harm to their health or interference with the ecological systems which they form a part.

1.3 Environmental Law

Environmental law is part of public law which governs environmental issues, legal principles and tools to address the causes of environmental degradation. It is a law that applies to govern activities from resource allocating to extraction, through their production to disposal. Also it can be defined as a law which regulates destructive human behavior against social interests of the environment. To this end, environmental law has many functions; prevention, setting environmental quality standards and clean- up remediation.

Environmental law mostly stresses on functions that are preventive. Because its prime aim is protecting the environment and nature for the interest and the wellbeing of the society. As a result, the law primarily seeks to regulate and control pollution and

penalizes polluters but it must also be supported by changing attitudes and behaviors towards the environment in order to be fully effective.⁶

Therefore, usually environmental law is based on the following principle which includes the basic policies.

- ✚ Polluter pays principle
- ✚ The preventative principle
- ✚ The precautionary principle.⁷

These three principles are used universally as a standard of environment protection tools and laws.

1.4 Sewerage Disposal System

It is a system of water contains waste liquid matter produced by human beings. It is also caused waste liquid material comes from sinks and toilets of homes, restaurants, office, building and factories. It contains dissolved material that can not be seen, plus bits of such solid mater as human waste and ground up garbage.⁸

In other words, sewerage is a system of waste liquid material is carried from its sources to treatment facility-pipe and close ditch systems that are generally classified according to the type of waste liquid through them. If the system carries both domestic and storm – water sewage, it is called a combined system, and these usually serve the older sections of urban areas. As the cities expanded and began to provide treatment of sewage, sanitary sewage was separated from storm sewage by a separate pipe network.

⁶ Susan wolf and Anna white , Environmental law; Kcture notes, 1995 p.3

⁷ Susan wolf and Anna white, environmental law; lecture notes, 1995 p.4

⁸ The world book of Encyclopedia, volume 17/2001 p.329

1.5 Historical Background of Sewerage Disposal

Sewerage disposal (waste water disposal) various processes, involved in the collection, treatment, and sanitary disposal of liquid and water- carried wastes from households and industrial plants the issue of sewage disposal and assumed increasing importance in the early 1970s as a result of the general concern expressed in the united states and world wide about the wider problem of pollution of the human environment, the contamination of the atmosphere, rivers, lakes, oceans and ground water by domestic, municipal agricultural and industrial waste.⁹

Methods of waste disposal date from ancient times, and sanitary sewers have been found in the rains of the prehistoric cities of Crete and the ancient Assyrian cites. Storm-water sewers built by the Romans are still in service today. Although the primary function of these was drainage, the Roman practice of dumping refuse in the streets caused significant quantities of organic matter to be carried along with the rain water- run off. To ward the end of the middle Ages, below ground privy vaults and, later, less pools were developed. When these containers are come full, sanitation workers removed the deposit at the owner's expense. The wastes were used as fertilizer at nearby farms or were dumped in to water courses or into vacant land.¹⁰

Few centuries later, there was renewed construction of storm sewers mostly in the form of open channels or street gutters. At first, disposing of any waste in these sewers was forbidden, but by the 19thC it was recognized that community health could be improved by discharging human waste into the storm sewers for rapid removal development of municipal water-supply systems and household plumbing brought about flush toilets and

⁹ [http// Encarta msn.com/ encyclopedia sewage disposal p.1](http://Encarta.msn.com/encyclopedia/sewage_disposal_p.1)

¹⁰ [http// Encarta msn.com/ encyclopedia sewage disposal p.1](http://Encarta.msn.com/encyclopedia/sewage_disposal_p.1)

the beginning of modern sewer systems. At the beginning of the 20thC, a few cities and industries began to recognize that to the discharge of sewerage directly in to the streams caused health problems, and this led to the construction of sewerage-treatment facilities.¹¹ At about the same time, the septic tank was introduced as a means of treating domestic sewerage from individual households both in sub-urban and rural areas.

Because of the abundance of diluting water and the presence of sizable social and economic problems during the first half of the 20th century, few municipalities and industries provided wastewater treatment.

1.5.1 History of Sewerage Disposal System in Ethiopia

Modern sewerage disposal system was introduced in Addis Ababa as well as in Ethiopia when the Italians constructed such lines in the town in 1930s. The first sewerage line was constructed in merkato, pizza (formerly known as Arada) and Lagar.

Its length was only 5 k.m. This line used to collect sewerages from toilets and floods which poured in to streams /rivers/ directly. This sort of sewerage disposal system was confined to few areas and not developed for a long period of time.

A relatively modern /conventional sewerage system/ in Addis Ababa was implemented since 1970s it's only Addis Ababa that has enjoyed the system so far.

In other regional towns, it is planned to implement it in the future. The first sewerage disposal project in Addis Ababa was implemented from 1979-1982. It is better known as phase1 sewerage disposal project,¹² by the Addis Ababa water and sewerage Authority.

¹¹ Ibid., p.1

¹² ./..... 1998 p.6

This project has covered Kality sewerage refinery and lines that are located in south western part of the town from Lideta, old airport, Kerra to Kality.

The second phase of the project was carried out from 1984-1986 in central and eastern parts of Addis Ababa. These lines are large and medium size ones. These two phases, about 16k.m of sewerage disposal lines are constructed.

This medium size lines had not been implemented effectively. Additional projects of medium size sewerage lines expansion are planned and implemented in 5 units since 1997.

The next two projects (6 and 7) are in progress.¹³ It is estimated that the length of these expanded lines would be 80 km when the projects are finished.

Apart from sewerage disposal lines, the introduction of sewerage disposal system by lorries is attributed to the Italians in 1930s for about four decades sewerages that were collected by lorries had been disposed either in the outskirts of the town or in to streams and rivers directly. Following the establishment of *Kality* refinery station (Treatment Plant) in 1979, sewerages that are collected by Lorries are disposed in a specific refinery station.¹⁴

In a nutshell, it can be concluded that a history of modern sewerage disposal system of Ethiopia is a history of sewerage disposal system of Addis Ababa for other part of the country such services so far.

¹³ ●/●..... 1998 p.8

¹⁴ Ibid., p.4

1.6 Environmental Impact of Sewerage Disposal

In the big cities the environmental impact from sewerage disposal have increasing urban dwellers because of the poor sewerage disposal system had come many negative impact with related environmental pollution.

The amount of liquid waste generated around the cities and municipal services run a liquid collection and disposal services could not run together.

