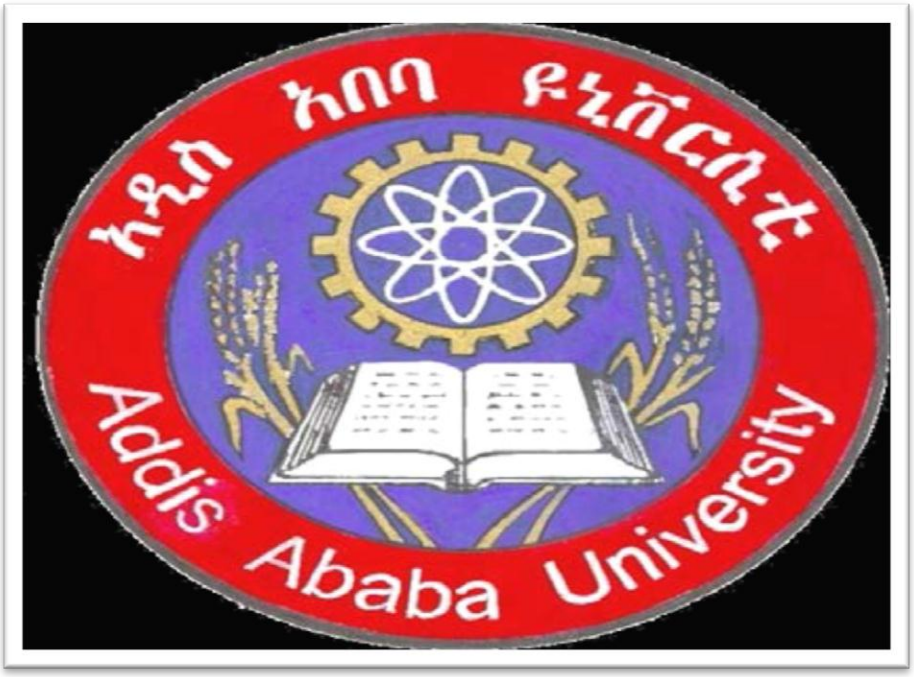

ADDIS ABABA UNIVERSITY

COLLEGE OF LAW AND GOVERNANCE

CENTRE FOR FEDERAL STUDIES

ENVIRONMENTAL FEDERALISM AND THE ROLE OF LOCAL GOVERNMENT IN CONTROLLING INDUSTRIAL POLLUTION: THE CASE OF SEBETA CITY ADMINISTRATION, OROMIA NATIONAL REGIONAL STATE

A THESIS SUBMITTED FOR PARTIAL FULFILLMENT OF THE REQUIREMENT OF MASTERS DEGREE IN FEDERAL STUDIES

By

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Declaration

This thesis is my original work and has not been submitted to any other institution for the award of any academic degree, diploma, or certificate and that all sources of material used for this thesis have been properly acknowledged.

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Acronyms

BOD -Biological Oxygen Demand

COD -Chemical Oxygen Demand

CSE -Conservation Strategy of Ethiopia

ECA- Economic Commission for Africa

EIA -Environmental Impact Assessment

EPA-Environmental Protection Authority

EPE -Environmental Policy of Ethiopia

ESS -Environmental and Social Screening

ESIA -Environment and Social Impact Assessment

ESMP- Environmental and Social Management Project

FDRE -Federal Democratic Republic of Ethiopia

GATT - General Agreement on Tariffs and Trade

GDP -Growth Domestic Production

GTP -*Growth and Transformation Plan*

MoEFCC Ministry of Environment, Forest and Climate Change

OECD -Organization for Economic Cooperation and Development

REPA -Regional Environmental Protection Authority

SCEPFCCA -Sebeta City Environmental Protection, Forest and Climate Change Authority

UNEP -United Nations Environment programme

WTO -World Trade Organization

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ABSTRACT

Despite various environmental problems in our country, this study focused on the industrial pollution of HAFDE tannery and Balezaf Alcohol located in Sebeta city administration. The city is characterised by large number of manufacturing industries. The communities in the city are living side by side with more of these industries. This lack of appropriate industrial zone, inefficient waste desposal method and lack of effective implementation of EIA law in regulatory body are causing various health problems on the communities as they are highly exposed to industrial pollution. Local government is the closest regulatory body in controlling industrial pollution.

The objective of this paper is to analyze the perceived and actual health problems of industrial pollution, waste management practice of the two industries, the legal framework for intervention mechanisms and the role of local government in controlling industrial pollution, The study employed case study design and used both qualitative and quantitative methods of data collection. In order to achieve the objective of the study, literatures were reviewed, and questionnaire, key informant interview and Observation were used as main research instruments. The result has indicated that the industries are not properly managing their wastes and dispose them to nearby environment without any treatment. As a result the different types of wastes from the two industries in the area are affecting the health of the communities. Cough, sinus, bronchitis, asthma, skin and eye problems are the commonly experienced problems by the communities of the area of the two industries. Most of the residents are perceived that these health problems are attributed to industrial pollution. The result has also indicated that, the local government bodies have not been taken satisfactory measures to solve the problem due to internal and external problems. Thus, giving awareness to factory owners about the critical problem of industrial pollution, encouraging the industries to treat their wastes and use best available technologies, regular monitoring and inspection of industries, improving the institutional capacity of environmental protection organs and strengthening the coordination between relevant institutions are recommended to solve the problem.

Key concepts: Environmental Federalism, Local government, Industrial pollution

CHAPTER ONE

INTRODUCTION

1.1.BACKGROUND OF THE STUDY

In our world, the development of International law on protecting the environment so as to guarantee human health from disaster has developed only few years ago. Although the development has got a few years history, there are various Declarations, Conventions and Agreements that contain various provisions dealing with a clean and healthy environment. Environment, as a resource, it is the source of all human civilizations and therefore, environmental sustainability is a crucial factor for the perpetuation of this civilization. Environmental sustainability refers to the preservation of different environmental elements (atmosphere, water and land) and systems to ensure that their functions and beneficial uses are upheld for present as well as future generations.

It is obvious that all countries desire to develop; but desire to develop is high in developing countries and very high in the least developed countries like Ethiopia. This Economic development on the other hand can have major impacts on the environment by degrading soils, polluting bodies of water, altering landscapes and threatening biodiversity, in some cases driving species into extinction. In turn, environmental impacts can impose significant economic and social costs on society, especially with regard to human health. To this effect, one of the most important urban environment problems of today is managing industrial wastes.

Industrialization in the cities increase the populations, in that case the volume and composition of wastes generated grow and change. This is especially significant for cities in the developing world where populations and economies are rapidly expanding and the infrastructure necessary to manage the ensuing problems is inadequate.

It is largely attributable to natural causes that the changes in environmental sustainability. However, natural resource degradation, pollution and loss of biodiversity caused by human activities have been observed reducing the resilience of the environment in recent times (ECA, 2005). The wastes from small and large industries are released into the environment in different ways. Liquid industrial waste is usually discharged into streams via nearby ditches. The bulk of the solid waste, however, is mostly dumped in factory premises or any nearby open area (EPA, 2003).

Gaseous emissions are simply released into the air without any treatment. This kind of Environmental pollution has affected health, life and the environment badly. Thus, this wide spread pollution deserves urgent attention as well as concentrated action. To this effect, governments, international organizations and non-governmental organizations are all increasingly giving urgent attention to regulate human activity which impacts on the natural environment. (S.B.Akuffo, 1998 cited in Tesfanesh)

Consequently, Environmental Impact Assessment (EIA), which is a new concept, has been just introduced to protect the environment and guarantee human wellbeing from environmental catastrophes. The protection of the environment or the consideration of environmental values while adopting a given course of action will serve to further everyone's right to live in a clean and healthy environment.

On the other hand, to protect and mitigate the environmental pollution affecting our country, many efforts have been made at the national level. For instance, adoption and ratification of some international conventions and agreements related to the environment, incorporation of environmental issues into the constitution, formulation of environmental policy and strategy and enactment of Environmental Pollution Control and Environmental Impact Assessment Proclamations are the major attempts. In addition, the establishment of institutions who are responsible for handling environmental issues is also encouraging.

International cooperation is important to avoid environmental pollution in the world. This global effort has facilitated the development of an international governance structure aimed at more effective environmental management.

Moreover, in a country with federal structure, legislative rights over environmental resources, services and goods are divided or shared between the federal or central, state or provincial and local government, along with subjects such as international relations, income tax, revenue. In the constitutions of federal nations, rights are explicitly described to the extent possible (Belbase, 2010).

In our country Ethiopia, the current five years 2nd strategic plan of Ethiopia, that is, the 2015/2016-2019/2020 *Growth and Transformation Plan* (GTP II) expressly recognizes that environmental conservation and pollution control has vital contribution for sustainability of development. Thus, government administration of Environmental pollution control is shared between the Federal and Regional states and local government bodies.

In Oromiya Regional state “Oromiya Natural Resource Development and Environmental Protection Authority” was established in 2001 based on proclamation No.43/2001. Then in 2008 it was changed into "Oromiya Environmental protection, Forest and Climate Change Authority" (OEPFCCA) based on Proclamation no. 199/2008. The proclamation define “Environmental Protection” as the protection of manmade and natural environment from hazardous, pollution and ecosystem disturbing factors and use them for sustainable development and wellbeing of human being. The Authority also has the power to regulate and follow up that any development body shall conduct environmental impact assessment and the disposal of different pollutants and waste substances from factories, cities and other places not to pollute the environment and ecosystem and take proper action if it caused any damage.

The Oromiya regional states in turn empowered local government, /Zonal, Woreda/City and Kebele administrations/ taken as the objectives to enhance public participation, ensure the provision of efficient service delivery and accommodation of ethnic minorities as stated in FDRE Constitution 1995: art. 50.

Despite the ratification of International and Regional instruments as well as enactment of proclamations and Environmental Policy measures taken by Ethiopia; with the view to protect human environment, to secure clean and healthy environment for the people, they have got problems in implementation at all level. There are implementation problems of the international and national environmental laws. Moreover, the EIA laws and guidelines are not critically considered and applied on the projects located around the study area as the wastes released from the industries have been seen to be the root cause to infringe the Environmental Right of the local community. To state in specific terms, the Environmental Rights of the local people that are guaranteed under the Constitution are not secured mainly due to the improper implementation of Environmental Impact Assessment on the Projects that established within the study area.

The study area, Sebeta city Administration of Oromiya Regional State is one of the industrial areas of the country. In Sebeta City administration, there are more than 700 industries. In the year 2015/2016 industry shared 40-50% of the city’s GDP, and creates employment opportunities for more than 90,000 people. There are different major industries in the city, the most important of which are food and beverage, alcohol, leather, furniture, paper and printing, Textiles etc. Among the 286 large sized industries, leather, alcohol, flower, and cement factories are identified as heavy polluters. Thus, the main aim of this study is to identify the role of local

government in controlling industrial pollution and investigate major factors that have been affecting local government role in Sebeta city administration.

1.2. STATEMENT OF THE PROBLEM

Nowadays no country can effectively protect its environment and solve its various environmental problems. No matter how advanced its science and technology are or how perfect the means of legislation and implementation of environmental law are any country in the world is the victim of pollution.

As a new emerging industrializing nation Ethiopia is one of the countries that face the problem of industrial pollution. With a rapidly expanding and a growing trend of industrial development, problems related to the management of industrial waste have become of considerable magnitude in Ethiopia. The problem is more severe in areas where most of the industries are operating.

Thus, in order to protect the environment from pollution and to ensure a clean and healthy environment for all persons, The 1995 Constitution of the Federal Democratic Republic of Ethiopia provides a strong constitutional foundation for the introduction and effective implementation of environmental pollution control.

In addition, the Environmental Policy and the Environmental Pollution Control Proclamation have also been enacted to address the problem of pollution. More importantly, the Environmental Pollution Control Proclamation (Federal proclamation No.300/2002) is promulgated with a view to eliminate or, when not possible to mitigate pollution as an undesirable consequence of social and economic development activities.

The government has also made EIA to be a mandatory legal prerequisite for the implementation of major development projects, programs and plans. The proclamation is a central controlling tool to harmonizing and integrating environmental, economic, cultural and social considerations into a decision making process in a manner that promotes sustainable development and clean and healthy environment for the people.

Despite these encouraging efforts, there are practical problems in implementing EIA laws and guaranteeing the right to clean and healthy environment in the country as well as in Sebeta City administration which is found in Oromiya Regional state. In this city administration, a lot of factories and industries are working. The development and expansion of these industries have been causing a negative impact to the environment.

This problem needs a solution. According to Zemelak controlling pollution is one of the functional competences of local government (Zemelak, 2011). Local government is most close institution to citizen which is responsible to protect environment from pollution and make it conducive for living. Although the local environmental protection Authority has mandates to regulate and follow up whether any development activity is planned and implemented without damaging the environment; regulate and follow up whether development activity conduct environmental impact assessment prior to project implementation; regulates the disposal of different pollutants and waste materials from factories and industries, there is observable gap in controlling industrial pollution in Sebeta city administration. The waste discharged from industry has caused various social and economic problems on the local population.

There is very little evidence based research or scholarly work on the role of local government in controlling industrial pollution in Sebeta city administration. But the problem is much more diversified from time to time as the city has increasingly become an industrial area.

It is right time that Sebeta area needs more research and practical solutions to manage the industries in sustainable manner and even to get empirical studies to evaluate the real impacts of pollution and the role of local governments in implementing their functional competences

Hence, this research will contribute for the literature. It is hoped that the recommendations that will emerge from this study will point out possible strategies for improving the way to control industrial pollution is being managed at urban local level.

1.3. RESEARCH OBJECTIVES

1.3.1. General Objectives of the Study

The general objective of this study is to assess the current level of inappropriate industrial waste disposal of industrial pollution in Sebeta city and identify factors that hinder the role of local government to control the industrial pollution.

1.3.2. Specific objectives of the study

The study has the following specific objectives:

- To review the legal frame work of environmental protection.
- To assess the current practices of industrial waste disposal methods of HAFDE tannery and Balezaf alcohol.

- To investigate the perceived and actual implications of HAFDE tannery and Balezaf alcohol industries wastes on the area.
- To assess the role of Local government to control HAFDE tannery and Balezaf alcohol pollution
- To forward possible solution and strategies to enhance the role of local government in controlling or protecting industrial pollution.

1.4. THE RESEARCH QUESTIONS

Based on the key issues raised in the research problem and gaps identified in knowledge related to the role of local government in controlling industrial pollution, this research try to raise and investigate the following main research questions:

- What are the legal frame works of environmental protection?
- What are the Impacts of HAFDE tannery and Balezaf alcohol industries pollution on the local community?
- What is the role of local government in controlling industrial pollution?
- What are the factors that affect the role of local government to control industrial pollution?

1.5. SIGNIFICANCE OF THE RESEARCH

As very little or no research exists at present situation of Environmental Federalism and the role of local government in controlling industrial pollution, this research will contribute to the existing knowledge gap related to this issue.

The findings from the study will serve as useful data which will inform numerous follow-up studies in the future. It will also stimulate further studies in areas such as pollution controlling in the local areas and the way local government have to play its role in industrial areas in general. In addition to this the methodological framework that will be used in this study may help researchers who may conduct similar studies in the future.

Also the study will assist in reviewing existing functional competencies of local government in controlling industrial pollution in Sebeta city as well as in designing programmes and strategies that aimed to control pollution in the local governance. The study will benefit the local government by showing the effects of leather and alcohol industries locally and the challenges

that people face because of this pollution. Hence, significant findings from the study will be used to inform stakeholders in workshops and seminars.

1.6. SCOPE OF THE STUDY

These study focus on Environmental federalism and the role of local government in controlling industrial pollution. So, regarding the theoretical framework this study focuses on the theory of Federalism, environmental federalism and Local government.

In controlling pollution federal, regional and local government have a shared responsibilities. It would have been better to assess the case of all parts of the government. However, due to time constraints the role of local government is taken as case study. This part of government is selected because Local government is most close institution to citizen which is responsible to protect environment from pollution. Hence it would be a good case study for problem raised in this research paper, i.e. "Environmental Federalism and the role of Local Government in controlling industrial pollution".

Regarding industry type this study focus on leather and alcohol industry that is "HAFDE tannery" and "Balezaf alcohol". The level of analysis is limited at Sebeta city administration.

1.7. ORGANIZATION OF THE STUDY

This study organized in to six chapters. The first chapter is discussing about the introduction part of the study. The second chapter is the review of related literature. In this chapter different book, journals, articles, published and unpublished materials related to the subject under study was reviewed. Third chapter is about Environmental Protection in Ethiopia. And the fourth chapter is talking about description of study area and research methodology. Fifth chapter which is the major part of the research includes presentation, interpretation and analyses of the data and information generated through different means of data collection. Finally, in the sixth chapter, the summary of major findings and recommendations are included.

CHAPTER TWO

REVIEW OF LETRATURES

2.1. Environmental federalism

Environmental federalism is the way to share the role of managing the issues of environment between the national and sub-national governments. It also relates to the proper assignment of roles and responsibilities to the different tiers of government (Stiftung, 2014).

According to Wallace E. Oates,

> *The term environmental federalism is frequently misunderstood as referring to the role of the national government in setting environmental policy, and to the flexibility that is offered to the states in implementing and enforcing that policy (Oates, 2001).*

From its roots in the study of fiscal federalism, environmental federalism should be understood to refer more broadly to the study of the normative and positive consequences of the shared role of national and sub national units of government in controlling environmental problems(Ibid).

