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**School of Graduate Studies**

**Institute for Peace and Security Studies**

**Chinese Investment in Ethiopia and Its Implications to  
Environmental Security: The Case of Eastern Industry Zone**

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**Addis Ababa, Ethiopia**

**June 2019**

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## **List of acronyms and abbreviations**

EIZ	East Industrial Zone
EPO	Environmental Protection Organ
FDI	Foreign Direct Investment
MEFCC	Ministry of Environment Forest and Climate Change
OECD	Organization for Economic Cooperation and Development
UNDP	United Nations Development Program
UNEP	United Nation’s Environmental Protection
UNHDP	United Nation’s Human Development Program
UNESCO	United Nation’s Education Science and Culture Organization

## Abstract

*Environmental security, which is very important element of human security, is now highly challenged by investment projects of which industrial sectors are taking the highest share. The large scale influx of FDIs especially in sectors such as manufacturing industries is heightening environmental pressures on the host country. Such FDI related environmental problems may force the people who are originally living around the areas at where those FDIs operated to experience a negative impact on their overall security. This thesis is focuses on the implications of Chinese FDI in Ethiopia to environmental security by taking the case of east industrial zone which is one of the Chinese owned mega investment projects in Ethiopia with a high potential of posing environmental challenges. Many argue that most FDIs conducted by China particularly in developing countries including Ethiopia are always been the subject of criticism most of it deserved. The overall objective of this study is to explore the implications of eastern industrial zone to the wellbeing of the local environment. Qualitative research methods with exploratory research design were adopted. The tools used to gather the data were primary sources (in-depth interviews with members of the community, key informants interview with concerned experts in the area and the issue) and via personal observation. Non probability (purposive and snowball) sampling technique was employed to select the participants. The result of the study reveals that east industrial zone is posing serious environmental threats up on the communities living near around it. Among others, the discharge of untreated wastes and effluents, noise and air pollution and problems associated with its poor drainage system are the major and the most common environmental problems associated with the zone. Such environmental problems which are occurred due to east industrial zone are exposing the local residents for a multitude of economic, social and health problems. According to the study, these environmental challenges are posed mainly because of the irresponsive and negligence behavior of the companies found in the industry zone. Companies in the zone are focusing mainly on earning economic profits at any cost including the environment. The host country's weak capacity and commitment for the actual and strict implementation of the existing legal procedures and regulations and to take appropriate responses is also another responsible factor for the occurrence of such environmental pitfalls in that depth. Based on the study result, the researcher therefore recommends for the responsible governmental body to re-examine the actual implementations of the legal investment procedures, and re- adjust them in a way that allows the development of industrial zone in a more efficient and rational manner.*

*Key terms: Human security, Environmental security, China, FDI, EIZ*

# CHAPTER ONE

## 1. Introduction

### 1.1. Background of the Study

Most definitions of security are closely tied to a state's defense of sovereign interests by military means. At its most fundamental level, the term security has meant the effort to protect a population and territory against organized forces while advancing state interests through cooperative behavior. Within this state centered analysis; threats typically have been perceived as military challenges and have traditionally been countered with armed force.

This narrow military conception of security has largely excluded consideration of potential non-military threats and non-military means of providing security. In this regard, economic and ecological development in an increasingly interdependent world present potential threat for actors at all levels of analysis (Geoffrey and David, nd). Myers (2002), added on this point that, true security cannot be achieved by mounting building of weapons (defense in narrow sense), but only by providing basic conditions for solving non-military problems which threaten them. Our survival depends not only on military balance, but also on global cooperation to ensure a sustainable environment. As to Geoffrey and David (nd), the causes, effects and solution of these economic and environmental challenges ignore national boundaries calling in to question many assumptions of statist's definitions of security.

Environmental changes can hamper individual's security by affecting livelihoods and promotes transnational security crisis for states and regions. Hence, environmental degradation is a significant threat for security of both individuals and nation states (Beswas, 2011). Taking these into consideration, now a day's environmental concerns are included within the definitions of security. In developing a working definition of environmental security, various sources were consulted. Presented below are several definitions extracted from a number of sources. The differences give some indication of the wide range of meaning associated with the term.

According to the United States environmental protection agency (1999), environmental security is a process whereby solutions to environmental problems contributed to national security objectives. Chris King (2002) further defined the term as a process for effectively responding to

changing environmental conditions that have the potential to reduce peace and stability in the world and thus affect states national security. We have also an academically inspired definition which interestingly defines environmental security as the proactive minimization of anthropogenic threats to the functional integrity of the biosphere and thus to its interdependent human component (an interesting definition found in the literature without specific reference).

Lastly let me mention some key elements which are clearly put by Glenn and others (1998) to best describe a state of environmental security as:

1. Public safety from environmental dangers caused by natural or human process due to ignorance, accident, mismanagement or design.
2. Amelioration of natural resource security.
3. Maintenance of a healthy environment.
4. Amelioration of environmental degradation.
5. Prevention of social disorder and conflict (promotion of social stability).