Many cities, towns and villages are built beside rivers. Rivers provide us with water for drinking and cooking and for growing crops often, our rivers are water ways that can ferry us from place to place but we also use our rivers to carry away waste the sea many of these rivers are becoming polluted.

Human waste, called sewage, is some times poured in to the river. Sewage, together with other waste, decays in the water, using up valuable oxygen. Fish and other river life need oxygen to breathe some rivers are now so starved of oxygen that no plants or animals can survive in them.

Modern sewage treatment plants help to reduce the problem. River pollution is a serious problem in some countries. People bathe and wash in the rivers polluted water contains bacteria, chemicals or other substances that can cause illness or death.¹⁵

Other sources of water pollution are disposal of waste water generated from industries, households and agricultural process. Domestic wastewater also termed as sewage, contains high scale of human excreta, detergents, fats and oils etc. Industrial waste water from distilleries, pulp and paper mills, chemical unit's textile miles etc. also contain high level of biodegradable pollutants. When disposed off in to water bodies such as river, lakes and pounds etc... waste water gets a natural tendency to decompose by use of microbes present in the water.¹⁶

In developed countries, sewage is usually treated to remove solids and is sometimes chemically or biologically treated to produce a less harmful effluent. However in lesser developed countries raw sewage is often discharged directly in to water courses. The

¹⁵ Young scientist, world books volume 8/1997 p.100

¹⁶ Dr Japan Biswal, Human right gender and environment 2006 p.410

pathogens present in sewage contaminate shellfish and may lead to serious gastrointestinal disorders. Recreational activities may also be affected in areas in which sewage discharge has led to high pathogen concentration.¹⁷

Water polluted by sewerage has substantial biological effects, including impacts on human health microbial agents can affect people on contact by causing skin infections and respiratory illness, and while the sewerage system is contaminated it can cause severe gastrointestinal and respiratory problems.¹⁸

Environmental impacts related poor sewerage disposal the result is rivers not only carry chemical and biological substances downstream. They also bring sediment caused by erosion, deforestation, agricultural run off and irrigation.

Although, the problems and negative impacts of sewerage disposal highly affected environment specially water pollution, Efforts have been taken in many countries, during the 1950s and 1960s. The U.S government encouraged the prevention of pollution by providing funds for the construction of municipal waste – treatment plants, water pollution research and technical training and assistance.¹⁹

New processes were developed to treat sewage, analyze waste water, and evaluate the effects of pollution on the environment. In spite of these efforts, however, Expanding population and industrial and economic growth caused the pollution and health difficulties to increase specially in under developed countries.

¹⁷ Laws land D. International environmental law, 1997 p.229

¹⁸ Ibid.. p.319

¹⁹ [http// Encarta, msn.com /Encyclopedia swage disposal](http://Encarta,msn.com/Encyclopedia/swage_disposal) p.2

CHAPTER TWO

2. Institutional Bodies and Laws Governing and Management of Sewerage Disposal.

The first chapter of this paper has tried to show some information about environment and environmental pollutions including sewerage disposal and definition with related to environmental impact of sewerage.

In this chapter the writer tries to explain institutional /administrative/ situation of sewerage in municipal and legal frame-work of sewerage disposal.

As to-day's modern cities and towns development in the world, liquid sewage of the town's treatment and management is one of the biggest and major role of any municipality. This management of sewerage disposal should be applicable with a modern and scientific management method unless it results some problems especially with related to environmental pollution.

Methods of waste disposal accomplished with full response and make a coordinated effort to protect the environment.

2.1 International and National Experience of Sewerage Disposal Management.

2.1.1 United States of America (U.S.A)

In U.S.A the U.S Clean Water Act requires that Environment Protection Agency (E P A) monitor water quality and regulate discharge. It promulgated in 1972 for specific "Point"

sources of pollution such as industrial discharge pipes or sewage out flows. The act requires discharge permits and best practicable control technology (BPT). It sets national goals of best available, economically achievable technology (BAT), for toxic substances and Zero for 126 priority toxic pollutants.¹

Over the past 100 years, sanitary engineers have developed effective municipal waste water treatment systems to protect human health, ecosystem stability, and water quality.

The first system that was developed is a septic tank, most rural American families and quite a few residents of towns and small cities depend on a pit toilet or “outhouse” for waste disposal. Untreated wastes tended to seep in to the ground, however, and pathogens some times contaminated drinking water supplies.

The development of septic tanks and properly constructed drain fields represented a considerable improvement; waste water is first drained in to a septic tank.²

The second system that developed to dispose waste in U.S.A like Arcata, California was by transforming a 65 hectare (160 acres) garbage dump in to a series of ponds and marshes that serve as a simple, low cost waste treatment facility, the city saved millions of dollars and improved the environment simultaneously.³ Additional and widely applicable system of sewerage management in U.S.A is a treatment facility works. It was developed and gradually applied through long period of time.

¹ William P. Cunningham, many Ann Cunningham and Barbara Si go; Environmental science a global concern; 8th ED P.401

² Ibid. p.369

³ . Ibid p.399

Treatment Facility Work

Sewerage treatment facility work has three steps:-

- A) The first step in municipal waste treatment. It physically separates solid from the waste stream. As raw sewage enters the treatment plant, it passes through a metal grating that removes large debris. A moving screen then filters out smaller items. Brief residence in a grit tank allows sand and gravel to settle.
- B) Secondary treatment consists of biological degradation of the dissolved organic compounds. The effluent from primary treatment flows in to a trickling filter bed, an aeration tank, or a sewage lagoon.
- C) Tertiary treatment is removes plant nutrients, especially nitrates and phosphates, from the secondary effluent. Although waste water is usually free of pathogens and organic material after secondary treatment.⁴

In American cities, sanitary sewers are connected to storm sewers, which carry run off from streets and parking lots. Storm sewers are routed to the treatment plant rather than discharge in to surface water because run off from streets, yards and industrial sites generally contains a variety of refuses, fertilizers, pesticides, oils, rubbers, tars, leads and other undesirable chemicals.⁵

⁴ William P.C clanning , unary Ann canning ham and Barbara sigo; environmental science a global concern; 8thEd p.397

⁵ Ibid. p.398



2.1.2 Untied Kingdom (U.K)

In U.K The town and country planning act of 1947 provided the first real preventive legislation and system requirement new development including all liquid and solid waste disposal sites, to have planning permission.