It is concerned with understanding which functions and instruments are best centralized and which are best placed in the sphere of decentralized levels of government. In other words, it is the study of how competencies and fiscal instruments including grants are allocated across vertical layers of the administration. It also relates to the proper assignment of various roles to the different tiers of government (Shobe & Burtraw, 2012).

Oates also states environmental federalism as environmental policymaking typically takes place in the context of a system with several levels of government. And this raises the important issue of the appropriate role of the various governments in the setting of environmental standards, the design of regulatory measures to attain the standards, and the monitoring and enforcement of these measures (Oates, 2001).

Thus, the concept of environmental federalism requires an examination of the appropriate jurisdiction for the management and provision of environmental goods and services. As stated in greening Indian federalism discussion paper for those activities that have important environmental spillover effects across jurisdictional boundaries, it will be crucial for the central government to play a role with regard to the environmental regulation that requires assuming responsibility (Greening the Indian Federal system Discussion Paper page 2)

State and local governments can engage in regulation of environmental quality and services, and should design and implement programs. Therefore, there is a need for a distributed governance

of the environment across multiple levels of the government, and federal systems are uniquely placed for this challenge (ibid).

2.2. The Environment and Environmental problems

According to Tsegai and Merhatbeb, 2009

> *"The word environment is derived from an ancient French word environner, meaning to encircle, and broadly applying to surroundings, environment can include the aggregate of natural, social and cultural conditions that influence the life of an individual or community".*

Thus, environmental problems can be deemed to include such problems as traffic congestion, crime, and noise (Tsegai and Merhatbeb,2009). environment can also defined geographically that refer limited area, the planets and atmosphere(ibid).Environment is the combination of all materials in the natural state or changed by humans which includes their external spaces and the interactions which affect their quality or quantity (Yared, 2009). Thus, environmental problems are caused by various economic and demographic factors such as: market fallers, policy failures, poverty, and population growth (Rashid, 1996).

The protection and improvement of environment is a major issue which affects the well-being of peoples and economic development around the world. Therefore, it is the critical issue for th whole people of the world and it also a responsibility of the government and the people to manage the natural resource of our environment (Chandiramani). Thus, recently unless natural resources of our planet used sustainably, the survival of human kind on earth will be at risk and affect the wellbeing of humans and eco-system (Ibid). Regarding this human activity become a benchmark to control natural resources.

2.2.1. Environmental Pollution

According to Tomas.T. Shen cited in Wolu, 1995 the word pollution is derived from the Latin word "*Pollutionem*" which means defilement. Therefore, developmental activities such as construction, transportation and manufacturing not only deplete the natural resources but also produce large amount of wastes that leads to pollution.

Furthermore, pollution can cause both economic waste, environmental harm, biological characteristics of our Air, Water, Land and harms human life, the life of other specious (ibid). Untreated or improperly treated waste is a major cause of pollution of rivers and environmental degradation causing ill health and loss of crop productivity. Thus, a broad definition of pollution encompasses both economic waste and environmental harm and biological characteristics of our

Air, Water and Land. It harms human life, the life of other specious, and also degrades living condition and cultural assets, while wasting or deteriorating row material resources. (Ibid)
Also Environmental Pollution Control Proclamation defined pollution:

> *"Pollution is undesirable change in the physical, chemical, or biological characteristics of environment including air, water and solid which causes harmful effects to various form of life and property. According to the environmental pollution control proclamation of the Federal Democratic Republic of Ethiopia pollution is any condition which is hazardous or potentially hazardous to human health, safety, or welfare or to living things created by altering any physical, radioactive, thermal, chemical, biological, or other property of any part of the environment" (Federal Proclamation No. 300/2002)."*

Additionally, National Environment Research Institute (1976) also define it "Undesirable products and energy produced as a result of actions of human beings, which have adverse effect on the environments constitute pollution".

Automobiles emit from their tail pipes oxides of nitrogen, sulphur dioxide, carbon dioxide, carbon monoxide and a complex mixture of unburned hydrocarbons and black soot which pollute the atmosphere. Domestic sewage and run off from agricultural fields, laden with pesticides and fertilizers, pollute water bodies. Effluents from tanneries contain many harmful chemicals and emit foul smell. These are only a few examples which show how human activities pollute the environment. (Admasu, 2007)

2.3. Types and sources of Pollution

2.3.1. Types of Pollution

Pollution is normally classified on an environmental basis, into 3 types Air pollution, Water pollution and Soil pollution. Apart from these, we can recognize other forms of pollution such as noise pollution, thermal pollution, radio-active pollution and so on (Kavana)

Air Pollution

Air pollution is the existence of any liquids solid gaseous substance noise and radioactive radiation in the atmosphere which can affect directly or indirectly the human beings and other living things (Gemechu, 2016). It is a result of industrial, domestic activity, fossil fuels in power plants, industries, transportation, mining, construction of buildings and stone quarries (Ibid).
Individual industries are normally responsible for the provision of the necessary facilities for the abatement of air pollution. In Ethiopia, to control or to minimize air pollution emanating from

the operation of factories, there are regulations that forced projects to undertake environmental Impact Assessment. (Tesfanesh, 2010)

Water Pollution

Water pollution occurs when unwanted materials enter in to water, changes the quality of water and harmful to environment and human health (Mehtab et, al., 2017) Discharge of domestic and industrial effluent wastes, leakage from water tanks, marine dumping, radioactive waste and atmospheric deposition are major causes of water pollution (Ibid).

According to Admasu water pollution is caused by a variety of human activities such as industrial, agricultural and domestic. Agricultural runoff laden with excess fertilizers and pesticides, industrial effluents with toxic substances and sewage water with human and animal wastes pollute our water thoroughly (Admasu, 2007).

Especially, industrial effluents added to water bodies containing toxic chemicals, acids and base will kill fish other aquatic life besides being toxic to human being. For instance, if Cadmium metal mixed with water body it will bring toxic effect like diarrhea, growth retardation bone deformation, and others are related effects on man followed water pollution. (Gemechu, 2016)

In addition, domestic waste those wastes generated from commercial establishments and residential activities are primary source of organic waste released in to fresh water. Pollution of rivers and lakes with organic matter results in depletion of dissolved oxygen, and destruction of aquatic invertebrates and extensive fish kill. Therefore, Industrial wastes polluting water bodies may contain inorganic nutrients, detergents, mineral compounds such as inorganic salts, heavy metals and natural organic compounds like carbohydrate and protein. (Admasu, 2007)

On the other hand, natural sources of pollution of water are soil erosion, leaching of minerals from rocks and decaying of organic matter. Rivers, lakes, seas, oceans, estuaries and ground water sources may be polluted by point or non-point sources. When pollutants are discharged from a specific location such as a drain pipe carrying industrial effluents discharged directly into water body it represents point source pollution**.** In contrast non-point sources include discharge of pollutants from diffused sources or from a larger area such as runoff from agricultural fields, grazing lands, construction sites, abandoned mines and pits, roads and streets.

Soil Pollution

Addition of substances which adversely affect the quality of soil or its fertility is known as soil pollution. Regarding this polluted water also become a cause for soil pollution. in addition, a mixture of plastics, cloth, glass, metal and organic matter, sewage, sewage sludge, building

debris, generated from households, commercial and industries establishments add to soil pollution, fly ash, iron and steel slag, medical and industrial wastes disposed on land are important sources of soil pollution (Gemechu, 2016). Moreover, fertilizers, pesticides from agricultural use which reach soil as run-off, land filling by municipal waste and acid rain also contributes cause of soil pollution (Ibid).

2.3.2. Sources of pollution

There are various sources of pollution; Effluent discharges from sewage treatment works, Industrial effluent discharges treatment substances, Industrial processes, Oil storage facilities, urban storm water discharges, Landfill sites, Fish farming, Pesticide use, Mining, Leaking pipelines, Contaminated land, Organic waste recycling to land, Agricultural fertilizers, Soil cultivation, Power generation facilities and Farm wastes and silage are some of those (Foundation for Water Research, 2005). This study focuses on industrial wastes. But it is useful to see also all sources of pollution.

Landfill sites

Landfill sites can be a source of pollution into the aquatic environment through several mechanisms. Rainfall enters a site while waste is being deposited and, as it passes through the waste, it collects polluting compounds including ammonia, heavy metals, chloride and oxygen-depleting substances. Waste itself contains water and this is released during degradation processes that occur after the landfill has been sealed. The Landfill Directive requires the quantity of unsterilized organic waste disposed of in landfill to be substantially reduced in order to reduce the potential for water pollution and the emission of methane, which is an important greenhouse gas. However, this will take time to be fully effective and there are many older landfills which will continue to generate leachate for many years (Ibid).

Modern landfill engineering minimizes the amount of water entering a landfill and any leakage from it. However, this is not the case with older landfills where there may be no impermeable base liner or capping, enabling water to flow through relatively unrestricted. Even modern landfills can suffer from leachate problems if the integrity of the liner or capping has been compromised in some way. Leachate may be treated on site with the effluent discharged to a neighboring watercourse, or transported to a sewage treatment works for treatment. Alternatively leachate may be partially treated on site and then discharged to a sewer for further treatment at a sewage treatment works (Ibid).

Contaminated land

Contaminated land is largely an historical legacy from former industrial activity conducted when there were few, if any, environmental regulations in force. The nature of the contamination can vary greatly from heavy metals, hydrocarbons and organic chemicals. Water contamination from these sites occurs largely as a result of rainfall which flushes chemicals, contaminated sediment and dissolved compounds into nearby streams or into groundwater beneath a site. Contamination of groundwater and surface waters can also occur where there is poor storage and handling of chemicals such as solvents or oils giving rise to spillage (Ibid).

Mining

The principal source of water contamination from mining is acid mine drainage. Coal and metal ore seams and their associated rock strata contain pyrite (iron sulphide) which oxidises on contact with air and in the presence of bacteria to form sulphuric acid. Consequently, drainage from a mine has very low pH (acidity) and contains high concentrations of sulphur, iron and a range of heavy metals such as arsenic and cadmium. This becomes more prevalent when mines are closed and water, which has previously been prevented from entering the mine through pumping, is allowed to enter unrestricted. Mine spoil dumps are also a potential source of similar contamination (Ibid).

When acid mine drainage enters streams and rivers, the change in pH causes the iron to precipitate as unsightly ferric hydroxide. This is deposited on streambeds as an orange sludge, a process which also depletes the water of its oxygen, both of which impact on fisheries and insect life (Ibid).

Fish farming

Fish farming is the intensive production of fish in a small area. It may be conducted in specifically constructed ponds, or in cages in inland lakes and sheltered coastal waters.

Fish farming can have a variety of effects on the marine environment, through the discharge of nutrients, solid waste, medicines and anti foulants. Nitrogen and phosphorus from fish feed released into the marine environment in a soluble form can enhance the growth of marine plants and algae. Waste feed and faeces from fish farms can collect on the seabed under fish cages. This increase in organic matter can have an impact on the benthic environment, affecting the nature and chemistry of sediments, and can reduce the diversity of animals living there (Ibid).

Intensive farming of fish may increase the disease pressure due to the close proximity of a large number of fish. Consequently, a number of medicines are used on fish farms to maintain fish health. Farmed salmon are susceptible to infestations of parasitic sea lice that cause considerable

stress to fish and economic losses to the industry. Sea lice on farmed fish can potentially be transferred to wild salmon and sea trout reducing the health of the wild stock. Control of sea lice using chemicals may be toxic to marine invertebrates, although the application of antibiotics to treat bacterial diseases has declined in recent years due to effective vaccination programmes (Ibid).

Fish farming is monitored and regulated by the regulatory authorities supported by good practice guidelines. For example, the Scottish Environment Protection Agency's Fish Farming Manual gives guidance on legislation, policy and procedures relevant to the marine cage fish farming industry in Scotland (Ibid).

Road runoff and urban storm water discharges

Roads, drives and car parks are large runoff-producing areas in the urban environment. This runoff is often contaminated with sediment, litter, oil and petrol, and with toxic metals from motor vehicles. Water carrying these contaminants is washed off into drains and directly into nearby watercourses. Most surface water drains are connected directly to watercourses and not sewage treatment works, hence any spillage of chemicals will tend to be washed into rivers (Ibid).

Combined sewer systems carry both sewage and storm water runoff. Combined sewers are common in urban areas. Normally, the entire flow goes to a sewage treatment plant, but during a heavy rain storm the flow in the sewer may be greater than it can accommodate and the excess flow has to be diverted to a receiving watercourse via an overflow (referred to as a Combined Sewer Overflow) to avoid serious flooding of nearby urban areas and at the treatment works (Ibid).

Sustainable Urban Drainage Systems are increasingly being adopted to ensure that urban areas behave more like natural catchments through the use of porous pavement surfaces and by diverting potentially polluted water from watercourses. The purpose is to reduce the potential for pollution caused by direct runoff and to reduce the volume of water flowing in the drainage network thereby avoiding flooding and sewer overflows (Ibid).

Industrial wastes

Industrial waste refers to all wastes arising from industrial operations or derived from manufacturing processes (M.N. Bari et al., 2016). It includes solids, liquids, gases, and sledges which can be characterized according to whether they are hazardous or non-hazardous. However, in most in developing countries industrial wastes are hazardous waste and threat for environmental and health problems (Polprasert and Liyanage, 1996). Industrial waste in

developing countries is untreated and disposed of in an unsafe manner. Therefore, hazardous and non-hazardous wastes are often not segregated and are mixed together with domestic waste at disposal sites (Mato and Kaseva, 1999).

In combination or separately, these actions create serious environmental risks (such as contamination of ground water and soil from landfill leachate), and create great health risks to firm employees, municipal workers, and waste pickers who collect and work with waste. Hazardous wastes are those wastes which cause or potentially cause harm to human beings, other living things, and the environment because the wastes are ignitable, corrosive, reactive, toxic or pathological (M.N. Bari et al.,2016).

Ignitable wastes can cause fires under certain conditions. Some examples include liquids that readily catch fire or substances, which are friction-sensitive. Corrosive wastes are strongly acidic or basic and include substances that are capable of corroding metal. Wastes unstable under normal conditions are considered reactive wastes, while wastes harmful or fatal when absorbed or ingested are considered toxic. Lastly, pathological wastes are those capable of spreading disease (ibid).

Pollution caused by a rapidly expanding industrial sector has become one of the most environmental issues of the country in recent years. The term industrial waste refers to all wastes released from factories. It encompasses solids, liquids, gases and sledges. These wastes can be hazardous or non hazardous. Although literature suggests that the majority of industrial waste generated in developing countries is non-hazardous, hazardous wastes till represents serious environmental and health threats to these countries (Ibid)

2.4. Causes of Industrial Pollution

As it was indicated many times, Industrial pollution takes on many faces and it contaminates many sources of drinking water, released unwanted toxins into the air and reduces the quality of soil all over the world. Major environmental disasters have been caused due to industrial mishaps, which have yet to be brought under control (Conserve Energy Future, 2014 page 1).

According to Conserve Energy Future (2014) there are many different factors that comprise of the issue of industrial pollution. These are:

A. Lack of Policies to Control Pollution: it is the result of weak effective policies and poor enforcement that passes by pollution control board which resulted in affecting the life of many people (Ibid).

B. Lack of Industrial Zone/Unplanned Industrial Growth:

Lacks of fixed geographical industrial zones are also a factor to increase the industrial pollution. Therefore, to minimize industrial pollution the assigning industrial zone which is far from the residential area is the preferable solution. Industrial zones appear from their structure alone to offer numerous environmental benefits. Besides providing adequate infrastructure, the environmental advantage of this approach is that it brings together waste producers and waste users (Conserve Energy Future, 2014 page 2).

Nemerow (1995), states to control industrial pollution the main role is the ability to select an appropriate combination of plants. Thus, selection of compatible industrial factories is necessary to ensure an environmentally responsible and efficient industrial complex.

C. Use of Outdated Technologies: Most industries still rely on old technologies to produce products that generate large amount of waste. To avoid high cost and expenditure, many companies still make use of traditional technologies to produce high end products (Conserve Energy Future, 2014 page 3).

D. Inefficient Waste Disposal: Water pollution and soil pollution are often caused directly due to inefficiency in disposal of waste. Long term exposure causes chronic health problems, making the issue of industrial pollution into a severe one. It also lowers the air quality in surrounding areas, causing many respiratory disorders. (ibid)

2.5. The Magnitude of Industrial Pollution

Industrial pollution is the release of wastes and pollutants generated by industrial activities into the natural environments including air, water, and land. Additionally, industrial pollution is linked to the degradation of the natural environment. Industrial pollution impacts the environment in multiple ways and has grave consequences on human lives and health (https://www.eartheclipse.com/pollution/primary-causes-of-industrial-pollution.html).

As industrialization have helped the country by reducing poverty, and generated employment opportunity and earned great currency, the growth of industrialization and Urbanization process on the other hand resulted in environmental pollution (Getachew, 2006 page 12). Thus, different studies about industrial pollution and its magnitude from the national perspective indicated that, with the accelerated industrialization process in the country, the magnitude and volume of industrial waste problem from all types of industries in general and from textile and leather industries in particular are on the rise. Specifically, the industrial waste (hazardous waste) from industries is alarmingly increasing (Ibid)

Industries and factories give off various pollutants into the environment including the land, air, and waters. It is estimated that about 50% of all pollution is as a result of industrial and manufacturing activities. It only displays how industries and factories are responsible for giving off toxic and dangerous materials into the environment. Illnesses, loss of life, and destruction of the ecosystem are some of the pollution outcomes that take years to manifest. Even so, there are a wide range of industrial pollution effects along with their serious consequences (https://www.eartheclipse.com/pollution/primary-causes-of-industrial-pollution.html).

Some of the prime effects of industrial pollution are global warming, water Pollution, air pollution, soil pollution, effect on human health, wildlife extinction and other common implications like damage to structures and buildings and increased risks of different occupational hazards like exposure to asbestos, chemical dust, among other mineral or metallic particles (ibid).

2.6. Environmental Pollution control

Since the second half of the twentieth century, the environment has become an important issue at the global level. Therefore, an attempt is made to control the intense environmental pollution resulting from disorganized contemporary economic and social development. The first global conference on human environment, which was held in Stockholm in 1972, was followed by the creation of the United Nations Environment programme (UNEP) (Fleet and Watford, 1994 cited in Getachew).

Despite this apparent world interest in environmental issues, most of these issues still remain effectively unresolved. The world realized that scientific and technological expediencies alone would provide the necessary protection neither for the environment nor its resources, unless binding controls were applied to ensure the application of protection. Some countries have tended to employ the command and control approach as the predominant strategy in pollution control (ibid), others employ technology-based and discharge standards have both been widely implemented as regulatory instruments. Under technology-based standards, regulators dictate the particular technology that firms must use in order to meet pollution-control standards.

Under discharge standards regulators establish pollution control levels and let regulated firms decide how they will meet these standards. Although technology based-standards have many advantages, it also be criticized because of its short comings; lack of flexibility and economic inefficiency (Getachew, 2006 page 13). Technology-based standards force firms to use a particular type of technology and do not provide them with the opportunity for selecting a more

cost-effective approach to meet the standard. Discharge standards, on the other hand, allow firms to choose a method which is both cost effective and appropriate to the firm's particular production activities (ibid). Some firms may choose to implement end-of-pipe pollution control equipment whereas others may adopt pollution prevention measures.

On the other hand, beginning the 1980s, countries have adopted various economic instruments, which include effluent charges, subsidies, marketable permits, deposit and return systems and environmental funds, to introduce more flexibility, cost effectiveness, and efficiency into pollution control measures. Most of these instruments operate as incentives for improved environmental performance and allow improvements to be made in a cost effective manner (ibid).

Some developing nations and a few Asian countries, namely China, Thailand, Indonesia, and Taiwan have recently implemented these measures in an attempt to induce firms to control pollution. In China, for example, activities and enterprises responsible for discharging pollutants into water bodies must pay effluent fees to the state. In instances where discharged pollutants exceed state or local standards, those enterprises responsible are required to pay additional effluent fees. The rate of the effluent fee is based on the amount and concentration of pollutants.

Command-and-control measures and economic incentives do not exhaust the range of possible environmental policy instruments. Voluntary agreements or voluntary initiatives are a third means of shaping polluters' behavior. Environmental voluntary agreements are 'non-legislatively required commitments, agreed to by one or more entities, which are designed to improve environmental performance' (Fleet and Watford, 1994 cited in Getachew). This approach is the newest among the three environmental policy instruments, and represents an important move away from traditional adversarial relationships between government and industry towards those that rely more on cooperation and consultation (ibid).

ISO 14000 is a voluntary environmental management initiative that is based on a series of international standards. The initiative defines a formal and structured approach to environmental management. In recent years, companies in both developed and developing countries have begun adopting this approach. Economic factors, such as the promise of internal cost savings, improved efficiency and image, and market place advantages (i.e. easily attracting foreign partners, products are more acceptable in foreign markets, and improved competition), have primarily lead to its adoption by industry (Getachew, 2006 page 17).

ISO 14000 relies on the idea that certification to standard can provide uniform assurances of environmental responsibility to buyers and consumers worldwide and thus can facilitate global

trade while at the same time, driving environmental improvement (ibid). As more and more consumers and companies are demanding environmental responsibility from manufacturers and suppliers, those willing to respond to these demands gain competitive advantage. This advantage may be either proactive as a badge of marketplace distinction or preference or reactive as a means of avoiding loss of business.

2.7. Industrial Waste minimization and reduction methods

Reuse and Recycle

Reuse refers to the reuse of waste material directly, either for its original purpose or in a new role, without any major modifications to the material before it is used (Maclaren et al., 1994). Recycling on the other hand, involves some form of significant physical, chemical or biological processing before the waste is used again (Ibid).

Reuse and recovery/recycling of waste conserve energy and the practice is valued as it is environmental friendly. Waste products such as the non-decomposable ones, which include broken glasses, metal scraps, wires and the licked, can be recovered for further processing. Some materials can also be recovered for reuse without further processing (Ibid).

2.8. Experience of other federation with regard to Environmental pollution control

To have an experience of other federation is important for this study. Australia and Belgium are the country which have a good experience and achievement with regard to environmental pollution control in general and Industrial pollution in particular from OECD countries. From Africa also the experience of South Africa presented.

Australia

Australia is an ecologically unique continent, characterized by mega-biodiversity. It is also a fully developed, highly urbanized, federal country with growing links to many developing countries in the region.

As environmental issues have grown in importance on Australia's policy agenda, the debate has centered on the Commonwealth Government's constitutional power to protect the environment and on the need for intergovernmental co-operation within Australia on environmental matters, with sharing of responsibilities and the development of a more consultative approach to conflict resolution (Ibid).

After the adoption of the National Strategy for Ecologically Sustainable Development in the early 1990s, efforts are now directed at breathing life into Australia's sustainable development policy agenda and meeting the challenge of integrating the practice of sustainable development into economic and sectoral decisions. State and local governments have the main responsibility

in addressing issues such as water, air and waste management, land use, transport planning and natural resource management (Ibid).

The Australian uses mix of regulatory, economic and voluntary instrument approach to manage its environment the approach is between the government, industry and the community. Corporate environmental management drives environmental progress in the mining industry, for instance. Voluntary programs, such as the Greenhouse Challenge initiative, open the road to greater private sector involvement more generally (Environmental Performance Review, 2000 page 5).

There is significant potential for improving the effectiveness and efficiency of environmental management, first, by setting environmental standards within the country, such as those currently being defined as National Environment Protection Measures; second, expanding the use of economic instruments, such as product charges, deposit refund systems and emission trading regimes; and third, integrating these instruments into the general partnership approach (ibid). The user pays principle should be applied more extensively to cover all expenditure on environmental protection, notably for waste management and waste water treatment (Ibid).

Also Efforts are being made at various levels of government to improve public access to environmental information. In the preparatory stages of environmental regulation, and in environmental assessment procedures, public insight and influence are provided for (Environmental Performance Review, 2000 page 5). Nevertheless, the potential remains to increase public access to environmental information, e.g. on environmental licensing and approval processes and on the contents and implementation of voluntary agreements (Ibid).

There is also scope to expand reporting by companies on their environmental performance and the impact of their activities. Progress in developing the National Pollutant Inventory is important in this respect (Ibid).

Overall, Australian cities do not have the acute air pollution problems found in a number of major cities in Organization for Economic Cooperation and Development (OECD) countries, and air quality in Australia is generally good. Urban air quality has improved over the past ten years as a result of both air pollution management (characterized by voluntary approaches and the case-by-case method of licensing stationary sources) and structural changes such as the increased use of natural gas (ibid).

The introduction of three-way catalytic converters in new vehicles in 1986 helped reduce emissions of NO x, VOCs and CO. Recent reductions in airborne emissions of lead represent another achievement for Australia's air management policy, and one that can be considered exemplary in terms of co-operation among different levels of government, industry and the

public. SO2 concentrations in major urban air sheds are well below levels of concern: power stations are generally far from urban areas and the sulphur content of Australian coal is low. Efforts are being made in several cities to integrate air management considerations in transport and land use planning (Ibid)

Australia has taken an exemplary position on a number of domestic biodiversity issues, and in advancing towards international objectives such as the protection of migrating birds. Programmes to protect the ozone layer have been implemented very effectively, ahead of international target dates, and with full participation of States/Territories and industry. Industry has voluntarily contributed towards the costs of efforts on phasing out ozone-depleting substances and oil spill preparedness. Considerable effort has been made to implement all environmental conventions dealing with maritime shipping. Concerning aid, Australia's system of environmental auditing of development assistance proposals is one of the most thorough in the world (Ibid).

Belgium

With the federal structure of Belgium and the delegation of various responsibilities for environmental policies, separate responses were provided by the authorities at three levels of government the Federal level, the regional (Brussels region, the Flanders region, and the Walloon region) and linguistic community (European Environment Agency, 2011).

The federal government is responsible for regulating market access for products on environmental grounds. The federal government has therefore introduced the 1998 "standard of products" law, which allows it to set standards for products to promote sustainable production and consumption and protect the environment and health (Ibid).

In a country of high population density like Belgium the environment is venerable for the pressure of human activities such as crowded roads, railway, navigation canal and industry that impose intensive animal breeding and crop cultivation also on air, soil and water pressure. Therefore, such condition the obstacle of making developmental economy, socially and environmentally sustainability became face challenges (Environmental Performance Review, 2000 page 25).

According to OECD report establishes a baseline for assessing future environmental progress and examines Belgium's environmental performance, i.e. the extent to which Belgium's domestic objectives and international commitments are being met, based on environmental effectiveness and economic efficiency criteria (Ibid).

Positive steps have been taken to streamline permit procedures. A single permit approach has been instituted and associated with environmental impact assessment and industrial risk reporting for some large industrial installations. Inspection and enforcement of environmental policies are performed by federal or regional authorities. Courts are giving greater attention to environmental crimes.

Even though no specific targets have been set for the processing of industrial waste on a European level, Belgium's land filling percentage of 11% gives it a top-3 position in Europe, after The Netherlands and Denmark. For the management of their industrial waste, companies work with specialized and registered service providers (Leysen & Preillon, 2014).

Belgium has also made good progress in introducing many economic instruments and in increasing the rates of taxes and charges on pollution and water abstraction. The use of ecotaxes to change consumption patterns is a very positive initiative which, however, has met many difficulties in implementation. Financial guarantees have been introduced for solid waste management and to strengthen the liability regime. A number of voluntary agreements are in use and co-operation between administrations and industry is improving. Pollutant release and transfer registers and mandatory environmental reporting are being progressively implemented (Environmental Performance Review, 2000 page 25).

In Belgium, expenditure on pollution abatement and control now amounts to about 1.1 per cent of GDP. The financing of public environmental expenditure by environmental taxes and charges has progressed significantly in recent years (Ibid).

South Africa

South African economy has profound impacts on the environment since it is undergoing a transition from a primary-based economy to a tertiary one focused on manufacturing and financial services. So, mining, agriculture and forestry still contribute largely for the damage of environment (Julie et.al, 2011). In addition, the increased demand for housing, particularly in peri-urban areas, has seen the conversion of a significant expanse of natural areas into urbanized spaces across the country (Ibid)

Natural population growth and urbanization have increased pressure on land, air, water and energy resources. Deteriorating environmental quality, characterized by land degradation, poor water quality, and poor air quality, has negative impacts on the health of many South Africans. South Africa aspires to be a sustainable, economically prosperous and self-reliant nation state that safeguards its democracy by meeting the fundamental human needs of its people, by managing its limited ecological resources responsibly for current and future generations, and by

advancing efficient and effective integrated planning and governance through national, regional and global collaboration (Ibid).

The National government of South Africa committed to achieving the Millennium Development Goals including the issue which relates to environmental sustainability. Sustainable development is a powerful theme throughout the Constitution and underpins all environmental management legislation developed since 1994 (Ibid). Importantly, the Constitution and legislation places an obligation on local government to provide services in an environmentally sustainable manner.

The legislative and institutional framework for the management and protection of the natural environment in South Africa is 'horizontally' across various national departments, public entities and 'vertically' between the three spheres of government (Ibid).

In South Africa at the national level, the 'lead agent' for the environment is the national Department for Environmental Affairs (DEA). In addition, eight other national departments are responsible for legislation and activities which are directly related to environmental management or which may have an impact on the environment (Ibid).

Also at the provincial level, the main environmental functions undertaken include environmental impact assessments, conservation of provincial nature reserves, issuing and administering a range of environmental permits. Local government in South Africa also has a duty to protect the 'environmental rights' of its citizens (Ibid).

The Constitution of South Africa envisages a strong local government system, which can provide democratic and accountable government for local communities; ensure the provision of services to communities in a sustainable manner; promote social and economic development; promote a safe and healthy living environment; and encourage the involvement of communities and community organizations in the matters of local government (Ibid).

The starting point for understanding environmental governance is the Constitution and the Bill of Rights contained within the Constitution. South Africa, along with more than 100 countries, includes an 'environmental right' in its Constitution (Ibid).

This environmental right is stated within section 24 of the Constitution. Additionally in this section all organs of state are required to take legislative and other measures to give effect to this environmental right (Ibid).

Also the Constitution contains a number of objects of local government. Including those relate specifically to the role of local government in achieving sustainable development: that is to provide democratic and accountable government for local communities, to ensure the provision of services to communities in a sustainable manner, to promote social and economic

development, to promote a safe and healthy environment and to encourage the involvement of communities and community organization in matter of local government (Ibid).

In South Africa to improving the performance of a municipality in terms of the environment, implementations of the following things are important which is taken as the lesson for our country Ethiopia.

Self-Appraisal is the first issue to understanding current municipal environmental activity and identify where the municipality sits on the spectrum described above (Ibid).

Understand the State of the Environment is the next one, which is its condition and the source of pressures upon environment then use this to identify priority areas for intervention. Where resources and capacity are scarce it will not be possible to carry out a wide range of environmental activities. Rather activity should be focused on a small number of urgent priorities (Ibid).

Where funds and capacity exist, a State of Environment Report will be useful in this case. Where these are not evident, a brief identification of the most pressing environmental issues will be sufficient. As time goes on, the municipality should make an effort to expand its understanding of its environment with each revision of the IDP that takes place (Ibid).

Another issue is Address Core Scheduled Functions, if underperforming in delivery of core scheduled functions this is where the municipality must start. To reach effective delivery in each of the main environmental scheduled functions is a first target (Ibid).

At this point, it is important to consider the characteristics of the municipality and to determine which of the scheduled functions is most critical for environmental protection and for the health and well-being of the community. For example, in a largely rural municipality, air quality may not be an issue of any concern and providing regular refuse collection to residents to prevent dumping and damage to natural areas may be much more important (Ibid).

Mainstream Environmental Management is also starting to mainstream the environment into governance processes. Most important is to ensure that environmental issues are included on the agenda for IDP review processes and are also considered in a cross-cutting way when discussing all other economic and developmental initiatives. Part of this process should be analysis of whether the municipality is fulfilling the two Objects of Local Government which relate to the environment to the best of its ability i.e., to ensure the provision of services to communities in a sustainable manner, and to promote a safe and healthy environment (Ibid).

If funds and capacity allow, consider developing an Integrated Environmental Implementation Plan or specific policies or by-laws to support the municipality in the tackling of key

environmental issues. At the political level, identify whether specific structures can be created to consider environmental issues and provide support for these throughout municipal governance procedures (Ibid).

Seek guidance from provincial environmental departments as to how to align municipal actions with national and provincial strategic environmental policies, programmes and plans. It is an obligation of provincial government to ensure that municipalities align their activities in this way (Ibid).

Expand Available Resources is also implemented try to unlock some resources for environmental functions. Once in the IDP, environmental activities should be included in the municipal budget in a prioritized fashion. DEA and Provincial Environment Departments are also tasked with supporting municipalities in their environmental functions and can be approached for guidance and support (Ibid).

CHAPTER THREE

DOMESTIC AND INTERNATIONAL LEGAL FRAME WORK FOR ENVIRONMENTAL PRPTECTION

3.1. International Legal Framework for Environmental Protection

Climate change is one of the greatest challenges of our time. Around the world, a clarion call is rising from governments, civil society and business to urgently curb greenhouse gas emissions and adapt to climate change. Governments of the world have agreed to limit average global warming to less than 2° Celsius (Michal Nachmany, et al., 2015).

By its Nature, the environment transcends political, legal and manmade boundaries. As a result, cross border cooperation between the worlds is essential to tackle challenges of the environment. Protecting the global environment will require greater efforts and cooperation of countries throughout the world. (Chandrimani page 10)

To improve the quality of the environment, protect human health, achieve prudent and rational use of natural resources, and promote international measures to address global or regional environmental problems, there must be a coordinated environmental strategy. (Ibid)

International concern for environment dates back to the 19th century. In the 20th century, after the Second World War, environmental concerns appeared on the agenda of a wide variety of international organizations. There were landmark international efforts to protect birds, fish, wildlife and wetlands; to prevent pollution of sea by oil; to ban testing of all kinds of weaponry; dumping of nuclear waste in Antarctic etc (André, 2009 page 17).

These categories reflect a broadening of the environmental agenda from purely national issues, where single state jurisdiction was apparent, to concerns for the wilderness and wildlife, high seas and nuclear pollution, which are outside the ambit of national jurisdiction and which affect the mother earth as a whole. The future of the earth depends on adopting a model of sustainable development and this was enunciated in Agenda 21 of the Earth Summit in 1992. Protection of ecology, on which depends the survival of mankind, is therefore a common task (Ibid).

The Stockholm Conference (United Nations Conference on the Human Environment, 1972) was the first large meeting organized by the United Nations focusing on environmental issues. The meeting was convened as a result of growing international concern for the preservation of nature and of the dissatisfaction among various sectors of society with regard to the impact of pollution on the quality of life (Andre, 2009 page 25).