The disposal of effluent in to sewers is inextricably linked to water pollution. Industrial process generate enormous quantities of waste which is either discharged on land as solid waste, emitted in to the atmosphere or, in the case of liquid wastes, it may either be discharged in to controlled waters or released in the sewers. The discharge of trade effluent in to the sewers is controlled directly by the sewerage undertakers, exercising their powers under the water resources Act, but also indirectly by the NRS⁶ (National Rivers Authority)

Sewerage undertaker's grant consent for the disposal of trade effluent in to the sewers but they are then required to obtain consent from the NRA to release the final treated effluent in to controlled waters.

The control of disposal waste materials and responsible body as institution in U.K. waste collection Authorities (W C A S) are the district councils or London Boroughs. Waste collection Authorities are placed under a statutory duty to collect household waste free of charge and it works some specific function as responsible institution.⁷

-  To arrange for the collection of commercial or industrial waste on request
-  To arrange for the collection of household waste in their area.

⁶ Susan wolf and Anna white, environmental law: lecture notes, 1995 p.204

⁷ Ibid., p.265

- ✚ To provide bins /receptacles/
- ✚ To collect waste due to deliver for disposal as directed by the waste disposal authority
- ✚ To investigate and make arrangements for recycling.

U.K Laws and institutional arrangement of disposal it an offence to discharge sewage effluent in to controlled waters and, there fore, sewerage undertaker are required to obtain a consent from the NRA to legally discharge the treated sewage. Sewerage undertakers are subject to the same provisions as any other discharger. The control of water pollution is exercised by the NRA through a system of authorized consents, the authority responsibility for controlling pollution of water.

2.1.3 India

India is one of the most populated countries in the world and the cities of India has vast and densely population capacity. However, the Indian trend of sewerage disposal management has a big different from U.S.A and U.K as we have seen, the above two countries practice mostly modern and costly management system, on the other side India is developing country and the living distribution of the people in the cities is designed as match with the realistic condition of the country.

In India, No city governments or public municipalities can be held responsible for not providing sewerage facilities; but however, when once such facilities have been provided, the officials and municipal bodies will become responsible to certain extent for any damages caused to the health of properties of the citizens, due to its insufficient or inefficient provisions or operations.

The sewerage disposal management initial money has, of course, to be provided by the government, but the interest on the capital investment and the depreciation charges

as well as the running maintenance and operation expenses must be recovered from the users of these facilities by properly taxing them. However, there can not be a very rational system of taxing the users of sewerage facilities, because it is not feasible to estimate the quantity of sewage removed from an individual house, and hence can not be as rationally taxed according to the volume of water consumed. Consequently, the sewerage services may be financed by adding a certain surcharge, usually a percentage to the water bill. This is somewhat rational in the sense the sewage produced by the house will be directly proportional to the water consumed.⁸

The sewerage system must be properly and skillfully planned and designed, so as to remove the entire sewage effectively and efficiently from the houses and up to the point of disposal. The sewers must be of adequate size so as to avoid their overflow and subsequent damages to properties, and health hazards. In order to provide economically adequate sized sewers, it is necessary that the likely sewage discharge be estimated as correctly as possible. The sewer pipes should then be designed to be laid on a slope that will permit reasonable velocity of flow.

If the sewerage system has been constructed, as designed by a competent engineer, normally nothing can be claimed by the sufferers due to inadequate size of sewers. Still, however damages can always be claimed, if there is some established negligence on the part of the authorities in the maintenance or operation of sewerage works. For example, if the blockage of a sewer is reported to the authorities who do not take prompt action, then the consequent damages caused by the backing up and overflowing of the sewers, can always be claimed. Similarly, if the leaking sewers happen to pollute water supplies, damages can be claimed for affecting public health, but only if it can be established that

⁸ Santush Kumar Garg ; Environmental engineering V II sewage disposal and Air pollution engineering 2003 p.6

the sewerage authorities had pre knowledge of the situation, and they failed to remedy the same. If sewage treatment plant has been established near their properties, which gives off obnoxious smells.⁹

Similarly, throwing away of untreated or partially treated sewage in a river source, may pollute the river water and pose health hazards to the people utilizing such waters, down stream. In such a case also, the affected people can claim compensation applied before court.

2.1.4 Ethiopia

Sewerage Disposal Management of Addis Ababa City

The sewerage disposal service of Addis Ababa city is delivered by Addis Ababa city water and sewerage service authority, an institution established in February 1970 G.C under order number 68/1970. Later on, the Authority is re-established under proclamation number 298/1971. After almost a quarter of a century, this institution is restructured under proclamation number 10/1995; 1995 currently the Authority has two objective, i.e

- To deliver adequate pure water and
- To dispose sewerages.¹⁰

Based on the sewerage master plan prepared by the Authority, the institution is striving to deliver its services in national and city levels.

The major powers and duties of the authority in relation sewerage, ensure that any water sources are not polluted or contaminated; but are protected and conserved: to this end, it shall take the necessary action including the closure of contaminated sources in

⁹ santush kumar Garg; Environmental engineering VII sewage disposal and air pollution engineering (2003) p.7

¹⁰ ./..... 1998 p.151

Currently, there are 55 k.m medium size sewerage disposal lines in Addis Ababa until 2004/2005 the Authority has about 2014 customers of sewerage disposal lines. ¹³

The lines function entirely by law of gravity for the tube is constructed from a relatively highland area to a relatively lowland area of the city with out any mechanical system. The sewages finally poured in to *Kaliti* refinery station. These lines collect 7000m³ sewages daily which comprise only 2% of the sector's total demand in Addis Ababa.

It is apparent that this technique of sewage collecting, refining and disposing system of the authority is a modern way of sewerage treatment.

The rationale of utilizing these sewerage disposal lines by the Authority are the following

- ✚ Environmental pollution
- ✚ Economical situations

The Authority strictly forbids any contact of the sewer lines system.

- ✚ Sewerage of automobiles and households
- ✚ Sewerage of industries, factories. Hospitals, oil station and etc...
- ✚ Sewerages of dairy station with the abovementioned sewerage disposal lines.

These sewages that have been disposed through lines do not include sewerages resulted from rainfall and other illegal linkages.

However, any person /institution/ who requests the services of the authority shall be a customer. Further more any one whom the authority compelled to connect its waste water facilities to sewer line can be the customer of the authority. It is important to note here that the physical, chemical and the bacteriological characteristics of the waste water shall comply with the standards of the authority.