The concern of public opinion and political pressures were mostly seen in industrialized countries, where the scientific community and a growing number of non-governmental

organizations were attracting substantial attention to disseminate their accusations and warnings. The Conference introduced some concepts and principles that, over the years, would become the foundation for the evolution of diplomacy in the environmental area (Ibid).

The Rio Conference (United Nations Conference on the Environment and Development, 1992) was also introduced new perspectives and coined the concept of sustainable development, a goal that requires equilibrium among "three pillars": economic, social, and environmental (Andre, 2009 page 48). Thus the conference was contributed a great awareness on the issues that damage the environment especially in developed countries.

At the same time, it recognized that developing countries would need to receive financial and technological support in order to achieve sustainable development. At that point, the position of developing countries became better structured and the international political environment favored the acceptance by developed countries of principles such as common but differentiated responsibilities (Ibid).

The change in perception regarding the complexity of the issue occurred very clearly in diplomatic negotiations, although its impact was smaller from the point of view of public opinion.

The Johannesburg Summit (World Summit on Sustainable Development, 2002) also revealed the increasingly close relations between the global trade, financial and environmental agendas. The fact that the Summit took place months after the Doha (IV World Trade Organization Ministerial Conference) and Monterrey (United Nations International Conference on Financing for Development) Conferences enabled this perception and allowed the three conferences to be viewed as important stages in the strengthening of cooperation between States (Ibid).

Agenda 21 is a non-binding international instrument, intended to set out a detailed plan of action for implementing the principles of the Rio Declaration, and for achieving sustainable development. Agenda 21 consists of four broad sections, covering the Social and economic dimensions (including demographic trends and factors), Environmental issues, Major groups of people and various associations and Means of implementation. (Chandrimani page 12).

The Bamako Convention Ratification Proclamation no. 355/2003 and Basel Convention on the Control of Trans-Boundary Movements of Hazardous Waste and their Disposal Ratification Proclamation no.192/2000 are obligated to take appropriate legal, administrative and other measures within the area under their jurisdiction to prohibit the import of all hazardous waste into Africa from non -contracting parties and provide detailed procedures

for the control of trans-boundary movements and management of hazardous waste within Africa (ESSA, 2014 page 10).

The Convention obliges parties to ensure that the generation of hazardous waste and other waste be reduced to a minimum, taking into account social, technological and economic factors and to ensure the availability of adequate disposal facilities, for the environmentally sound management of hazardous waste and other waste materials that shall be located, to the extent possible, within it (Ibid).

In addition, it emphasizes that any natural/legal persons involved in the management of hazardous waste or other waste to take all the necessary steps to prevent pollution due to hazardous waste and other waste. It also contains provisions for co-operation among parties in the development and implementation of environmentally sound low-waste technologies and the improvement of existing technologies with a view of eliminating the generation of hazardous and other waste materials (Ibid).

The WTO, which came into being on 1 January 1995, succeeded GATT (the General Agreement on Tariffs and Trade) as the global institutional structure governing the field of international trade and commerce. The WTO regulatory regime contains binding multilateral agreements in various specific fields. The regulation of economic activity in relation to the environment is issued in WTO Agreement even if it does not provided as separate like the other fields in WTO agreement (Chandrimani page 14).

To begin with, the preamble to the Agreement Establishing the WTO itself says that the parties to the Agreement (i.e. Members of the WTO) recognize that trade and economic relations should, inter alia, allow for the optimal use of the world's resources in accordance with the objective of sustainable development, seeking both to protect and preserve the environment (Ibid).

Apart from this preambular reference to the environment, other WTO Agreements, specific to individual areas of trade, such as the Agreement on Sanitary and Phytosanitary Measures, the Agreement on Technical Barriers to Trade, the Agreement on Agriculture, the Agreement on Subsidies and Countervailing Measures, the General Agreement on Trade in Services and the Agreement on Trade-Related Intellectual Property Rights, all provide for, explicitly or otherwise, either protection of the environment or support of or favorable treatment to WTO Members desirous of protecting the environment (Ibid).

Another legal frame work is **International Court of Environment Foundation**. The effectiveness of international conventions and principles depends entirely on voluntary

compliance. There is no judicial authority with mandatory jurisdiction and no monitoring or enforcement authority (Ibid).

Therefore, the Rio Declaration and Agenda 21 contemplate some kind of specialized judicial forum, actively engaged in environment-related litigation, providing redressal and remedy to aggrieved parties, including at an international level. According to International Court of Environment Foundation, the objective of the Foundation is to promote the establishment of an International Court of Environment as a new, specialized and permanent institution on a global level with the right of access not only for the States but also for individuals, NGOs and environmental associations (Ibid).

The **International Court of Environmental Arbitration and Conciliation** is also an association registered under Mexican laws. Its functions are two-fold – one, to facilitate, by conciliation and arbitration, the settlement of environmental disputes between states, natural or legal persons and submitted to it by agreement of the parties to the dispute and two, to give consultative opinion on questions of environment (Ibid).

3.2. Environmental Protection in Ethiopia

Ethiopia is severely affected by environmental degradation, even if the extent varies. A major environmental concern in urban areas is pollution. There is a serious scarcity of waste disposal facilities and latrines in urban areas (Mwebaza, Mwanika and Wondowossen, 2009).

Despite recent efforts by municipalities in most cities to implement sanitary waste management systems, a range of pollution issues affecting air, water and land occurs in Ethiopia. There is an urgent need to continue to improve population health through a transition to cleaner sources of domestic energy and Pollution arising from commercial and industrial sources is increasingly regulated through environmental management policies and instruments, although much greater regulatory and monitoring capacity is needed (Daley, 2015).

Industry in Ethiopia comprises both heavy industry such as oil and gas production in Ethiopia and light manufacturing such as the leather industry, and these have different types and magnitudes of environmental impact. Heavy industry involves significant natural resource extraction or imports, as well as generally high emissions of greenhouse gases, local air pollutants and soil and water contaminants. Light industry, in contrast, may have a smaller environmental footprint although may involve the use of particular resources or pollutants with distinctive environmental consequences (Ibid).

3.2.1. Institutional Framework for Environmental Protection in Ethiopia

Federal and State Governments

The role of government institutions in Ethiopia must be seen in light of the current decentralized Federal and Regional structures. Ethiopia, a country of nation, nationality and people, has a federal system of governance. The power of governance is shared between the central government and the state governments. The 1995 Constitution of the Federal Democratic Republic of Ethiopia and the National Economic Policy and Strategy have recognized and give due attention to environmental protection (Environmental and Social Management Framework, 2017 page 11).

The 1995 Constitution of the Federal Democratic Republic of Ethiopia, under article 51 the power and function of the federal government stated that the Federal government shall enact laws for the utilization and conservation of land and other natural resource, historical sites and objects (FDRE Constitution Article 51:5) Also article 52:2(d) of the constitution gives the state government to administer land and other natural resources in accordance with Federal laws.

Both, the federal parliament and the state legislatures, derive their powers from the Constitution. The Constitution casts an obligation on the State not only to protect but, more importantly, to improve the environment and to safeguard the forests and wildlife of the country (Article 92(2)). And imposes a fundamental duty on the citizen to protect and improve the natural environment, including forests, lakes, rivers and wildlife, and to have compassion for living creatures. Therefore, the duty to protect and enhance the quality of environment in Ethiopia is the duty of the Federal, states and the local governments or citizens (Yosef, 2009).

The Environmental protection organs establishment proclamation (Federal proclamation No. 295/2002) established institutions responsible for regulation of pollution control. Among this, the Federal government organ is the first with the objective of formulating policies, strategies, and standards to ensure human welfare and safety of the environment (Federal proclamation No. 295/2002: Article 6).

Division of powers among the federal and regional states is commonly used system with the objectives of environmental development and management and, environmental protection, regulation and monitoring. That is why the Ethiopian government share the EIA administration to Federal and Regional level.(Yosef, 2009) Thus, the regional environmental agencies are responsible for coordinating the formulation, implementation, review and revision of regional conservation strategies, environmental monitoring, protection, regulation in their jurisdiction and also ensuring the implementation of federal environmental standards or, as may be appropriate,

issue and implement their own environmental lows in no less stringent standards (Federal proclamation No. 295/2002: Article 15)

In the environmental impact assessment process the regional environmental agencies or their equivalents are responsible to adopt and interpret federal level EA policies and systems or requirements in line with their respective local realities, establish a system for EA of public and private projects, as well as social and economic development policies, strategies, laws, or programs of regional level functions (Federal proclamation No. 295/2002).

At the federal level, MoEFC is in charge of issuing policies, directives and standards, and of enforcing the laws and policies, including on Environmental Impact Assessments (EIAs) and environmental monitoring, for all projects or activities that fall under the control of the Federal Government. In addition each of the main federal agencies active in infrastructures or economic development is required by law to have its own environmental unit (Ibid).

According to the Environmental Protection Organs Proclamation, the Regional States are to create their own Regional Environmental Agencies. These are to deal, amongst others, with EIAs for regionally managed infrastructure or development activities (Environmental and Social Management Framework, 2017 page 12).

Regional Environmental Protection Authorities REPAs are expected to review and approve the Environmental and Social Screening (ESS) and ESIA documents, and oversee the safeguard components of the projects under their jurisdiction. They will carry out spot checks to confirm that environmental and social screening and ESMPs are properly done. They will also provide capacity building and advice project implementing entities surrounding the project impacts beyond the generic issues, determining if the mitigation measures are acceptable or project redesign is required (Ibid).

The Oromiya Environmental protection, Forest and Climate Change Authority (OEPFCCA) were reestablished in 2008 based on proclamation no 199/2008. The aim was to establish a body responsible for the protection of nature and environment to leave to the future generation and monitoring of proper implementation government policies laws on the environment. The regional environmental protection Authority has its branches at local level or city administrations (Oromiya proclamation no 199/2008).

The local environmental protection Authority regulates and follow up whether any development activity is planned and implemented without damaging the environment; regulate and follow up whether development activity conduct environmental impact assessment prior to project implementation; regulates the disposal of different pollutants and waste materials from factories

and industries; undertake environmental auditing on the manner of liquid and toxic wastes disposal management by factories and industries so that it may not damage the environment; communicate and establish a relation with concerned bodies on the issue (Ibid).

Local government

Local government is the administration of locality, a village, or town/city, a body representing the local inhabitants, have autonomy, collect revenue, and provide services to its inhabitants (Dadi,Yiadom and Melesse, 2014).

Local government is commonly defined as the lowest tier of public administration within a given State. In unitary States, local government usually comprises the second or third tier of government, whereas in federal States, it is constituted as the third or sometimes fourth tier of government. Local government brings the government to the bottom and enabling citizens to participate effectively in the making of decisions affecting their daily lives (General assembly of Human right, 2015 page 7). As it is closest to the citizens, local government is much better position than central government to deal with matters that require local knowledge and regulation on the basis of local needs and priorities (Ibid)

The organization, function and names of local government vary between countries. Local governments exist geographically both in urban and rural settings and possess certain powers conferred upon them by legislation or directives of the higher levels of government (Ibid). These powers consist, in substance, in regulating and managing certain public affairs related to the local surroundings and delivering certain public services. The extent of powers of local government should always be analyzed in the context of relations between local authorities and central government or regional authorities (Ibid).

Local governments is more autonomy in federal systems regarding programmes, policies and implementation than in unitary States that the central governments tend to shoulder the responsibility for the planning, programming, regulating (Ibid). One of the important features of local government is that it has a specific, subordinate regulatory power for the exercise of its function which is, however, subject to compliance with the law (Ibid).

Although in some countries “local government” and “local self-government” are used interchangeably, given the fact that local government has different forms in different countries, these two concepts should be differentiated. Local public administration can be exercised not only by local self-government entities e.g. municipalities but also by local units of State administration; the former are directly elected by the local population and enjoy wide-ranging autonomy, whereas the latter act as agents of the higher authorities and their officials are

appointed by and accountable to those authorities. Local self-government is thus based on the principle of decentralization, and local State administration is based on the principle of deconcentration (General assembly of Human right, 2015)

Local government should preferably be recognized in the national constitution; indeed, in a number of countries, the constitutions specifically protect local government autonomy. It should be underlined that constitutional protection provides the greatest guarantee of stability. A specific law on local government passed by a national parliament is the next best solution in this regard. In a few countries, legal safeguards are in place to maintain the stability of laws governing local government. In Hungary, for example, the Law on Local Authorities can be adopted or amended only by a two-thirds majority of the parliamentarians present. The same applies to any legislation restricting the rights associated with local self-government (Ibid).

It is noteworthy that the principles of subsidiarity, decentralization and accountability are explicitly envisaged in a number of countries as main principles of local government. Furthermore, the respective laws provide for the right of local authorities to have recourse to a judicial remedy in order to ensure respect for such principles (Ibid)

According to Zemelak (2008) in order to claim that a local government is adequately empowered, functional competences in certain areas of governance should be formally devolved to it. That is the powers devolved to local level should be clearly provided in a national or state/regional constitutions or in other similar pieces of legislation (Zemelak, 2011 P.16). This helps to clearly identify the functional boundaries of the power of local government and to protect them from undue intrusion by the central government. In that particular area, the local government should be able to exercise all governmental powers i.e. legislative, executive and administrative powers local unit. Also they should be pertinent to the objectives that decentralization is meant to achieve (Ibid)

Therefore, as part of administrative autonomy, local governments need a minimum set of powers and capacities to initiate regulatory legislation on issues affecting their jurisdiction. They need the authority to approve and issue generally binding ordinances on public matters in their jurisdiction, subject to national and state laws. Their powers usually extend to local economic development, land use planning and management, zoning, and public safety and in certain cases, to some aspects of public health, social protection, education, and environmental protection (SerdarYilmaz, YakupBeris, and Rodrigo Serrano-Berthet, 2008).

Local Government bodies are closer to the natural resources and to the sources of pollution and have more opportunities in better protection of the natural resources. Obstacles to the

implementation of the environmental laws and measures are also found at sub-national governance levels (Ibid).

In Ethiopia context, the third structural organ of the federal system accountable for the regulation and administration of environmental problem is the local government organs. Article 50(4) of the 1995 Constitution allows each regional state to decide on its own local government structure so that the local governance system of each region could be rooted in its socio-economic circumstances (Zemelak, 2011).

3.2.2. Legal Framework for Environmental Protection in Ethiopia

The first attempt to develop environmental regulations in Ethiopia dates back from 1989, when the development of the Conservation Strategy of Ethiopia (CSE) was launched (Environmental and Social Management Framework, 2017 page 15). The 1995 Constitution of Ethiopia affirmed the right of every Ethiopian citizen to a clean and healthy environment and established the responsibility of the State in ensuring this right (FDRE Constitution, 1995, Art.44 (1).

A more comprehensive legal and regulatory framework was developed in 2002, in the form of three proclamations, namely

(i) Proclamation to establish Environmental Protection unit,

(ii) Proclamation on Environmental Impact Assessment, and

(iii) Proclamation on Environmental Protection Control.

Whereas these three proclamations provide the overall framework, the details of environmental and social management responsibilities to be implemented on the ground has been explicitly enacted through regulations, guidelines and standards developed based on the above frame works (Environmental and Social Management Framework, 2017 page 15)

The Constitution of Ethiopia

The constitution of the FDRE, which was enacted in 1995, is the umbrella for all legislative frame-works in the country. The concept of sustainable development and the environmental rights of the people are clearly stipulated in the constitution, along with many other provisions. The concept of sustainable development and environmental rights are explicitly stated in article 43, 44 and 92 of the constitution of Ethiopia (FDRE Constitution, 1995).

Article 43: The Right to Development identifies peoples' right to improved living standards and to sustainable development; and Participate in national development and, in particular, to be consulted with respect to policies and projects affecting their community (Ibid)

Similarly, in Article 44: Environmental Rights, all persons have the right to a clean and healthy environment; and Who have been displaced or whose livelihoods have been adversely affected

as a result of state projects has the right to commensurate monetary or alternative means of compensation, including relocation with adequate state assistance (Ibid).

Moreover, in Article 92: Environmental objectives are identified as:

> *"Government shall endeavor to ensure that all Ethiopians live in a clean and healthy environment; The design and implementation of projects shall not damage or destroy the environment; People have the right to full consultation and to the expression of views in the planning and implementation of environmental policies and projects that affect them directly; Government and citizens shall have the duty to protect the environment;"*

Environmental Policy of Ethiopia

The Environmental Policy of Ethiopia (EPE) was approved by the Council of Ministers in April 1997. Its conceptual framework was based on the findings and recommendations of the National Conservation Strategy of Ethiopia. This policy document, along with CSE was developed with the assistance from the International Union for the Conservation of Nature. (Environmental and Social Management Framework, 2017 page 16)

The goal of the Environmental Policy of Ethiopia is to improve and enhance the health and quality of life of all Ethiopians and to promote sustainable social and economic development through the sound management and use of resources and the environment as a whole so as to meet the needs of the present generation without compromising the ability of future generations to meet their own needs (EPE, 1997 page 3).

For the effective implementation of the Environmental Policy of Ethiopia, the policy encourages the creation of an organizational and institutional framework from Federal to community levels (Ibid). The Environmental Policy of Ethiopia provides a number of guiding principles that require adherence to principles of sustainable development; in particular, the need to ensure that EIA's:

- Consider impacts on human and natural environments;
-Provide for early consideration of environmental impacts in projects and projects design;
- Recognize public consultation;
- Include mitigation and contingency plans;
- Provide for auditing and monitoring; and it is a legally binding requirement (Ibid).