¹³/..... 1998 .. 196

Currently out of 128,000 m³ sewerages that have been created daily in Addis Ababa, only 15, 629 m³ or 6.7% is disposed properly.¹⁴

Under the Re-establishment proclamation number 10/1995 of Article 16, the Authority shall have special power and duties related to the use of the sewerage system. The Authority Special power includes invite, encourage, license, and supervise private investors who participate in the collection transportation and discharge of sludge by vacuum trucks.

2.2 Environmental Laws and Policies Applicable in Ethiopia

In Ethiopia at the federal level environmental protection issues are co-ordinated by the environmental protection authority. The objective of the authority is to ensure that all matters pertaining to the country's social and economic activities are carried out in a manner that will look after the welfare of human beings as well as sustainable protect, develop and utilize the resource bases on which they depend for survival.

The Co-ordination mechanisms implemented at federal level are replicated at the regional level by a similar structure.

In Ethiopian, federal authority to promulgate environment legislation derives from two sources first environmental problems have special characteristics that make it desirable to integrate national, centralized pollution control efforts with activities at the regional state level.

The FDRE Constitution grants the federal government the power to enter in to international treaties that became binding law Article 9 of the constitution states that:-

All international agreement ratified by Ethiopia is an integral part of the law of the land.

Accordingly, Ethiopia ratifies 5 conventions including Biodiversity, Climate change, desertification and occupational safety health in the working environment.

Environmental rights and duties become more attractive and one of the national agenda in present Ethiopian condition. Interestingly, their inclusion in a country legal frame work has become a great evidence of a progressive constitution of Ethiopia.

Environment has received attention from the legislature of the present constitution in fact which is not very common especially among the developing countries. Ethiopia has made certain commitment originating from domestic law but having relevant to its international obligation which declared under Art9 (4) of FDRE Constitution more over this constitution provide that the human and democratic rights including environmental right should be interpreted compatibly in a manner conforming to the principles of universal declaration of human rights/UDHR/ and other international instruments adapted by Ethiopia. In effect provisions make sure that the practical application and enforcement of environmental law especially the right enshrined in Art 43 Art 44 of the constitution with Article 92 of objectives not below on international standards.

Another law implemented for the protection of environment of the country consists of two major proclamations.

These are:-

- ✚ Proclamation number 299/2002 “environmental impact Assessment” law it’s to predict and management the environmental effects which it positive or negative results.¹⁵
- ✚ Proclamation number 300/2002 “environmental pollution control” law, the law has protect environment from any natural or man made pollution. The proclamation has about 22 Articles, The provisions includes control of pollution environmental standards, put offences and penalty measures.¹⁶

Policies

For the purpose of evaluation of existing decree first we should have consider the environmental policy of Ethiopia approved since April 2, 1997 by the council of ministers of FDRE particularly the policy implementation part of the policy which are related to sewerage .

The policy has five main section and talks about the following major issues specially related with disposal management.

- ✚ It provides the needs of policy.
- ✚ It provides human settlements, urban environment and environmental health
- ✚ To give priority to waste collection services and to its safe disposal.
- ✚ To promote the development of sewerage systems and sewage treatment facilities in urban centers
- ✚ To the extent possible to recycle liquid and solid wastes from homesteads and establishments for the production of energy and other uses

¹⁵ .Proclamation number 299/2002: environmental impact Assessment: federal Negarte Gazetha

¹⁶ proclamation number 300/2002: Environmental pollution control: federal Negarte Gazetha

- ✚ To adapt the polluter pays principle while endorsing precautionary principle since pollution is likely to occur and ensure and polluting enterprises and municipalities and wereda councils, provide their own appropriate pollution control facilities.
- ✚ To maintain regulate Governmental audits to ensure the adoption of the environmentally sound practices in all public and private development activities including industrial & mining operations.
- ✚ To give priority to waste collection services and to its safe disposal, institutional framework responsibility and mandates.
- ✚ To avoid conflicts & interest by assigning responsibility to separate organs for environmental and natural resources development management activities in the one hand and environmental protection regulation and maintains the other.¹⁷
- ✚ To create conducive conditions for families, housing groups and communities to construct latrine emptying as well as waste collection and disposal services.
- ✚ To undertake studies which identify suitable sanitary land fill sites in the major cities and towns of Ethiopia.

¹⁷ F.D.R.E Environmental Policy: 1997 p.14-18

2.3 Existing Laws to Control Sewerage Disposal in Addis Ababa

To protect the water body from uncontrolled waste discharged from factories and domestic wastes, the settings of appropriate environmental standards and coercive laws are important. However, the effectiveness of setting a appropriate standards is only tangible if the subsequent enforcement and regulation are put in to due practice.

Ethiopia has different levels of policy and legislative frame work that cover different aspects of environmental management. Besides these, Addis Ababa city government under its autonomous jurisdiction that has been granted by F.D.R.E constitution has promulgated many laws and provisions to protect the environment from unsafe and unsystematic sewerage disposal. With regard to this, we have federal laws and municipal city laws and legislation.

A) Federal Laws

The major substantive law enacted in Addis Ababa and all over the country is the criminal code of 2004. The law puts criminal sanction for violation of environmental protection standards

Under Article 517 and Article 519 of the code, it is stated that:

Article 517

Contamination of Water

“1. Whoever intentionally contaminates by means of substances harmful to health drinking water serving the need of man or animals is punishable, according to the circumstances and the extent of the damage with fine or simple imprisonment for not

less than one month, or in more serious cases, with rigorous imprisonment not exceeding seven years.

2. in cases of intentional poisoning of wells or cisterns , springs , waters holes ,river or lakes , the punishment shall be rigorous imprisonment not exceeding fifteen years
3. Where the crime under sub articles (1) or (2) above is committed negligently , it is punishable with simple imprisonment , or if less serious with fine.

Article 519

Environmental Pollution

1. Whoever, in breach of the relevant law, discharges pollutants in to the environment, is punishable with fine not exceeding ten thousand birr, or with rigorous imprisonment exceeding five years.
2. Where the pollution has resulted in serious consequences on the health or life of persons or on the environment, the punishment shall be rigorous imprisonment not exceeding ten years
3. Where the act of the criminal has infringed a criminal provision entailing a more severe penalty, the provisions on concurrence of crimes shall apply.¹⁸”

Other legislation under federal law which deals with environmental protection of sewerage disposal is proclamation number 300/2000 of “Environmental pollution control” proclamation. It explicitly and clearly put some provisional standards of the

¹⁸ the criminal code of F.D.R.E: code of 2004

discharge of effluents in the water bodies and sewage systems under article 6 and its sub articles.