Environmental proclamations, regulations and guidelines

Proclamation No. 300/2002 on Environmental Pollution Control primarily aims to ensure the right of citizens to a healthy environment and to impose obligations to protect the environment of the country. The proclamation is based on the principle that each citizen has the right to have a

healthy environment on one hand and the obligation to protect the environment of the country on the other (Federal Proclamation No. 300/2002).

The law addresses the management of hazardous waste, municipal waste, the establishment of environmental quality standards for air, water and soil; and monitoring of pollution. The proclamation also addresses noise and vibration as sources of environmental pollution and it seeks for standards and limits for it, providing for the maximum allowable noise level taking into account the settlement patterns (Article, 4). In general, the Proclamation provides a basis from which the relevant environmental standards applicable to Ethiopia can be developed, while sanctioning violation of these standards as criminally punishable offences (Federal ProclamationNo300/2002).

Furthermore, it empowers the MoEFCC and/or the Regional Environmental Authority to assign environmental inspectors with the duties and responsibilities of controlling environmental pollution (Ibid). In order to ensure implementation of environmental standards and related requirements, inspectors belonging to the MoEFCC or the relevant regional environmental agency are empowered by the Proclamation to enter, without prior notice or court order, any land or premises at any time, at their discretion. Such wide powers, emanating from the proclamation, are given to environmental inspectors with a clear intention to protect the environment from pollution, to safeguard and ensure wellbeing of human health as well as to maintain the biota and the aesthetic value of nature(Ibid).

Pursuant to Proclamation 300/2002, regulation No 159/2008, to prevent industrial pollution was developed by the Federal EPA and endorsed by the Council of Ministers to ensure compatibility of industrial development with environmental conservation (Regulation No 159/2008). This regulation confers important obligations to industrial operators. A factory subject to the regulations is obliged to prevent or minimize the generation and release of pollutants to a level not exceeding the environmental standards (Article 4(1)).

The regulation also obliges industrial operators to handle its equipment, inputs and products in a manner that prevents damage to the environment and to human health. Moreover, the regulations urge industrial operators to prepare and implement an emergency response system of their own (Article 4(2)).

On the other hand industrial operators are required to prepare and implement internal environmental monitoring systems and keep written records of the pollutants generated and the disposal mechanisms used to get rid of the pollutants. In relation to it, factories are required by

the regulation to submit annual compliance reports with the provision of the regulations (Article 4(3, 4)).

Environmental Impact Assessment, Proclamation No 299/2002 establishes the requirement of an EIA procedure for all projects, and clearly describes the procedures to be followed by project proponents with respect to EIAs (Article 5(1)). The EIA process described in the proclamation underscores the presence of consultation requirements where reports are to be made public, and the comments of the public (especially of the project affected people) are to be solicited and taken into consideration in the review process undertaken by the federal or regional environmental agency in charge of the project (Article 5(2 a,b)).

On top of this, the proclamation makes EIA mandatory for specified categories of activities undertaken either by the public or private sectors, or possibly, for the extension of EIA to policies, plans and programs in addition to projects (Ibid). The proponent of the project (whether it is public or private body) must prepare an EIA following the requirements specified in the legislation (article 8) and associated guidelines. The MoEFCC or the sector Ministries delegated by it and relevant Regional Environmental Agencies will then review the EIA and either approve the project (with or without conditions) or reject it (Ibid).

The Proclamation on Environmental impact assessment requires, among other things:

- Specified categories of projects to be subjected to an EIA and receive an authorization from the MoEFCC or the relevant regional environmental agency prior to commencing implementation of the project.
- Licensing agencies to ensure that the requisite authorization has been duly received prior to issuing an investment permit, a trade or operating license or a work permit to a business organization.
- MoEFCC or the relevant regional environmental agencies may issue an exemption from carrying out an EIA in projects supposed to have an insignificant environmental impact.
- A licensing agency may suspend or cancel a license that has already been issued where the MoEFCC change or the relevant regional environmental agency suspends or cancels environmental authorization (Federal Proclamation No 299/2002).

Procedures that need to be followed in the process of conducting an EIA are described in the Proclamation and further elaborated in the draft EIA procedural guideline issued in 2003 E.C. Thus a project developer is expected to act as follows:

- Undertake a timely EIA, identifying the likely adverse impacts, and incorporating the means of their prevention.

- Submit an environmental impact study report to the MoEFCC , delegated MoWIE or the relevant regional environmental agency for review and approval.
- To put this Proclamation into effect the MoEFCC has issued an EIA Directive (Directive no.1/2008) and other draft procedural guideline documents, which provide details of the EIA process and its requirements (Ibid).

Based on the Federal EIA Proclamation No 299/2002, many of the regional states have prepared and put in force their own EIA regulations. Some of these regional EIA regulations put stricter rules on the project proponents and EIA practitioners to facilitate for the preparation of EIA's with dependable and sufficient information that would enable sound decision making.

On the other hand Solid Waste Management Proclamation no. 513/2007 is applicable mainly to non-hazardous solid waste, such as glass containers and tin cans, plastic bags, food related solid waste and other general waste. It stipulates that any legal and/or natural person should get a permit from concerned bodies of an urban administration to engage in the collection, transport, use or disposal of solid waste (Article 7, 8, 9).

Also various aspects of public health issues including water quality control, waste handling and disposal, availability of toilet facilities and others are clearly addressed in the public health proclamation No 200/2000. This proclamation critically prohibits discharging untreated liquid waste generated from septic tanks, seepage pits, and industries into water bodies, or water convergences (Federal Proclamation No 200/2000)

Therefore Environmental activities are divided into federal, regional and local level; now let us see local government in Oromia regional sates and legal frame work for environmental protection.

3.3. Local government in Oromia Regional State

The Oromia regional state, with 359,619.8 square kilometer area, is the largest state in Ethiopia. It constitutes around 30% of the country's total area. The regional state is contiguous with all but the Tigray regional state. Government in the Oromia regional state is organised at regional, zonal, woreda and kebele level. The Oromia regional administration has a Regional Council, a Regional Administrative Council and a judicial body (Zemelak 2008).

Based on this government in the Oromia regional state is organised at regional, zonal, *woreda* and *kebele* level. In Oromia Regional State Constitution article 70-75, 76-89 and 90-101 talks about the establishment, power and responsibility of Zone, Woreda and Kebele respectively (Oromiya regional state Revised constitution, 2001).

The region is divided into 14 *zones* and 199 woredas. Each *woreda* is also divided into a number of *kebeles*. The *zone* administration is the representative of the regional government at *zone* level (Zemelak, 2008 page 38).

Zone administration has the responsibility to coordinate, support and follow up the effective functioning of the *woredas*, other departments and institutions in the *zone*. It is also the duty of the *zone* administration to coordinate those institutions which provide service in more than one *woreda*. In addition, it has the responsibility to ensure the implementation of polices, legislation and decisions of the regional government in the *woredas* in the *zone*(Ibid).

The regional constitution of Oromiya Regional State article 44 also talks about the environmental rights of the people. As stated in this constitution all residence of the region have the right to a clean and healthy environment and all the residents of the region who have been displaced or whose livelihoods have been adversely affected as a result of state programmers have the right to commensurate monetary or other means of compensation including relocation with adequate assistance by the state. Additionally the constitution stated this environmental objective in article 107 of the constitution (Oromiya regional state revised constitution, (article 44,107)).

For that matter the Oromiya regional state revised constitution article 71 sub article 3(e) under the establishment of zone, article 85 sub article 1(f) under the establishment of woreda and article 96 sub article 1(b) under the establishment of kebele it gives the power to protect the environment. So, the regional, zonal and wereda level Environmental protection, Forest and Climate Change Authority is founded based on Proclamation no. 199/2008.

3.4. Legal Framework on Environmental Protection in Oromiya

Oromiya National Regional State Environmental Impact Assessment Proclamation No.176/2012 issued to identify, predict and manage the environmental effects which a proposed development activity or project as a result of its design and location, construction or its modification or termination entails and thus helps to bring about intended development (Oromiya Proclamation No.176/2012)

The proclamation also give prior to the approval of a public instrument provide an effective means of harmonizing an integrating environment with economic, cultural and social considerations into decision making process in a manner that promotes sustainable development (Ibid).

Another issue which is stated in this proclamation is the implementation of the environmental rights, obligation objectives enshrined in the constitution of the regional state would be fostered by the prediction and management of likely adverse environmental impacts, and the maximization of their socio-economic benefits (Oromiya Proclamation No.176/2012)

Generally this proclamation serves to bring strong regulatory procedures, administrative transparency and accountability, as well as to involve the public, particularly the affected community in the planning and decision taking on development which may affect them and their environment (Ibid)

Oromiya National Regional State Environmental Pollution Control Proclamation No.177/2012 found necessary to control and harmonize any social and economic development activities so as not to impose an impact on sustainable development by polluting the environmental resource (Oromiya Proclamation No.177/2012). It is also necessary to develop transparent and accountable pollution control and monitoring system in order to minimize or eliminate the pollution effect on the environment (Ibid).

Another objective of this proclamation is to clearly put the right and obligations of those involve in development activities to give emphasis and play their role in environmental protection and make laws enacted regarding environmental pollution control as a country compatible to the regional context. Also putting corrective measures to be taken on those bodies that adversely affect the human health and the environment is another objective of this proclamation (Ibid).

CHAPTER FOUR

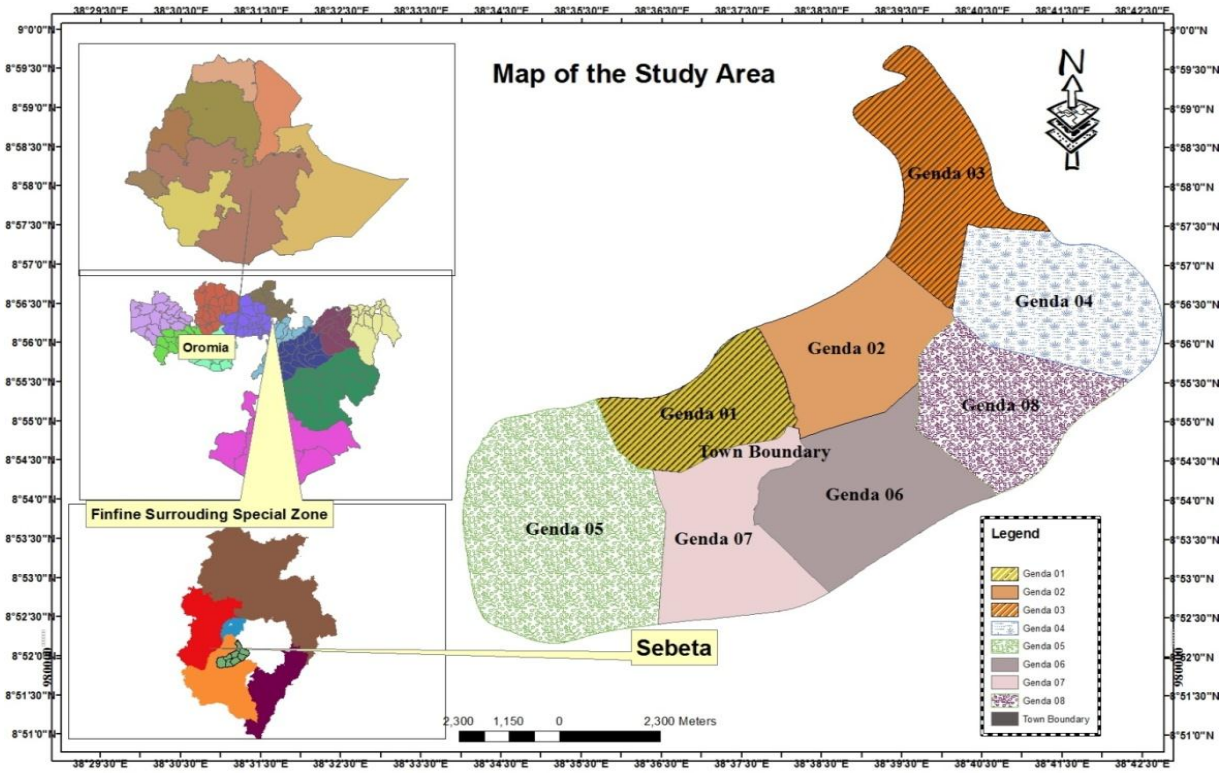
DESCRIPTION OF STUDY AREA AND RESEARCH METHODOLOGY

4.1. Overview of Sebeta city administration

Sebata town is located within approximate geographical coordinates of 8053’58.50’’N_8059’58.17’’N latitude and 38035’11.91E 38039’33.75E longitude. With regard to relative location, it shares common boundaries with Addis Ababa in North, North east and east, and Sebata Awas woreda district to the south and west (OBoFED, 2010). Sebeta city adminstration is situated on a fertile area known for natural resources. The area is surrounded by different chain of hills and mountains like Wachacha, Hoche and seasonal marshy plains including Furi-Gara-Bollo, Gejja Ballachis and Jammo (OUPI, 2008). Admininstratively, Sebeta is located in Special Zone Surounding Finfinne of Oromia Regional State, 24km west of Addis Ababa along Jimma road. The city has 8 Kebeles, with the population of estimated over 300,000.

Sebeta city administration, according to current master plan, has undergone rapid expansion in the past decade. The master catchment of the city is expected to be 9827.14 hectares.

Figure 4.1. Map of the study area



4.1.1. Historical Background of Sebeta City

The present Sebata town encompasses three major neighborhood entities; Sebeta 01, Alemgena, and Walate that were previously developed as separate centers, even though Alamgena and Walate did not have municipality of their own. However, they are highly interconnected through socio-economic activities and administrative structure (OUPI, 2008).

Therefore, since the town encompasses three centers that developed separately, understanding of the towns' history requires looking each of them separately. Sebata 01 emerged as a town before invasion of Italian in 1935. Its foundation can be traced back to Emperor Menelik II period. Sebeta got municipal status in 1953/4. It was after that period that the town began to serve as a seat of Alemgena district. Prior to that period the seat of Alemgena district was Alemgena town (Ibid).

Alamgena also emerged as a separate settlement just before the Italian occupation (1936-41). During the occupation, Alamgena took more urban character as a result of occupying Italian force in the area and hosted as a truck repair shop. This became a base for the Imperial Road Authority Trainning Center which was established in 1956. Hence, this village town has been chosen as a district seat even after the time of liberation until Sebata took this position at the end of 1950th (OUPI, 2008).

Wolate was a rural peasant settlement area with small scale commercial transactions all through the 1950s, 1960s and 1970s as the area is very close to Addis Ababa and nearby the main road from Jimma to the capital (OUPI, 2008). It was under the administration of Managesha Awraja, Alemgana district. The development of settlement gradually made the area a centre of the villages called Karabu, Qorke and Raphi. During the revolutionary period it began to take a suburban character and intensive settlements took place. Since in 1990s, Walate has characterized as a full-fledged urban area that is part of Sebata town (ibid).

Demographics

Growth of urban population is determined by several factors which includes increasing tendency towards natural demographic growth of urban population, the migratory movements from more or less remote areas towards the cities, the development of small rural towns into the status of urban centers and finally the absorption of rural settlement on the edge of growing towns (WORLD HABITAT, 1996).

Urbanization and urban growth in Ethiopia was dominated by primate city development. It is a situation where the capital city dominates other centers in terms of population size and attracting people for various reasons. On the other hand, many small towns are registering faster growth

rates than medium-sized towns, and both are witnessing a much faster increase than Addis Ababa (ibid). Particularly those towns located in Oromia Special Zone Surrounding Addis Ababa which includes Burrayu, L/Tafo, Sululta, Dukem, Sebate, Sendefa, Holeta, and Galan are growing tremendously in terms of population and physical size. Generally, three factors; natural increase, net migration and merging of local governments contributed for the population increase where net migration takes a lion share (OBoFED, 2010).

Sebata city is one of these towns showing tremendous expansion in terms of population and physical size. The population and housing census conducted by Central Stastical Authority and the report obtained from Sebata town administration office considered here to show the trend of the population size of the town. In 1994 population and housing census, the total population of Sebata town was 14,076(OUPI, 2008) and the 2007 population and housing census indicated that the population size of the town was 56,131. Now the total population is expected to be over 300,000(Ibid).

With regard to migration, there is serious in and out migration, whereby in migration outshining out migration. This is mainly due to the construction and establishment of new industries and residential houses. Many people came as daily laborers from the surrounding rural areas and others as employees for these newly established businesses and for residence. Nearness to the capital Addis Ababa also facilitated to settle there for business and residence (Ibid).

Furthermore, the reclassification and horizontal expansion of the town made encroachment of rural villages into urban settlement contributes in increasing of the population of the town. Horizontal expansion of the town during the last few years contributed encroachment rural villages and made to administer under the town municipally. For instance, last year 2015/2016 one kebele, Furi garabollo come under the town administration (Ibid).

Investment Activities

Currently, in Sebeta city administration huge investment activities are operating. From those in operation, manufacturing took the leading role in creating large number of employment opportunities in the area. According to information obtained from the Sebeta town investment office, since the city has attractive environment for investment, currently there are 714 investors working in various sectors. Of these, 359 are in Manufacturing, 90 in Agro- industry, 67 in Service, 120 in trade, 52 in hotel and tourism, 17 in real Estate and 9 in flower investment (Sebeta City Finance and Economic Development Office, 2009).

Table 4.1: **Investment activities in the city**

NO	Types of Investment	No of Investment	Total Capital of Investment		
			Capital	land offered in hectare	Job creation
1	Manufacturing Industry	359	17,100,342,000	364.02	45,123
2	Agro Industry	90	571,172,800	57.26	1,643
3	Service	67	291,195,000	41.51	1,112
4	Trade Service	120	323,070,000	14.33	1,651
5	Hotel and Tourism	52	325,310,000	10.05	757
6	Real State	17	344,000,000	95.86	678
7	Flower Investment	9	258,650,000	217.00	2,974
	Total	714	19,213,739,800	800.02	53,938

Source: Sebeta City Finance and Economic Development Office (2009 E.C)

As the data obtained from city administration shows this industry expansion has created roughly over 50,000 job opportunity, making a large contribution to the improvement of livelihoods, food security, and reductions in poverty. Although there are many benefits from the expansion of industries, workers risk, the problems of waste disposal management, and environmental pollution in general needs attention.

4.2. RESEARCH METHODOLOGY

4.2.1. Research Design

In order to achieve the objectives of the research and answer the fundamental research question, the study follow a descriptive research design and qualitative and quantitative (mixed) approach. The rationale behind using the qualitative research design is to give depth and breadth to the findings looking at the problem. It is also supported by quantitative approach for finding empirical evidences related to the subject matter under discussion. In that case the study consists of both qualitative and quantitative mixed approaches.

4.2.2. Type and Sources of Data

In this research both primary and secondary sources used to investigate the challenges of leather and alcohol industries (HAFDE tannery and Balezaf alcohol) pollution in Sebeta city and the role of local government in controlling this problem. Primary data gathered through field work from residents of two purposely selected Kebeles (01 and 07). They are considered to be source of data due to the fact that residents are the one more affected by the pollution from those industries. In addition, primary data gathered from individuals working in different office of Sebeta City Environmental protection, Forest and climate change Authority, Investment office, Health office and the city administration for these officials are more informants about the issue.

Secondary data mainly gathered from different reports of the city administration and other relevant bodies which are related to the topic under study. And also the relevant issues on the subject browsed from internet and other printed materials.

4.2.3. Population and Sampling Technique

The population of this study are the residents of Sebeta city kebeles which is selected as a proper one for this study (01 and 02), members of different office, and different government officials like Sebeta city Environmental protection, Forest and climate change Authority, Investment office, Health office and the city administration who have different responsibilities in controlling industrial pollution.

The researcher used purposive sampling technique in identifying and selecting appropriate industries. Accordingly, out 286 heavy polluter industries, 2 leather and 2 alcohol industries are selected. From those leather industries "HAFEDE tannery" and from alcohol "Balezaf alcohol" are selected.

These two industries are located in the residential area of the local community and they are released their wastes without any treatment mechanism to the nearby river. This waste pollute the environment in different ways like pollution on water, odor in the area and affecting human and animal health. So, they have great effects in polluting the environment in city and nearby rural areas.

Out of 8 kebeles of the study area two kebeles (kebele 01 and 02) are purposively selected because of their level of affection in industrial pollution and the place which the industries

located. Then, 50 residents are selected as respondent from each purposively selected kebeles by using stratified random sampling method. Kebele 01 and kebele 02 have 14 and 12 gote respectively. Accordingly, from the selected kebeles the researcher identified the two *Gote* from the selected *kebeles* based on their affection for the pollution from HAFDE tannery and Balezaf Alcohol. Therefore, from the total population of the selected *Gote* the researcher used stratified sampling method in the house number of the city residents. Due to this from 01 kebele *Gote* 14 which is the location of Balezaf alcohol and have 282 household, the researcher selected 25 respondents in 11house interval based on their house number. Also in 02 kebele *Gote* 4 wich is the location of HAFDE tannery and have 375 household the researcher selected again 25 respondents in 15 house interval based on their house number.

4.2.4. Methods of Data Collection

The study was used various types of data gathering instruments. In that case, interview, questionnaire, observation and document review was used to collect primary and secondary data. The detail is discussed as follows:

Interviews: Semi structured interview used to have greater insight and more in-depth understanding of the opinion of public. Interview used to get broad information about the degree of alcohol and leather industries in Sebeta city and to assess the role of local government in controlling this pollution. Moreover, the interview gave respondents an opportunity to express their opinion on the degree of the problem and to suggest what must be done by local government to solve the problem.

The interviewee of this study was pertinent officials and experts. Totally 6 respondents; namely the City administration, Investment office head and an expert, Environmental protection, Forest and Climate change Authority head and an expert, Health office expert are selected.

The reason why the interview is suggested for these bodies, they are the part of local government that can have the role in controlling leather and alcohol industries pollution. So they are asked what the source of the problem is. What is their responsibility to solve the problem? What factors are hindering their role? And what measures have to take in the future? In using interview the researcher gate more information face fully and frankly. The interview protocol was translated into Afaan Oromo and Amharic language to make it clearly understandable by all the respondents.

Questionnaire: another data collection instrument used for this research was questionnaire. It contained both closed and open ended questions. The researcher proposed to use questionnaire based on the rational of collecting data with minimum effort and cost. 50 questionnaires are prepared for 50 local communities from the selected kebeles. The reason why the questionnaire is suggested for local population is using questionnaires the population which is affected by the pollution are frankly express their problem or opinion. Because people may fear of telling what is true face fully by telling their name. In questionnaire they don asked to disclose their name, in that case questionnaire gives us depth information about the problem. The questionnaire was also translated into Afan Oromo and Amharic language to make it clearly understandable to all respondents. For the respondents who can't write and read properly, the researcher was assisted them in reading the question and writing their response to get their genuine response.

Observation: the researcher was observed the perceived and actual implications of HAFDE tannery and Balezaf alcohol industries wastes in 01 and 02 kebeles of the city which is selected under the study because of their affection and being the place of the factories. Observation made through field visit by taking insight of pollution on water, odor in the area and its effect on human and animal health in tangible.

Document Review: To get deep information about the existing degree of alcohol and leather industries pollution and what measures taken in the past to control the problem and also to suggest what must be done in the future, related data from investment, city administration, Legal and policy documents of the Federal Government, Oromia National Regional State and Sebeta city administration was reviewed. Additionally, relevant documents are also browsed from internet.

4.2.5. Method of Data Analysis

Based on their similarities the data collected from primary and secondary sources using different instruments was organized and presented in to sub-sections. As data interpreted and analyzed thematically, those data collected through document review, interview, questionnaires and observation was analyzed in qualitative and quantitative (mixed) approach based on descriptive analysis.

CHAPTER FIVE

DATA PRESENTATION AND ANALYSIS

This chapter deals with data presentation and analysis of the data that were collected through questionnaires, interview, observation, and document review. The sample size determined by the researcher was 50 households, and among the distributed questionnaires 46 of them were returned. From the total number of questionnaires that were distributed, the rate of return of the questionnaire is (46/50) or 92 percent. Additionally, the researcher conducted interviews with Investment office head and an expert and Environmental protection office head and an expert, Health office head and an expert, Sebeta city administration. Each sub-topic is presented and discussed as follows.

5.1. Demographic characteristics of the respondents

Table 5.1: Demographic Characteristics of the Respondents

Category	**Sample size**	**Percentage**
1. Sex		
Male	29	63
Female	17	37
2. Age		
18-25	8	18.6
26-33	15	34.9
34-41	11	24
42-50	10	21.7
51-59	1	2.3
Above 60	1	2.3
2. No. Of years lived in the area		
Less than a year	4	8.6
1-5	9	21
6-10	12	28
Above 10 years	21	49
4. Education		
Illiterate	4	8.6
1-6	5	11.6
7-8	6	14
9-12	15	34.9
College and university	16	37.2

Source own survey (2018)

As indicated in the above table (table 1) the majorities (63 percent) of the respondents are male and the remaining 37 percent are female. In terms of age, the majorities (34.9 percent) of the respondents are between the ages of 26-33, 24 percent are between the ages of 34-41 and the remaining 21.7 percents are between the ages of 42-50 and 18.6 percent of them are 18-25. And the remaining 4.6 percents are 51-59 and above 60 years.

With respect to the years of residence, majority (49 percent) of the respondents have lived in the area above 10 years, 28 percent of them have lived from 6-10 years and 21 percent of the respondents have lived from years 1-5. The remaining 8.6 percent of the respondents are lived less than a year. The respondents also have varying educational backgrounds. 37.2 percent of the respondents have reached college and university, 34.9 percent of them have reached 9-12 grade. While the remaining 14 and 11.6 percent of the respondents have reached grades 7-8 and 1-6 respectively. And the remaining 8.6 percent of the respondents are illiterate. This indicates that the educational level of the majority of the respondents is good.

Table 5.2: Demographic Characteristics of the Regulatory Bodies Respondent

Office	Sex		Educational Background			Position	
	Male	Female	First degree	Above first degree	Field of study	Office head	Expert
Environmental protection Forest and Climate change Authorities	1	1	2	-	Environmental science and HRM	1	1
Investment office	1	1	2	-	HRM and Social science	1	1
Health office	1	-	1	-	Health officer	-	1
City administration	1	-		1	Management	1	-

The researcher planned to interview 8 office respondents which include the office head and relevant experts. As indicated in table 4.2 from the planed interviewee the researcher does not succeeded to interview the head of health office and the city mayor for different reason. For that matter the researcher interview 6 local government office respondents in this research.

5.2. Background of HAFDE tannery and Balezaf alcohol

5.2.1. HAFDE tannery

HAFDE is an Ethiopian tannery and leather goods production industry since the beginning of operations in 1995. HAFDE Private Limited Company (PLC) located in Sebeta area kebele 02. It starts working with 50 million proposed and 400 million actual capitals and now it has created job opportunity for more than 230 employees permanently (Sebeta city environmental protection, forest and climate change Authority, 2017). HAFDE produces 1,029,600 skins, hide and leather/year.

5.2.2. Balezaf alcohol

Balezaf Alcohol and Liquors Factory PLC is Balezaf Alcohol and Liquors Factory PLC is located, in Addis Ababa, Ethiopia which is engaged in manufacturing Alcohol drinks. The factory also has a branch in Sebeta city administration kebele 01 which is established in1994. The company starts working with 8 million proposed 50 million actual capitals now its capital reaches 259,640,454 million and now it creates job opportunity for more than 266 employers permanently and 20 temporarily. (Sebeta city environmental protection, forest and climate change Authority, 2017).

5.3. Waste Generation and Waste management practices

In order to facilitate the implementation of the Industrial Pollution Control standards, Regulation for Industrial Pollution Control (Regulation No. 159/2008) is formulated to avoid further industrial pollution both from existing and newly established industries.

The regulation has obliged the factories to prevent or minimize the generation of every pollutant in compliance with relevant environmental standards and to prevent damage to environment and human health. The regulation also gave the existing factories a maximum of five years period to comply with the provisions.

When we see the two selected industries, they generate liquid, sludge, gas and hazardous wastes but more of the amount of the wastes they generated are not measured. The researcher asked

Balezaf alcohol manager how much wastes the factory produces yearly but he does not know how much is it and he tried to calculate at the time.

Also as the Sebeta City environmental protection, forest and climate change Authority responded the same. According to the authority the firms are not willing to tell the amount of each waste they generate. The reason that the firms hesitate to reveal might be an attempt to create a positive firm image or fear of government punishment as they do not have effective waste treatment plants for their wastes and not comply with the regulation.

But if there is binding laws to force the industries have to maintain an up-to-date register of toxic, hazardous and radioactive substances, and to make the information available on request, the regulatory body also have a power to implement laws and force the industries to do that. So, it has shown that the Authority does not fulfill its responsibility to protect the environment.

Despite of the fact that companies are aware of the Industrial Pollution Prevention Regulation No. 159/2008 of the country has a provision that regulates the operating industries to have a complete record of their waste management activities. In addition the Environmental policy of Ethiopia forced that the industries have to maintain an up-to-date register of toxic, hazardous and radioactive substances, and to make the information available on request; however, the data obtained from the companies through interview are not supported by these documents as the companies were not willing to show their documents.

With regard to having complete records of their waste the production and technical manager of the company explained that;

> *"As third world country, we don't have to concern about our waste records, treatment and about the environment more. We are in infant level of industry we didn't do much if we concern about this issue tightly." He also added that "The regulatory bodies are very much reluctant in participating us to solve the problem. We are willing to provide alternative water source for the communities using river water for their day today activities as well as for their animals. I hope the other industries have also the same stand. But the city administration and environmental organs are poor in coordinating the activities. Most of the time they are active in giving commands and writing warning letters rather than investigating the way to solve the problem."*

As he further explained, in his opinion, rather than focusing on treating their waste they prefer to prepare alternative water source for the society but they don't have any idea about the natural environmental damage because of the wastes generated from their company. It may be one

alternative to help the society suffered from polluted water. But it does not be the appropriate solution to save the generation in the future.

5.4. Waste treatment and reduction methods

Table 5.3: Responses of waste reuse, recycle and treatment plant of the two industries

Company name	Re-use	Re-cycle	Waste treatment plant
HAFDE Tannery	No	Yes (Chrome)	Primary
Balezaf Alcohol	No	Yes (Water)	primary but not start working

Balezaf Alcohol is claimed on process to plant waste treatment plant even if it is not undertaking its waste management services for different infrastructural problem they thought. As the production and technical manager of Balezaf alcohol claimed, it has waste treatment plant that will expect to treat wastes in three ways, the first one is Bio digester, which is minimized BOD (Biological Oxygen Demand) and COD (Chemical Oxygen Demand) 75-85%, the second one is Evaporator, it also evaporates liquid up to 45-50% and it concentrates it. The third one is Spray dryer which changes wastes into powder. The researcher has observed that the treatment which is planted and it is not in operation. The industries response regarding this is that waste treatment will be start in a short time, if some technical problem like electric transformer and other resolved.

Regarding HAFDE tannery at the time when this research was undertaking this company was closed until it has complying with the environmental standards. In that case the researcher doesn't get a chance to see the waste reduction method and treatment plant of the company. But as the Sebeta city investment office investment coordinator responded they have primary treatment plants. But the data obtained from Sebeta City environmental protection, forest and climate change Authority show that the treatment plant is substandard and this industry discharge wastes without any treatment to the nearby Sebeta River.

The Authority added that most of the industries in Sebeta city Administration do not have waste treatment plants for they don't want to cost their money for waste treatment plant for it is so costy by rising that Balezaf alcohol cost around 70 million for waste treatment plant. And those who have not use it because of different reason like their waste treatment plant is under outdate technology and even those who are using is it is under standard and it simply discharge wastes without any treatments. Also HAFDE tannery and Balezaf alcohol don't re-use any kind of their waste. But the two firms re-cycled chrome and water respectively.

5.5. Methods of waste disposal

Industrial Waste disposal that is discharging from the two companies are discharged in different ways. These methods are presented in the following table:

Table 5.4: Waste disposal methods of the two industries

Company name/type	Solid	Liquid	Hazardous	Sludge
HAFED Tannery	[1]Land fill	River dump	River dump	Land fill
Balezaf Alcohol	Land fill	[2]River dump	River dump	Land fill

As we can see from the above table (table 4.5), Solid waste disposal in landfills is practiced by the two of the selected industries, HAFDE Tannery and Balezaf alcohol. But as the data obtained from Sebeta city environmental protection, forest and climate change Authority shows the chemical that is in wastes that disposed in land fill contaminated the soil and it is stay for long time also difficult to illuminate it.

With regard to liquid waste disposal, again the two selected industries dispose their wastes into the nearby water bodies or rivers through pipes without any treatment. The researcher also observed that different canals of the two companies around the river bank for discharging of their liquid wastes in to the river. It seems that the presence of the industries in the river banks is just for easily discharging of their liquid wastes into rivers. This is highly polluting the rivers quality and degrading the environment of the area.

Regarding hazardous waste, and sludge HAFDE tannery discharged into the nearby Sebeta River and land fill. Regarding Balezaf alcohol even if it claimed that it don't have hazardous wastes because of the small amount of wastes it discharge into water body, the data obtained from Sebeta City environmental protection, forest and climate change Authority indicates that they have hazardous waste and they are simply discharged into river dump. Regarding sludge by now they disposed into land fill but they have a plan to use as compost when the treatment plant is start working.

5.6. Effects of HAFDE tannery and Balezaf alcohol Pollution

Majority (93%) of the respondents are responded that the industries have produced in their area have negative impact on their health, while the remaining 7 percent of the respondent said that they are not sure whether the industries have negative effect on their health. As the respondents

[1]. land fill- **the** process of getting rid of large amounts of rubbish by burying it, or a place where rubbish is buried.

[2] .River dump- river dumping refers to the dumping of materials like garbage, construction and demolition debris, sewage sludge, dredge material, and waste chemicals in the river.

said, the two industries negatively affected their health during the production time and west disposal.

5.6.1. Effects during the production process

The data collected from the residents indicates that bad smell or odor from the two manufacturing industries is the cause of most frequented health problem that affects the respondents' health. 76.1 percent of the respondents said that their health is affected by the bad smell of industries during the production process. As one of the respondents said;

> *"When you derive from Addis to Sebeta the bad smell from HAFDE tannery is like an alarming clock by indicating that you are arrive Sebeta if you are sleeping in a car. It is like a signal that" you have arrived in Sebeta."*

With regard to the smell from Balezaf alcohol the residents living around the company complaining so much that they are suffered from respiratory dieses and headache.

In her observation of the industries the researcher also observed that the bad smell that comes out from the HAFDE tannery pollutes the area even around 50 meters away from the premises of the factory. Also the alcoholic smell from Balezaf alcohol makes abnormal like someone who has drunk alcohol and cause headache. This might have contribution in aggravating some respiratory disease like cough, asthma and sinus.