Additionally the law gives penalties under Article 12, 14, 15, and 16 which include fine penalty and imprisonment under the penal law of the land .

Proclamation number 300/2000 is promulgated to control environmental pollution. Every legal person should have appropriate space to control substance that would contaminate the environmental before he/ she /it dispose them. The environmental protection authority is entitled to supervise such arrangements and to penalize those who breach the provisions.

The authority furthermore, has a right to identify the stage of swages that would pour in to sewerage disposal lines and to measure the extent of the contaminating scope of them.

Where ever there is a discrepancy or gap under the penal articles, the authority can penalize those who breach the provisions ranging from birr five thousand to ten thousand in cash and not more than one year imprisonment in the case of individuals, and from ten thousand to twenty thousand in the case of legal person .

Under this proclamation article 16 anyone who is found guilty in contaminating the environment will be penalized in cash ranging from birr one thousand to five thousand and from one year to ten years imprisonment in the case of natural person. If the criminal is legal person, the penalty ranges from birr five thousand to twenty five thousand and an individual in charge of the legal person can be penalized from five years to ten years imprisonment or charged from birr five thousand to ten thousand.

Any one who does not handle or control dangerous sewages, or hides information about them or transfer dangerous swage from one place to the other will be penalized under article 15 of the proclamation in cash not less than birr twenty thousand to fifty thousand in the case of natural person , and not less than birr fifty thousand and not more than hundred thousand in the case of legal person, and an individual who is responsible to the legal person will be penalized from three year to six years imprisonment or charged in cash not less than thirty thousand and not more than forty thousand.¹⁹

Civil Liability

With regard to civil liability, even though there are no detail provisions concerning the right to claim compensation which guarantee protection against damage or loss under this proclamation, the civil code entitled this right covered under the extra- contractual liability.

B) Municipal City Laws and Legislations

The Environmental protection bureau of Addis Ababa city government is the institution responsible for protecting the environment with in the Addis Ababa administration boundary.

Based on its authority over the city, Addis Ababa city administration has promulgated several regulations to protect environment by controlling illegal sewerage disposal. These regulations are:-

1. Regulation number 1/1994 of “Hygiene and health control “It puts nine prohibitive and coercive standards about disposal of liquid waste.
 - Every one must have a toilet individually or commercially

¹⁹ Environmental pollution control proclamation : number 300/2000 Federal Negarit Gazetha

- Every one has a right to connect sewages intended to be disposed with such lines under authorized institution
- Every one has a right to dispose liquid sewages in his/her compound based on advice of expert.
- No one is allowed to dispose any sewerages from his/her or institution in to streets open areas, stream , pool or lakes
- Without a license from authorized institutions no one can refine sewerages and pour in to rivers, pools or lakes.
- No one can wash cloths, cars and other devise in streets and in prohibited areas.
- Any sewerage found in a distance of 20 meters from the home or institution of an individual shall cause liability
- It is prohibited to urinate or defecate out of toil ate.
- A toil ate of any one shall not be allowed to give serves incase of linkage into territories of dwellers
- Anyone who breaches the above regulations shall be panelized in cash from birr 5 to two hundred.²⁰

2. The second and recent legislation enacted by the municipal, relating the control of illegal sewerage disposal is regulation number 13 / 2004 “ waste management collection and disposal” The law putt’s ten mandatory rules under Article 19; managing and collecting of liquid waste:

-No person shall be allowed urinate or defecate outside the toilet or put the faces in to festal, closed or open container and discard it in the street, public place or in other unauthorized places or remove it mixing with solid waste

²⁰ Hygiene and health control : Regulation number 1/1994 Addis Negarith Gazetha

- Any septic tank or toilet shall be dislodged before it gets full and in a manner that doesn't pollute the environment.

- No person shall discharge or cause it to be discharge out toilet effluents in to the rivers, in the street, vicinity or an authorized place

- No person shall be allowed to discharge or cause it to be discharged other silage in the streets or vicinity other than authorized drainages

- No person shall be allowed to wash vehicles or to have them washed in the streets or public places or in other authorized place.

- Any fuel station or garage shall prepare a container in which used oil or petrol is stored and shall cause it to be used; It shall be prohibited to discharge in to unauthorized places.

- No person, engaged in liquid waste sanitary service, shall be allowed to litter out the same and pollute the vicinity or discharge the same in unauthorized places.

- No person shall be allowed to remove untreated industrial or other poisonous hazardous liquid waste in to rivers or in unauthorized places.

- Any service delivery or manufacturing organization, generating poisonous and hazardous liquid waste, Shall after accruing permit form the relevant organ and by employing neutralizing instrument and method, dispose the same.

The regulation has put penalties any body whose violate the above prohibited act.

The penalty includes imposed on crimes in relation to sanitary service provided on the penal code and the regulation includes special schedule penalties, the penalty schedule have seven categories;

- To discharge liquid west of toilet in to an unauthorized places form

- Household 30.00 birr
- Organization 200.00 birr

To discharge silage house hold in to the vicinity or streets

- Household 20.00 birr
- Organization 100.birr

One who washes or have washed a vehicle in the street or un authorized place
30.00 birr

- Discharge under sewage from fuel station or garage 500.00 birr.
- Failure to keep the house hold or organization or the area in front of it up to
10 meters from the end of the same
 - Organization 100.00 birr
 - Household 10.00 birr
- Dispose in the rivers or in an authorized places untreated industrial liquids or
other poisonous and hazardous water 700.00 birr
- Oaring liquid in the street during driving of and spilled it over in an
unauthorized area 300.00 birr.²¹
- Additionally a person, who committed an offence provided in the provisions
of the regulation and who cannot afford or is not volunteer to pay the penalty
shall be penalized as per the gravity of his faulty by imprisonment by the
decision of the city first instant court.

²¹ waste management collection and disposal; Regulation number 13 / 2004 Addis Negarith Gazetha

3. Environmental pollution control regulations number 25/2007 is another legislation which is promulgated by the city government.

Major objective of this regulation is to eliminate or to mitigate pollution as an undesirable consequences on social and economic development activities of the city.

Under Article 7 of the regulation puts about discharging effluence in to sewerage system standards. The law stated that the following effluents and other materials which fails complex effluents below the standard, prohibited to discharge or to put in to sewerage system.

Effluents which are difficult to filter in the filtering center or challenges the activities of the center or creates a problem when the filtration under way.

When the effluent is believed to minimize the quality of water produced by the filtration center and against the standards issued by the government.