5.6.2. Effects during waste disposal

Additionally the data collected from the residents indicates that discharge of industrial liquid wastes into water bodies and the bad smell from the disposal of liquid waste are the most common problems that are highly affecting the health of the residents during their disposal. 85.7 percent of the respondents said that the industries are affecting their life and health by discharging their liquid wastes into the nearby Sebeta river and it also affected its drainage Atebella" rivers at the end it also affected the greatest Awash river.

The respondents also said that the discharge of industrial waste and its subsequent bad smell is the other common problem experienced in the area and affecting the health of the residents. Vegetable and soil pollution is the other problem that the respondents are claimed that it is affecting their health as the vegetable supplied for city resident is produced mainly by the affected Atebella River. As one of the nearby rural area residents raised on peaceful demonstration they used Atebella River for irrigation and he said that the tomato which is cultivated are damaged and lost around 60 thousand birr because of the chemical in river.

From the above discussion one can conclude that all forms of industrial pollution are affecting health of the residents as well as the biodiversity. However, the effect of such wastes varies in

type of dieses. From the responses of the residents the disposal of liquid waste in water bodies and its subsequent bad smell is the most identified industrial waste problem.

While undertaking this research the researcher also observed that the rivers especially Sebeta and Atebella Rivers have changed their color and look like dark blue, and the bad smell from the river smells even from around 50 meters. And also observed that the dead fish in contaminated Awash river. So, it is attributable that the bad smell and the change in color of the rivers are resulted from the different of industries around the river bank like HAFDE tannery and Balezaf alcohol and their untreated liquid wastes.

Figure 5.1: Water source pollution "Sebeta" and"Atebella" river

Figure 5.2: Effects on animals used polluted water

5.7. Disease frequently happened in the society of study area

As the residents of the selected kebeles indicated, cough is the most commonly experienced health problem by the majority of 44 respondents (95.6%) and they responded that they experienced cough usually. Sinus is the next most commonly frequented health problem which is raised by 35 respondents (76%) suffered from and it is because of the bad smell from the leather and alcohol industries. Bronchitis is also among the most commonly identified health problems with more than half of the respondents 27 (58.6) claimed it.

The other health problems that are commonly experienced by the respondents are Asthma which is experienced by 22 (47.8%). From this it is attributable that air pollution related diseases are the most frequently occurred health problems in the area. To the contrary, lack of appetite is found to be the least experienced health problem which is caused by air pollution on the respondents in the areas of Balezaf alcohol and HAFDE tannery. 19 (39%) the residents around the leather and alcohol industries responded they have no desire for food because of the bad smell and the cough usually occurred on them.

Water pollution is also the next common problem that happened in the area. 13(28.2%) of the respondents responded frequently caused stomach problems are the most water related health problems in the area of the two industries. Finally, skin and eye problems responded by 6 (13%) respondents which is attributed to both water and soil pollution are the other health problems frequently happened in the area on human and their animals. The table below show that dieses frequently happened in the study area because of HAFDE tannery and Balezaf alcohol.

Table 5.5: Disease frequently happened in the society of study area

Health problem	Respondents background											Frequency of the problem				
	Sex		Educational background					Residential year				Usually	Sometimes	Rarely	Never	Total
	Male	Female	Illiterate	1-6	7-8	9-12	College and University	Less than a year	1-5	6-10	Above 10 years					
Cough	26	18	4	4	5	15	16	4	9	11	20	28	16	-	-	44
Sinus	21	14	2	3	5	12	13	3	7	9	16	31	4	-	-	35
Bronchitis	19	8	-	-	-	6	21	-	6	10	11	17	10	-	-	27
Lack of appetite	13	9	1	1	3	6	11	6	4	7	5	14	8	-	-	22
Asthma	12	7	3	-	-	3	13	-	2	6	11	13	6			19
stomach problems	5	8	-	4	5	3	1	1	6	3	3	9	4	-	-	13
skin	3	-	1	-	1	1	-	1	2	-	-		2	1	-	3
Eye	2	1	-		-	2	1	-	-	1	2	-	3	-	-	3

Table 5.6: Frequency of respondent's health institution visit in 2017

Question	*One time*										Two time										*Three times*									
	Sex		*Education*					*Period of stay*	*Frequency*	*%*	*Sex*		*Education*					*Period of stay*	*Frequency*	*%*	*Sex*		*Education*					*Period of stay*	frequency	%
	Male	Female	illiterate	1-6	7-8	9-12	College and University				Male	Female	Illiterate	1-6	7-8	9-12	College and University				Male	Female	illiterate	1-6	7-8	9-12	College and University			
Number of times they visit health institutions per year	-	2	-	-	-	1	1	1-2hr	2	4.3	4	2	-	1	1	4	-	1-2hr	6	13	26	12	4	4	5	10	15	1-4 hr	38	82.6

As indicated in the above table (table 4.7) the majorities 82.6 % of the respondents visited health institution above three times yearly, and the remaining 13 % and 4.3 % visited health institutions two times and one times respectively. This shows that industrial wastes or pollution from HAFDE tannery and Balezaf alcohol are affecting health of the residents frequently. However, the frequency of time varies. Regarding this in Sebeta city Health office the Regulator of Environmental Health respond that even if there is no evidence for the cause of the patient examined with different air and water related disease, it is obvious that disposing of liquid waste into water bodies and its subsequent bad smell is the most problem of public health. He further said that more than 50 % of the city's vegetable consumption is covered mainly from "Atebella" river. As the river is contaminated by different industries pollution this clearly shows that the wastes from the industries are affecting the environment to a great extent and the city population. Despite the data obtained from health office, the researcher when observe the documents of the patients, from the patients examined in Sebeta city health care institution more than 50 % of them are patients of air and water pollution related disease like cough, sinus, bronchitis, asthma, bacteria and other. Again from those patients 37% of them are from the kebeles of study area (01, 02).

Table 5.7: Respondents cost of health care service because of industrial pollution.

Amount of money they cost in health care service per year								
Respondents	cost	%	Respondents	cost	%	Respondents	cost	%
4	200-500	9.5	33	600-1000	71.7	9	Above 1000	21.4

As indicated in (table 4.9) the majorities 69% of the respondents do incur cost 600-1000 for health service yearly, and 21.4 % of the respondents answered they cost above 1000 for their health service yearly and the least cost of health service is 200-500 that is 9.5 %. From the above discussion one can conclude that industrial pollution is the main reason for the cost of health care service. Pollution from HAFDE tannery and Balezaf alcohol are affecting health of the residents and it costs them more for their health and damages their economies.

Table 5.8: Respondent's attitude on the role of local government in controlling industrial pollution

S.No	Questions	Respondent									
		Strongly Agree	%	Agree	%	Neutral	%	Disagree	%	Strongly Disagree	%
3.1.	What do you think are the causes of leather and alcohol industries waste problems										
	3.1.1. Free ride behavior of factory owners	30	65.22	11	23.9	4	8.70	0	0	1	2.17
	3.1.2. Lack of coordination of regulatory bodies	33	71.74	6	13	3	6.52	3	6.52	1	2.17
	3.1.3. Lack of awareness of the factory owners	1	2.17	10	21.7	6	13.04	2	4.35	27	58.70
	3.1.4. Residents silence to voice their complaints	29	63.04	9	19.6	5	10.87	1	2.17	2	4.35
3.2.	Who do you think is responsible for the problem										
	3.2.1. Environmental Protection Organs	29	69.05	0	0	0	0.00	0	0	5	10.87
	3.2.2. Factory/Industry Owners	34	80.95	4	8.7	1	2.17	0	0	1	2.17
	3.2.3. Investment office	30	71.43	3	6.52	2	4.35	0	0	4	8.70
	3.2.4. City administrative bodies in general	34	80.95	2	4.35	0	0.00	0	0	1	2.17
3.3.	What do you think should be done by the regulatory bodies to minimize/stop the problem										
	3.3.1. strict follow up and control	34	80.95	4	8.7	0	0.00	3	6.52	1	2.17
	3.3.2. taking measures on the factories/Industries who violate laws	30	71.43	5	10.9	0	0.00	3	6.52	1	2.17
	3.3.3. creating awareness to factory/industry owners	31	73.81	4	8.7	0	0.00	3	6.52	1	2.17

Source own survey (2017)

As indicated in table 5.9 majority 71.74% of respondents are strongly agreed that the causes for leather and alcohol industries waste problem are the lack of coordination with regulatory bodies. While 65.22 and 63.04 % of these respondents are strongly agree that the causes for the problem are the free ride behavior of factory owners and irresponsibleness of city administration respectively. And the rest of 21.7 % of them believe that there is lack of awareness with factory owners of leather and alcohol industries. From this group of respondents one can infer that the lack of coordination with regulatory bodies, free ride behavior of factory owners and irresponsibleness of city administration respectively are the main cause of alcohol and leather industries waste problem that is observable in the city. In other word factory owners are not responsible for the environment as well as residents wellbeing, and regulatory bodies as well as city administration have not done that much to solve the problem.

Regarding the question of who is responsible body for the problem the majority 80.95% of the respondents strongly agreed that it is the city administrative bodies in general and factory owner. While 71.43% of the respondents are strongly agreed that the investment office, 69.05% also strongly agreed that is the environmental Protection Organs who is responsible for the problem of pollution caused by alcohol and leather industries. From this response, we can infer that the city population knows that the first responsible body for the problem is the city administrative bodies in general for it is the one who is responsible to care about the city populations' wellbeing. Also factory owners are equally responsible for they have to treat their wastes and not to pollute the city environment.

The researcher also ask that what should be done by the concerning body to minimize the problem 80.95% of the respondents strongly agreed that strict follow up and control must be done by the regulatory bodies. While 73.81% of them believe that creating awareness to the factory owners will be the better solution. Taking measure on the factories that violate the laws are also stated as the solution next to follow up and creating awareness which is take 71.43 % of the respondents. This clearly shows that the respondents know that the investments are more important for the city as well as the countries growth. In that case, strict follow up and awareness creation must be the first action of the regulatory body to sustain the results get from the investment and to protect the wellbeing of the community. But if it is not working they believe that it will be the last choice taking measure on the factories which violet the law as the respondents responded that.

5.8. The Role of local government in controlling industrial pollution

5.8.1. The Role of Sebeta City Environmental Protection, Forest and Climate Change Authority

The Sebeta City environmental protection, forest and climate change Authority is founded Based on proclamation No. 199/2008. It is the one which is responsible in regulating and controlling industrial waste in the city and in charge of environmental protection of the city. The institution has a mandate to regulate various types of industrial wastes for the sake of cleaner and healthy environment.

Regarding waste management in the area, the data obtained from interview with the head of the Authority shows that the industries in the area have problem of managing their wastes. The waste management problems of such industries are affecting the environment particularly the water bodies, air and soil in the area. In that case the residents of the city are suffered from different disease and feeling uncomfortable because of the bad smell from those industries in general and HAFDE tannery and Balezaf alcohol in particular.

As the head of the authority stated, the institution tries to welcome citizen's complaints and working to solve the problem by conducting different policies and strategies. From the duties conducted by the authority the first one is Monitoring and Controlling Environmental pollution. This means monitoring, provision of professional support and taking corrective actions or measures to reverse the adverse impacts of any project and development activities. It has different steps pre-Construction, during Construction, during Operation, during Demolition. According to the head of the authority the monitoring process mainly focused on whether the company have the EIA materials and for those the companies does not have the materials the authority help them to prepare EMP (Environmental Management Plan).

By conducting Monitoring and Controlling Environmental pollution the Authority take the sample of the wastes from the companies discharging their pollutants into the rivers without any treatment. Depending on the test result of their wastes the authority gives the feedback for the companies. And also the companies have an obligation to notice the authority by its report about their waste management status.

After all monitoring and controlling process based on collected records of laboratory results on the companies waste management problem the Authorities take corrective measures on those polluting industries which discharge their wastes into the rivers by violating the law. The

measures may be that are up to closing the industries. That is why HAFDE tannery is closed at the time this research was undertaking.

Regarding this company the authorities head responded:

> *"HAFDE tannery is the major polluter from the industries which caused many problems to the city residents. This tannery released its wastes into the nearby Sebeta River without any treatment. So, for the city as well as nearby rural area residents are suffered from this pollution and for increased number of residents complain on this industry, the authority gives the feedback and warning letter for company different times, but there is no change with the wastes from this company. That is why the city administration with concerning body forced to close the company to protect the people of the city."*

The researcher also when observed different materials of the authority looked the warning letters written to this company at different time. Also as a resident of the city and the worker in the nearby woreda the researcher have information that this company is closed different time for it is suffered the city as well as nearby rural area by polluting air and water body. But it is not waited for more than the weak then it was opened and continues polluting the environment.

The researcher also asks the authority why this happened. The head of the authority answered that there an intervention of federal government for they are paid tax for the federal government also. So, when the city administration closed a company after different warning letters, the federal government also opened the company in one side using its power.

Even if the authority says that, since there is a binding law there is no way for the federal government to open the factories that suffer the local society when the local or regional government closed it for it is violating the law. So, it seems to run from their responsibility for they are not working much to control industrial pollution.

The Authority believed that closing the company is not the solution for the problem of industrial pollution observed in the city; it is taken as the last administrative decision. Regarding this the authorities head said;

> *"As we all know closing the company from operation doesn't have any input for the city administration as well as the country. Because when one company is shut down at least two people being unemployed and it makes to minimize the city as well as the country's economy. But it is the last choice as corrective measure to protect the city population. So, even if the institution has a power to take any disciplinary measures on all those*

industries who violet the law and suffering the residents of the city, rather it has focused on awareness raising and in providing technical assistances."

So the authority head suggested that the awareness creation for factory owners is necessary. As she said many of the industries do not have any idea how much they suffer the society with their unmanaged wastes and they just think about how they generate more money. Even those who know they don't want to cost their many for waste treatment plant. So awareness creation for company owners how much the problem is critical and how to protect the environment scientifically is may be from the solution that will minimize the problem.

Finally, as the institution raised, there is so many hindrances to practice their power and makes them reluctant to control industrial pollution. From those hindrance lack of clearly specified roles and responsibilities are the first one. As the authority head said, they have a great mandate but its mandate does not clearly supported by specific proclamation and regulation, in addition regarding institutional capacity lack of manpower is another problem. As she said because of the low salary of the authority no one want to work in the Authority as there are so many institutions with high payment in the city.

With regard to lack of man power as the data obtained from authority showed that in Sebeta city administration there are more than 850 industries. From these industries more than half of them need special follow up; but the authorities followed all these industries with 4 experts. Also lack of coordination with concerned body is raised as another problem. As the authorities head said, parallel nature of power with concerned body, lack of finance and logistic are among the problems that hinder to work coordinately. So as the authorities head expressed all these problems make the authority's "powerless authority".

From this one can conclude that even if the authority has a great mandate in regulating the city's environmental issue, there is a problem in supporting the authority with enough manpower, finance and logistics to overcome the city's environmental problem.

5.8.2. The role of Sebeta City health Office

Under the Sebeta city health office there is a department called Environmental health that inspect and control disease caused by environmental pollution. This department is closely working with environmental protection organs to protect health of the people from environmental pollution.

According to the data obtained from Sebeta city health office environmental health regulatory department, even if there is no evidence for the patients that have disease caused by industrial

pollution it is obvious that the cause is the pollution of water and air caused by industries in the area.

The researcher asked that what have been done by the institution to solve the health problem caused by industrial pollution and the environmental health regulator answered that they prepared coordinated plan with concerned body. But carelessness of the concerned body is the main problem for their work. According to environmental health regulator of the institution the city administration does not give attention to the problem caused by industrial pollution and it is so reluctant to tackle the problem; but it must be raised as one of political issue as industrial pollution in the city is going to be a critical problem.

Unlike environmental protection organs, Health care institution is more responsible to protect the health of the community since its Primary objective is just to protect health of citizens. However, the data obtained from Sebeta city health care institution show that the office has given little attention to the problem and they just blame another body for they are not overcome their responsibility. Even though the problem is serious and the residents are suffering different kinds of health problems as a result of the industrial waste management problems.

5.8.3. The Role of Sebeta City Administration

According to the data obtained from Sebeta City Municipality Office Manager, environmental pollution especially discharges of different industries are the main and challenging problems of the city. Most of the factories operating in the area have no treatment plants and they simply release their discharge to the near water bodies and it is creating different Problems on the health of the residents and animals of the nearby rural areas.

Concerning the case of the two industries; HAFDE tannery and Balezaf Alcohol, He stated that;

> *"These two industries have been creating different problems on the area, including affecting the health of the residents and animals and soil pollution, both in the city administration and the surrounding rural area. This clearly shows that the wastes from the industries especially the mentioned two industries are causing a serious environmental threat due to high chemical including organic chemicals, inorganic matter, dissolved, suspended solids and specific pollutants such as chromium and heavy metals etc. they released into the nearby rivers without any treatment. Thus, Exposure to this toxic chemicals increase the risk of dermatitis, ulcer, and cancer*

not only to the existing generation but also to the next generation. These are the major effects which are commonly complained by the residents."

Concerning the implementation of EIA and investment permission depending on this law, the interview held with the manager revealed that; the way the city administration or the region has been accepting the investors before has played its own role for the problems happening at present. Since the main target was mainly on creating job opportunities, increasing the countries income or hard currency and industrial transformation, the implementation of pre environmental impact assessment in the city in spite of some efforts were very weak.

As a result, sight selection or zoning for industries before a year was very weak and because of this most of the industries in the city couldn't far from residential area. That is why the two industries under study, HAFDE tannery and Balezaf alcohol are located in between residents and being a critical problem for city residents.

Although most of the industries are polluting the environment, a city administration is very poor in taking disciplinary measures, Both peoples of the nearby rural area and some of the exposed kebels have been complaining for the last few years. Environmental protection Authority of the city in association with the responsible bodies have decided to suspend HAFDE tannery from operation due to public complaints, two industries AYKA Addis Textile industry, and Balezaf Alcohol has given a warning letter to stop releasing toxic wastes to the environment and to use a suitable treatment plant.

Since most of the operating industries do not comply with established standards administrative measures will going to be taken on those which do not improve their waste management system in the future. This is because, on one hand the residents have the right to live in a clean environment and on the other hand, the problems are creating a pressure to the administrative bodies of the city and the region to take decisions.

In addition to the above decisions, the city administration has started showing encouraging initiations to solve the observed problems and thereby ensure the effective implementation of the Pollution Control Proclamations.

Concerning the reasons that were hindering the administrative bodies to prevent this industrial pollution, He stated that;

"Absence of the necessary vertical and horizontal co-ordination between responsible bodies, political intervention at federal and regional levels, absence of adequate

laboratory equipments, 'fear of the large number of workers become jobless' were mentioned as main challenges hindering the effective implementation of the Pollution Control Proclamation."

Therefore, after now it needs to have a uniform stand to overcome the challenges. All the stakeholders should accomplish their duty without any sense of carelessness. The city administration as a total needs to give special attention and deliver the necessary support for the concerned office.

Generally, despite good efforts, the limited effort to enforce of the policies and regulations couldn't enable the local government to control industrial pollution. The data gathered from the residents through questionnaire also indicate that the regulatory bodies have not been effectively undertaken their responsibilities. More of the respondents believed that the factories negligence and lack of supervision and control of environmental regulatory bodies are responsible for the problem.

Also industrial pollution prevention regulation 159/2008 has granted any citizen to complain on polluting enterprises to relevant environmental organs, however, due to lack of institutional capacity and other related problems immediate solution have not been given to the complaints. For that matter while this research is undertaking the nearby rural areas population which is collected from more than 13 kebeles estimated up to 5000 affected by wastes released from industries from Sebeta city administration including HAFDE tannery and Balezaf alcohol came into the city in peaceful demonstration to voice their complain.

At the time the city mayor answered that the city administration is working to solve the problem. But the nearby rural area population is not only in need of urgent solution only, they need compensation for they are suffered for more than 15 years and for their properties damaged because of the discharged chemicals in to water bodies from different industries. So they are going to take the cases of polluting firms into court to be able to incriminate and punish them.

CHAPTER SIX

SUMMARY, CONCLUSION AND RECOMMENDATIONS

6.1. Summary

The two companies under study do not have waste treatment plants, and they simply discharge their wastes without any treatment. Balezaf Alcohol try to plant waste treatment plant, and it has not start working for many infrastructural problems. HAFDE tannery stops using their treatment plant for it is costy. For that reason two of them would rather prefer to dispose their wastes in to the environment, which could have adverse effect on the environment and public health as well.

Discharge of industrial liquid wastes into water bodies and its subsequent bad smell are the most common waste management related problems that are highly affecting the health of the residents in the area. The quality of rivers in the area ("Sebeta" and "Atebella") is deteriorating and they are bad for smell and sight.

Cough, asthma, sinus, bacteria, lack of appetite and skin diseases are the major health problems frequently happened in the area and among the health problems raised by the residents related with industrial wastes.

Lack of Coordination among responsible bodies both horizontally and vertically, political intervention at regional and at federal level, fear of the large number of workers become jobless, lack of clear mandate with specific proclamation and regulation are factors affecting the effectiveness of the role of local government.

There are several legal frame works which enable the local government to regulate and prevent industrial pollution. Some of them are: Federal and Regional constitution, proclamation and regulation, Environmental Policy of Ethiopia and Health policy of Ethiopia.

However, the local government organs despite good efforts, the limited effort to enforce of the policies and regulations couldn't enable them to control industrial pollution and has not active in taking legal measures on the industries which violating and releasing their pollutants to the environment.

6.2. Conclusion

The very aim of this study was to assess the Role of Local government in controlling industrial pollution: The case of Sebeta city Administration. The study tried to investigate the perceived and actual implications of HAFDE tannery and Balezaf alcohol industries waste management practices on the city and review the legal frame work of environmental protection to assess the

role of local government to control industrial pollution as to forward possible solution and strategies that will enhance the role of local government in controlling or protecting industrial pollution.

Sebeta, like most developing cities, lacks the infrastructure, financial resources, and institutional capacity necessary to effectively manage industrial wastes and adequately control industrial pollution.

The residents around the industries are suffering from a variety of health problems that could be a direct or indirect result of the two industries pollution. These major health problems frequently happened include respiratory illnesses cough, Sinus, bronchitis, lack of appetite, asthma, which is related with air pollution and dieses caused by water pollution like bacteria, skin diseases, eye problem. Many community members believe that these problems are a result of poor waste management of industries in the area particularly HAFDE tannery and Balezaf alcohol.

The residents have faced serious difficulties due to the health problems. The major problems experienced by the residents are increased medical expenses. Even if waste reduction methods like reuse and recycling are the most recommended methods of industrial waste management, the firms had extensively used disposal methods which have adverse effects to the environment and public health. Rather they used to prefer disposal methods that less costly than recycling and reusing methods.

The two selected industries don‘t have any treatment plants and dispose their liquid wastes into the nearby Sebeta river and it is converged into the great Awash Rivers without any treatment. From the two firms Balezaf alcohol tries to have tertiary treatment plants but they are complaining for the absence of different infrastructure for the plants not effectively working. While HAFDE tannery have primary treatment plant but they do not use it for it is so costy operating the treatment plant.

Even though, Ethiopia in general and Sebeta in particular has industrial waste management regulations and standards for solid, liquid and hazardous wastes, adequate inspection and monitoring of industries for compliance with environmental standards and policies is vital to the success of environmental pollution prevention policies.

However, inspection of enterprises and enforcement of environmental policies has been very weak. Lack of institutional capacity, man power, finance and logistics limit the ability to adequately inspect and monitor industries and absence of the necessary vertical and horizontal

co-ordination between responsible bodies, political intervention at federal and regional levels, absence of adequate laboratory equipments, fear of the large number of workers become jobless have been the major impediments that hindering the effective implementation of the Pollution Control Proclamation.

6.3. Recommendations

The following recommendations are forwarded to improve the effectiveness of the Role of Local government in controlling industrial pollution:

- The adverse effects and critical problems of industrial pollution on the communities should be awarded to the factory owners by local government to make them stress on the problem.
- In addition to the awareness creation activities the local government should also strictly enforce the existing pollution laws to protect the community from further health problems by enforcing their constitutional rights.
- The factory owners have to give more attention for the environment, future generation as well as the communities around their factory. They have to cost their money for waste treatment plant by prioritized their community.
- The different levels of governmental bodies including local government should encourage the company owners to minimize their wastes and use best available technology by solving different bureaucratic problems and they should also be encouraged to implement environmental management plan and audit systems.
- Regular monitoring and inspection of industries should be conducted effectively by the concerned environmental regulation organs to make sure that the companies are complying with the environmental regulations or to determine necessary interventions.
- The capacity of environmental protection organs should be strengthened and they have to authorized so as to effectively carryout their responsibilities.
- The concerned environmental regulatory bodies have to ensure that all new and existing industries have environmental protection materials and adequate facilities for treatment and removal of toxic materials from the waste. They have to have the stand “under no circumstances, the direct discharge of the industrial wastes should be allowed to discharge into river”.

- Even though industrial expansion has a great role for economic development of the city as well as a country, such growth should not be at the cost of the public health and their constitutional rights. So, the government should take into account and prioritize the rights of the community.
- Horizontal as well as vertical cooperation and coordination among environmental regulatory bodies and with other sectoral organization should be strengthened.
- The duties and responsibilities of environmental regulatory body should be clearly identified with specific regulation and proclamation to avoid interference of another body in making decision.
- The relationship with environmental body as well as city administration with factory owner does not only for giving and taking command. They coordinately plan and work together to solve the problem.

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Annex I

Addis Ababa University

Faculty of Low and Governance

Department of Federal Studies

Questionnaire to be filled by residents

Dear respondents

This questionnaire is prepared to collect data for the fulfillment of Masters in Federalism. The main aim of this questionnaire is to study the Peculiar environmental problems of industrial wastes in Sebeta City. The purpose of the study is purely for academic use only and the effectiveness of the study depends on your genuine and frank response which will be kept confidential. I, therefore, kindly request you to fill the questionnaire honestly and frankly.

Thank you in advance for your cooperation.

Note:-

- No need of writing your name.
- Please put a tick mark (√) in the appropriate box in each of the following questions

1. General information of respondents

1.1. Respondents address/ kebele _____

☐ ☐ 1.2. Sex: Male Female

☐ ☐ 1.3. Age ☐ – 25 26 – 3334 – 41

☐ ☐ 42 – 5051 – 59 ☐ ater than 60

1.4.How l☐ did y☐ live☐ Sebeta:

☐ Less than ☐ ear1 – 5 ye☐ 6 – 10

1.6. Educational status

☐ Non-lite☐ junior secondary (7- 8)

☐ Read and writ☐ econdary and preparatory (9 -12)

Pr☐ ry (1-6) ☐ College and University

2. Information on industrial pollution

2.1. Is there any pollution in your residence areas?

1. Yes ☐ 2. No☐

2.2. If your answer is yes, what kind of pollution is it?

1. Air ☐ 2. Water ☐ 3.Other , please specify it☐

2.3. If your answer for question 2.2 is yes, what are the problems?

- Problems during the production process/Noise, Dust, Smell, Smoke/ ☐
- Problem as a result of poor management of industrial waste disposal ☐

2.4. If your answer to question 2.3 is due to poor industrial waste management, What do you think are the causes for the pollution occurring?

- Dumping of solid wastes to the environment ☐
- Due to discharge of industrial liquid wastes and subsequent bad smell ☐
- Due to discharge of industrial smoke to the environment ☐

2.5.Do you know the source of this pollution?

- 1. Yes ☐ 2. No ☐ 3. No idea ☐

2. 6. If your answer is yes what is the source of this pollution?

1. Industry ☐ 2. House hold ☐ 3. Other,please specify it☐

2.7.Doesalcohol and leather industries in your area have/has environmental negative effect on the area?

☐ ☐ ☐es No I don‘t know

2.8. If your answer is yes what kind of effect is it?

_____

_____

_____

2.9. Is the pollution in your area has effect on you and your family health?

☐ Yes ☐ No

2.10.If your answer is yes what kind of effect is it?

_____

_____

_____

2.11. How much time do you visit health institution per year?

☐ne times th☐ times above ☐e times

2.12. How much did you cost for health care service?

200-5☐ birr 600-10☐irr above 10☐birr

2.8. How long that the pollution exist in this area?

1. Before 5 Years ☐ 2.from 5-10 years ☐ 3. More than 10 years ☐

2.10.Is there any measurement taken by the*city* administration?

1. Yes □ 2. No□

2.11. If your answer is yes what kind of measure it is?

1. Restriction on Industries □ 2. Preparing reserve water cı ng awareness for factory owners□ 3. Other □

If any other measure list out:

_____

_____\

3. Opinion of respondents on the root causes of the problem and what should be done by the local government bodies.

Read each item and indicate your degree of agreement/disagreement by putting tick mark (√) under one of the indicated rating scales: 1- Strongly Agree, 2 – Agree, 3 – Neutral, 4 – Disagree and 5 – Strongly Disagree.

S.No	**Item**	**Response**				
3.1	What do you think are the causes of leather and alcoholindustries waste problems	1	2	3	4	5
	3.1.1. Free ride behavior of factory owners					
	3.1.2. Lack of coordination of regulatory bodies					
	3.1.3. Lack of awareness of the factory owners					
	3.1.4. Residents silence to voice their complaints					
3.2	Who do you think is responsible for the problem	1	2	3	4	5
	3.2.1. Environmental Protection Organs					
	3.2.2. Factory/Industry Owners					
	3.2.3. Investment office					
	3.2.4. City administrative bodies in general					
3.3	What do you think should be done by the regulatory bodies to minimize/stop the problem	1	2	3	4	5

	3.3.1. strict follow up and control					
	3.3.2. taking measures on the factories/Industries who violate laws					
	3.3.3. creating awareness to factory/industry owners					

Annex II

Interview Questions:

Dear respondents,

I am undertaking a study on **Environmental Federalismand the Role of local Governments in controlling industrial pollution** in partial fulfillment of the requirements of thethesis for the Masters Degree in Federal studies at AddisAbaba University. I feel that your contribution and information obtained from you is essential forthe success of this research thesis. Thus, I appreciate your cooperation to give me your time forthe success of this research thesis. I assure you that the information you share me will be usedonly for academic purpose and kept confidential

Thank you for your cooperation!

Yours sincerely!

JalelliHailu

I. Interview guides prepared for: Environmental protection office head/concerned departments

Name _____ Position _____

Years of service in the office_____

1. Do you think that there are industrial waste management problems in Sebeta City?
2. If yes, Can you mention some of the industries polluting the environment?
3. The Authority has the power to regulate and follow up that any development body shall conduct environmental impact assessment and the disposal of different pollutants and waste substances from factories, cities and other places not to pollute the environment and ecosystem and take proper action if it caused any damage. So how could you implement your mandate when the industries are planted in general and HAFDE tannery and Balezaf alcohol specifically?
4. How do you explain the status of HAFDE Tannery and Balezafalcohol in polluting the downstream river and the environment in general?
5. What are the problems regarding these industries waste disposal and its management in the area?
6. The Authorityalso has the power to ensure all economic development shall be implemented, based on the regulation of environmental protection and laws of ecological balance, without

polluting and adversely affecting the environment and the ecosystem.Are there any intervention mechanisms to control waste management problemsregarding HAFDE tannery and BalezafAlcohol?

7. What are the effects of these industrial wastes on the environment?

8. The authority has a power to take action on those bodies use natural resource improperly and damage the environment. How could you practice this power? What measures have been taken so far on HAFDE tannery and Balezaf Alcohol to solve or mitigate the problem?

9. What are the challenges that your institution has to solve the problems?What challenges are there hindering the effectiveness of your institutional responsibilities?Is it lack of commitment that means is environmental pollution a political agenda or get attention in general?Or lack of budget, capacity or lack of coordination?

10. Do you work with other concerned bodies coordinately? If yes, with whom do you work? If not, why not?

11. What suggestions do you have in order to see the problems solved or minimized?

II. Interview guides prepared for: Investment office head/concerned departments

Name _____ Position _____

Years of service in the office_____

1. your office have a power to evaluate any investment project that has not damage the natural resource and pollute the environment with concerned body before they get permission. Is there any effort made by your office when HAFDE Tannery and Balezaf alcohol are planted?

2. Do you work coordinately with concerned body to minimize industrial pollution in general and HAFDE tannery and Balezaf alcohol pollution specifically?

3. What problems do you have to work coordinately to minimize the problem in the area?

4. What suggestions do you have for the solution of the problem?

III. Interview guides prepared for: Health office head/concerned departments

1. To what extent does your office know about the industrial wastes/pollution problem in the City?
2. What are the challenges of health coused by industrial pollution in general and HAFDE tannery and Balezaf alcohol in specific?
3. Is there any patient have examined health problem coused by industrial pollution in general and HAFDE tannery and Balezaf alcohols pollution specifically?
3. How many people are affected by industrial pollution in general and HAFDE tannery and Balezaf alcohol pollution in specific?
4. How do you work coordinately with concerned body to minimize the problem of health caused by industrial pollution and HAFDE tannery and Balezaf alcohol specifically?
5. What are the challenges that your office has faced to solve the health problems of industrial wastes?

IV. Interview guides prepared for Sebeta City Mayor/

Name_____ Position_____

years of service in the office_____

1. How do you explain the industrial wastes/pollution in the City?
2. What are the challenges that the City faced because of Industrial pollution in general and HAFDE tannery and Balezaf alcohol in specific?
3. As a head of Investmentboardof the city, how did you implement the EIA law when any investment projects are planted?
4. Since local government bodies have the responsibility to protect the local communities, what efforts did you do to protect the rights of peoples of the City living in clean area that is mentioned in FDRE Constitution? Are there intervention mechanisms to protect the environment of the City from industrial wastes/pollution?
6. Is there any measure taken by the municipality to protect the environment from pollution?
7. What are the challenges that the City faced to solve the problems of industrial wastes in general and HAFDEtannery and Balezaf alcohol specifically?
8. Future plans of action to solve the problem
9. Suggestions for the solution of the problem

Interviewee

No	Position	Institution
1	Head of the SCEPFCCA Pollution Control Department	SCEPFCCA
2	Expert, in the Pollution Control Dep.	SCEPFCCA
3	Sebeta city investment office head	Sebeta city Investment office
4	Expert, in the Pollution Control and investment coordinator	Sebeta city Investment office
5	Environmental pollution control department health regulator	Sebeta city health office
6	Sebeta city administration manager	Sebeta city mayor office

Annex III. Observation Checklist

No.	Item	Yes	No
1	Do the factoriesplanted in a proper zone		
2	Do the factories properly collect their wastes		
3	Do the factories discharge their liquid wastes into the environment		
4	Any observable environmental pollution/problem in the area		
5	Any legal documents about local environmental protection		
6	Any measures taken on industries/industry		