When it is /presumed that it cause/ harm to workers who maintain the channel or manhole as a result of generation of hazards chemicals by its own or when mixed with other elements.

When it is believed /presumed to endanger sewerage system of filtration center or water and air when the effluent discharges by its own or mixed with other elements.

When temperature of the effluent becomes over 50 degree measured at the meeting place of the effluent and the channel.

When PH of the effluent is below 5.5 or above 10.

When it is believed to generate flammable, or explosive, or poisons or hazardous gas or vapor in the sewerage line.

Effluents containing substances which evaporate below 100⁰C

Effluents containing oil, fats or soapy substance which may block the channel or that affect the filtration center from per forming well.

Effluents containing solid such as wastes of Onion or potato, wool sand, textile, bone and stone.²²

The regulation, under Article 8(1)(b) stated prohibited realse or putting hazardous materials, effluents, or solid wastes or any pollutant materials directly or indirectly in to rivers or sewerage.

²² Environmental pollution control Regulation; number 25/2007 Addis Negarit Gazetha

CHAPTER THREE

3. Legal and Institutional Problems of Sewerage Disposal Related Environmental Pollution in the Study Area

The practical problems of law and institutional related sewerage disposal, the study tries to evaluate in this chapter. The samples are selected from Gulele sub city of five Kebeles which drained three rivers most exposed to pollution related with waste liquid materials.

In the study, the information has been collected from primary data through interviewing the persons related with the study. Ato Tesfaye wendmu is Gulele sub city environmental protection team leader, Ato Getaneh Gebre is Addis Ababa environmental protection Authority environmental pollution control team leader, Ato Fasil Eshate Addis Ababa environmental protection Authority environmental information and legal team leader and Ato Mengestu T/maryam Addis Ababa water and sewerage Authority sewerage service main section leader. Another source of data is collected from documents, official reports and unpublished materials. In addition to this, personal observation of the writer about the study are also included.

Based on this device the researchers try to show the legal and institutional problem of sewerage disposal and environmental pollution of Addis Ababa in some selected districts.

3.1 Institutional Problems of Concerned Organs

In this study attempt will be made to show the problem of environmental pollution as a result of poor sewerage disposal system which resulted partly from inefficient management system. In this study, the problem is addressed taking Addis Ababa city, particularly Gulele sub city as the case study area.

Gulele sub city is one of the ten sub cities of Addis Ababa which is located north of the city. The total area of the sub-city is about 3022.6 hectare. Of this 123.6 hectare is delimited as river basin area and reserved for environmental protection area. (Interview: Tesefaye Wendimu, June 2008 A.A)

In the sub city, there are three major rivers which rise from *Entoto* and joins rivers little Akaki. These are:-

1. River *Kebena* with total area of 752.1 hectare, partially pass through Keble 19/20/21 and Keble 01/02
2. River *Ketchene* or '*Mariam*' river with total area of 1809.51 hectare across Keble 03/04/05, 06,07/17 and Keble 18
3. River *Aba shama* with total area of 876.05 hectare pass through Kebele 13/14 of the sub city

The above three river are the main rivers which cross the sub city. Except river *Aba shama*, the rest two are passing through densely populated areas (both in terms of house and population) however; all of them are highly exposed to pollution. This is mainly as a result of

1. The connection of toilet sewerage lines to run off lines.
2. Domestic sewerage disposals in to the main drainage system.
3. Waste liquid chemicals of weaving and garbage's that are disposed on the river banks and

4. The release of chemical in the river from tannery industry (*Aba shama river*).

According to Addis Ababa Sanitation, Beautification and Parks Development Agency study of 2007 in the sub city each individual generates about 0.252 kgs. different types of wastes per day. Totally, in one year, the sub city generates 212,181.3m³ wastes of this only 60% of the total waste is properly disposed. While 40% of the total waste i.e. 84,872.5m³ is disposed before it is collected from river banks and basins (interview: Tsefaye)

It is tried to show the degree of environmental pollution particularly river pollution on the sub city in relation with the problem of sewerage disposal. Accordingly the main reason for the pollution is the problem of management and service delivery system of institutions that are in charge of it i.e. Addis Ababa Environmental Protection Authority and Addis Ababa Water and Sewerage Authority. The following sub topic deals with the major problems of these institutions giving special emphasis to sewerage disposal systems.

3.1.1 Institutional Problems of Addis Ababa Environmental Protection Authority

Addis Ababa Environmental protection Authority is re-established under Environmental organs establishment proclamation number 295/2002. On this proclamation, the authority is given so many responsibilities with regard to the environmental protection of the city. Among these responsibilities, improving the quality of the environment, protecting the environment from different types of pollution and takes legal measures on action of

pollution are the main. The Administrative structure of the Authority is found on city and sub city level. On sub city level the structure is led by a team leader.

A/ Structural Adjustment and Efficiency of the Authority

Though the Authority is responsible to protect the environment and improve its quality, the number of environmental pollution control experts that is available on sub city level is only one. As it is tried to mentioned earlier, on average, there are 10 Kebeles in each sub city. So it is difficult to protect the environment from pollution with a single personnel. Each sub city the present writer supposes, requires at least three experts.

On the other hand, on the national level, there is no minimum standard of the degree and of river pollution. As a result, it is difficult to use similar and uniform standard method to claim whether there is pollution or not. Even though administrative measures have been taken on those who discharge domestic and organizational wastes to rivers through the co-operation of code enforcement service: (*Denbe Maskeber*), the measures are not strong enough to bring solution. (Interview Getaneh Gebre. June 2008 A.A)

B/ The trend of Exercising and Practicing Law and Order in the Authority

Though the Authority is responsible to take cases to court, the effort that has been carried out is insignificant. To this end there is no case that had been taken to court regarding the offence of individuals or organization of the environment.

Besides this, due to lack of awareness among the people, the authority could not get any information about any action of environmental pollution. Therefore poor effort of the authority to create awareness about the laws and order of the proclamation can be taken as a major problem to enforce law and order. Lack of upto date study and data in

Addis Ababa Environmental Protection Authority about the degree and level of pollution of rivers which are highly exposed is another problem

C/ The Trend of Co-operation with Stake Holders

The co-operation of the authority with the stake holders is very limited with selected sectors. With regard to this, particularly on Kebele and sub city level, the authority has a co-operation and contacts with Code Enforcement Service (*Denb maskeber*) and Sanitation Beautification and Parks Development Agency. However, the co-operations limited with Addis Ababa Water and Sewerage Authority on supervision and controlling of rivers and water bodies located around industries and factories. Additionally, there is no any common supervision controlling system of sewage lines and systems to minimize the pollution. Even though, the Authority and Water and Sewerage Authority has a sectorial development program to strength their co-operation program not implemented yet.

The co-operation of the authority with city police in taking cases to court and in taking measures on offensive actions of individuals and organization is very weak. It is weak because police and Addis Ababa Environmental Protection Authority do not give due attention to the environmental offences and accordingly cases do not appear in a court of law. (Interview: Fasil Eshate, June 2008 A.A.)

3.1.2 Institutional Problems of Addis Ababa Water and Sewerage Service Authority

The Water and Sewerage Service Authority of Addis Ababa is authorized to deliver portable water and collection and disposal of sewerage of the city effectively. In this sub

topic, we will try to see the problem of the institution in collecting and disposing of sewerage.

A/ Capacity of the Authority on Sewerage Collection and Disposal

It is mentioned in chapter two that the authority uses different methods to collect and dispose sewerage of the city. It includes:

- using disposing sewerage after collecting them by lorries
- disposing swaged through sewer lines network

Sewages collecting by Lorries /Transportation / means were owned only by the government. Starting from 1995, the service is allowed for privately owned sewerage collection and disposal companies. As a result of this, an average annual about 400,776m³ or 70% of the objective of the authority and not less than 90% of privately owned companies objective were collected and disposed.¹

The underground sewer line is the other means that the authority uses to collect and filtrate the sewage. However, the network of the sewage service system is very poor to collect the sewerage that generated by the city. That is to say out of 128,000m³ sewage generated in the city per day only 7000m³ or 2% of it is collected through this means. This sewer line system had been developed in two directions twenty years ago.²

The first sewer line is started from the Armed forces hospital of Addis Ababa and passes through the surrounding of *Ledeta church, Bisrate Gebireal, Gofa* and finally reaches to *Kaliti* treatment station. The second one is started form *Sidist kilo* and passed

¹2000 .. .

²1998 .. 191

through *Arat kilo* via *St .Estifanos church*, *Bole* and finally joins to *Kaliti* treatment station.³

Therefore, most of Addis Ababa in the east *Ferensay*, *Kebena*, *Shola*, *Kotbe* and *Meri-CMC* Area; in the north *Piazza*, *Gulele- Entoto*, *Adisu Gebeya*; in the center of *Merkato*, *TekleHaimanot*, *HabteGiorgies*; in the west all of *Kolfe keraneo* and in the south west of *Lafto area* have no any sewer line system.

As a result of this, in many densely populated areas of Addis Ababa including *Gullele*, the extent and the degree of environmental pollution with related waste liquid materials are very high.

More over, the existing sewer line system had been developed many years ago. When we contextualize it with the ever growing of population and urbanization of the city, the capability of the system is very limited. Besides, the sewer line had been constructed from high altitude areas to relatively low latitude areas to transport the sewerage easily by the force of gravity. That is to say, there is no modern means i.e. generator or other manmade system used to collect and transport sewage from relatively low altitude areas.

The other problem is unauthorized sewer line connection to the main sewer line by individuals and organizations. Furthermore there is very high amount of run off inter to the sewer line system drained the summer season. As a result of this, a collection of sewerage and run off over flood on the asphalt road and that in turn results many communicable diseases. In the summer (*kiremt*) season the amount of sewerage entered in to the sewer line system is 55% greater than that entered during the winter (*Bega*) season. This creates problematic pressure on the treatment plant station.

³ Ibid., p.191

In conclusion, out of the total of 46,848,000m³ different types of sewage generated per year in the city, the authority collects an average 3,915,720m³ or 8.3% of the sewerage.⁴ The rest 91.7% of the sewage is disposed not properly. It enters in to rivers or percolated to the ground water and pollutes these water bodies. As a result, in a city like Addis Ababa in which where pure portable water well not provisioned, the people usually use rives and ground water to different communicable diseases.

The absence of treatment plant (station) in different areas is another problem. Lack of awareness of the people to connect their drainage line with the main sewer line with the prior knowledge of the authority is a problem, too.

3.2 Legal problems /Implication /

As it is discussed in chapter two concerning the environmental protection of the country, currently there are few effective proclamation and regulations which are promulgated at the federal and regional levels. (Interview: Fasile Eshate, June 2008 .A.A). In this topic, attempt will be made to examine in detail the legal problems (their discrepancies and weaknesses) of these regulations and proclamations in relation to water pollution

1/ Firstly in both the federal Environmental Pollution Control Proclamation (Proclamation Number 300/2002) and Addis Ababa city Government Environmental Pollution Control Regulation (Regulation Number 25/2007) there is no any standard which determines the extent of pollutions. Even though in proclamation number 300/2002 part three Article 6(1) it is stated that in consultation with competent agencies, the authority shall formulate practicable environmental standards based on scientific and environmental principles; and in Regulation Number 25/2007 part two Article 6(1) it is

⁴/... .. 1998 •1996

stated the city government shall determine quality standards, among others for the discharge of effluents in to water bodies and sewerage systems and for the amount of odor which is favorable to environmental welfare and human health respectively, such standards have not yet been determined. Accordingly it is difficult to punish any person who commits offences.

2/ The other legal problem is related to the powers and duties of inspectors of Environmental Protection Authority cited in proclamation number 300/2002 Article 7-8 and in regulation number 25/2007 same articles. Despite the fact that the powers and duties of environmental inspectors are stated in detail in both documents, there is no any legal and executive arrangements which enable them to apply their power and duties granted by the law. Hence, inspectors are confined only in writing letter of notices to persons who commit offences.

3/ the third legal problem is found in Environmental Impact Assessment Proclamation Number 299/2002 and Regulation Number 25/2007 Article 9 and 10. The latter regulation stated in detail about the permit required to engage in the production and management of hazardous material (Article 9) and the duty to provide information. However, there are no regulations or proclamation which enforces the establishment of treatment plant with the factory.

4/ The weakness of penalty schedules that are stated in Regulation Number 1/1994 of 'hygiene and health control' and Regulation Number 13/2004 can be referred as the fourth legal problem. As scheduled in the penal schedule of Regulation Number 13/2004, in discharge liquid waste of toilet in to an authorized places, the amount of fine is birr 30.00 if it is discharged from household; and birr 200.00 if it is discharged from organization /Article 19/(6)/. In discharging sewage house hold in to the vicinity of

streets, the amount of fine is 20.00 if it is discharged from house hold; and birr 100.00 if it is discharged from organization (Article 19/7).

When one washes or have washed a vehicle in the street or unauthorized place, the amount of fine ranges from birr 10.00 to 30.00 (Article 19/8) in discharging unduly sewage from fuel station or garage, the amount of fine is birr 500.00 (Article 19/9). In disposing in the rivers or in unauthorized places, untreated industrial liquid or other poisonous and hazardous water, the amount of fine is birr 7000.00 (Article 20/(2)).

From the above mentioned lists of offences and fines, we can deduce that the amount of fines is too small in relation to the damages on life, nature, resource and environment. The fines are by no means compensating the damages. On the other hands these small amount of fines (even though they are not implemented effectively) could not give a lesson to the offenders.

5/ With regard to civil liability, except in Regulation Number 25/2007 which stated in its part four, article 22(1) that any person who transcends or violate the provision of these regulations shall be liable for the pollution of the environment and /or for damages sustained over the well being, life and material as a result of pollution in its order of priority, to reinstate the environment to its former or original situation by his cost and to compensate damages caused on persons and their interest as a result of pollution. The civil liabilities are not promulgated in other proclamations and regulations. Therefore it is difficult to punish civil liability any person who commits offences on the environment due to the weaknesses of the laws

6/ the other legal problem are related to the powers and function of organs stated in part seven article 21 and 22 of Regulation Number 13/2004. Although the sanitation Beautification and Park Development Agency shall have the power to set standards

together with concerned organs, for sanitation of liquid waste, poisons and hazardous waste, follow up and control and proper implementation of the same, the power and functions of code enforcement service regular and traffic police and others lacks clarities concerning the extent of duties and responsibilities of these organs.

Even if Article 22(1) (b) of the same regulation, it is stated that the code enforcement personnel shall impose penalties in accordance with penalty schedule, implement the same or cause be implemented, it is not stated that the Authority takes part in the implementation of penalties.

To sum up , as far as environmental pollution especially sewerage disposal is concerned, the above mentioned points show the major legal problem in alleviating environmental pollution and in attempting to control it by the authority

CHAPTER FOUR

4. Conclusion and Recommendation

4.1 Conclusion

It is noted that environment is the sum total of all living and non living things which includes all eco systems which are linked each other to form a natural system and its pollution means that the way that human activities which cause any form of harm to it. As attempt is made to explain in the first chapter of this study, there are four kinds of environmental pollution i.e: air, soil, sound and water.

In order to regulate destructive human behavior against the environment, states draft and adopt environmental laws as part of public law which governs environmental issues, legal principles and tools to address the cause of environmental degradation. In these public laws there are statements and articles which deal directly with particular issues such as sewerage disposal system. As it is discussed in the study, it is defined as a system of waste liquid material carried from its sources to treatment facility- pipe and close ditch systems that are generally classified according to the type of waste liquid through them. This modern system was introduced in Ethiopia (First in Addis Ababa) when the Italians built such lines in the town in 1930s. Currently the sewerage disposal service of Addis Ababa City is delivered by Addis Ababa City Water and Sewerage Service Authority. In relation to this, the environmental protection issues are co-ordinated by the Environmental Protection Authority.

Ethiopia has different levels of Policy and Legislative framework that cover different aspects of environmental management. Among these the Criminal Code of 2004, Proclamation Number 200/2002 and Regulation Number 25/1994, Regulation

Number 13/2004 and Regulation Number 25/2007 are remarkable. However, there are some institutional and legal problems in alleviating environmental pollution which result from sewerage. The first institutional problem, for example, in Gulele sub city (the research area) is absence of appropriate number of personnel. Furthermore, there is no significant co-operation among stake holders. Besides, the services delivered by Addis Ababa City Water and Sewerage Service Authority are much less than the demand. With regard to the legal problems, one can point out some discrepancies and weaknesses of the above mentioned Proclamations and Regulations in relation to water pollution. Absence of standard which determine the extent of pollution in proclamation number 300/2002 and regulation number 25/2007, absence of legal and executive arrangements which enable stake holders to apply their power and duties granted by the law, absence of regulation or proclamation which enforce the establishment of treatment plant as an integral part of a factory, the weakness of penalty schedules, difficulty to punish in civil liability and person who commits offences on the environment and finally lack of clarities concerning the extent of duties and responsibilities of stake holders can be taken as a major legal problems in the given laws and regulations.

4.2 Recommendation

In order to alleviate the problems discussed in chapter three, the writer of this paper suggests the following recommendations. This recommendation mainly deals with institutional and legal problems.

A) Institutional

As attempt is made to examine some reasons for environmental pollution (especially pollution caused by unsystematic sewerage disposal) in the previous pages, there is lack of integration among institutions such as Addis Ababa Environmental Protection Authority, Addis Ababa Water and Sewerage Service Authority etc. Therefore institutional integration with in their jurisdiction can tackle, if not solve the problem absolutely.

Besides, it is not only important but also necessary to enable dwellers that live in densely populated areas to have an access to lines of sewerage delivered by Addis Ababa Water and Sewerage Service Authority. In addition to this, the newly built apartments or other buildings should have modern sewerage disposal system. These two arrangements could enable the institutions in charge of these services to dispose sewer in more safe and faster way. Even if the existing laws and regulations have some problems, institutions specially concerned organs should properly apply and use guide line standards, for controlling of sewerage disposal. Besides, regulations should apply in each level of executive organs effectively.

Last but not least, the institutions should strive to create awareness among the people about environment and environmental pollution and environmental law. To

achieve such informative task, the Environmental Protection Authority should expand its institutional structure at a grass root level.

B) Legal

As it is mentioned in this paper, the punishments for the offences of environment put in the given Proclamations and Regulations are not effective due to weak penalty. Thus, offences should result in appropriate punishments so that the criminal and others take lessons from court decisions which in turn discourage offences.

Even though there is a draft proclamation on the extent of pollution of streams and rivers, it should be ratified and put in to practice as soon as possible. With respect to environmental pollution, there should be an enforcement unit which controls, take measures and complains to judiciary bodies any offences done on the environment. This unit can be answerable to Addis Ababa Environmental Protection Authority. Furthermore, there must be a proclamation or regulation which requires any factory to establish treatment plant in case of disposable sewerage.

With regard to the objectives of other institution which have similar aims and goals with Addis Ababa Environmental Protection Authority, there must be a clear jurisdiction among them. Generally, the above mentioned recommendations, the writer of this paper strongly believes, shall alleviate the institutional and legal problems observed in the research area.

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