Explicit calls for including environmental concerns within definition of security have an extended history. The dialogue has become particularly intense with the end of the cold war and the resulting search for an orienting security paradigm (Geoffrey and David, nd). As to Geoffrey and David, the proposed conceptions of security range from viewing environmental stress as an additional threat within the conflictual statist's framework to placing environmental change at the center of cooperative models of global security. Research of the links between environment and security includes environmentally caused scarcities and conflicts as well as the influence of environmental problems on health and on economic and political stability (Rostock, 2008).

Studies also show that, the environment is the planetary support system on which all other human enterprises depend. If political, social, cultural, religious and most importantly economic systems are to remain secure and viable, the environment must also remain secure and viable. These make global environmental conditions a legitimate national security concern for all countries (Elizabeth L, nd). Tim Everett et al, (2010) further argued that the natural environment is central to economic activity and growth, providing the resources we need to produce goods

and services, and absorbing and processing unwanted byproducts in the form of pollution and waste. They added that, environmental assets are contributing to managing risks to economic and social activity, helping to regulate flood risks, regulating the local climate (both air quality and temperature), and maintaining the supply of clean water and other resources.

The main components of environmental security form the basis of the environmental policy making on national, state and local levels. In these regard, Ethiopia is taking a leading role in both regional and global response to environmental related problems. Through effective coordination to domestic response, the government of Ethiopia has launched climate resilient green economy strategy in 2011 to protect the country from the adverse effects of environmental risks like climate change and to build a green economy that will help realize its ambition of reaching middle income status before 2025( Environmental Protection Authority,2011).

For the purpose of achieving middle income status before 2025, several development activities are massively operating throughout the country. Especially sectors like manufacturing industries, transportation, infrastructure, construction and mining that have direct or indirect implications on the environment are growing fast in the state. In such sectors, Chinese investment is taking a leading role. According to the document released by AFRODAD (2011), China is massively involved in major investment activities in Ethiopia. As to the document, the major Chinese investment projects in Ethiopia includes: the eastern industrial park, Ethiopia's first industrial park which is built in Dukem and attracted investments from up to 80 Chinese companies in textile, leather and manufacturing and construction, Gibe III hydroelectric dam, Tekeze hydroelectric dam, Addis Ababa-Adama highway road, Addis Ababa ring road constriction, light railway network project in Addis Ababa, the Addis-Djibouti railway construction etc.(AFRODAD, 2011).

But in most cases, foreign direct investment can also be considered as a “double edged sword” for host countries. The large scale influx of FDI in to sectors such as manufacturing natural resources and infrastructure construction will heighten environmental pressures on the country (CCIED, 2011). Nick & Richard (1999) further argued in these regard that, “Economic growth produced by FDI is often fuelled at the expense of the natural & social environment and the

impact of FDI on host communities and countries is often mixed in environmentally sensitive sectors.”

According to Nick & Richard (1999), Economic theories of sustainability imply that, economic growth & the proliferation of FDI will exacerbate existing unsustainable patterns of development unless matched by more efficient use of natural resources. FDI must operate inside absolute sustainability constraints based on the need to preserve vital ecosystem functions (Nick & Richard, 1999).

It is therefore critical to understand the environmental effects of FDI & identify appropriate responses. In light of this, the overall focus of the study is assessing the implications of Chinese Foreign Direct Investment in Ethiopia to environmental security by taking the case of eastern industrial zone, which is one of Chinese mega investment projects in Ethiopia.

## **1.2. Statement of the Problem**

China is massively involved in multiple investment projects in Ethiopia. Among its major investment projects, the Eastern Industrial Zone, the Addis- Djibouti railway line, Gibe III and Tekeze hydroelectric dams, the Addis- Adama high way rode, the Addis Ababa metro rail projects and many others can be mentioned. The importance of these China’s investment projects for Ethiopia’s economic development is unquestionable. There are abundant literatures published regarding the economic benefits of these investment projects for the host country Ethiopia. However, the implications of those investment projects to the environmental security of the country more generally and the areas around the project specifically is little documented in the academic research. It is argued that, environmental security is one of the seven most important elements of human security (UNDP, 19994). Any threat up on the environment has a direct impact on human survival, wellbeing and productivity- in other words, aspects of human security (khagram et al, 2003). Peoples access to natural resources and vulnerabilities to environmental change are directly tied to human security (Ibid). In addition to this, country’s economic development cannot be sustainable unless it gives a critical concern for environmental security in the process of developmental activities like investment. The quality of environment and its sustainable condition has to be one of key priorities for development to be sustainable. In that

case, the long term preservation of environmental inhabitability or eventually the betterment of its condition shall be at the center of attention.

But, as Nick and Richard (1999) argue, increased economic activity, of which foreign direct investment is an increasingly significant contributor of environmental problems such as greenhouse gas emissions, deforestation, loss of biodiversity and many others. In these regard the environmental impacts of China's investment in Africa is always at the center of a debate. According to David Shin (2016), China's environmental record both at home and in Africa has been the subject of criticism much of it deserved. This argument is further strengthened by Ruth Gordon (2012), saying that, China has come to Africa with new development modalities, but also with poor environmental record. This has meant increased investment and trade for African nations, as well as serious environmental challenges that must be addressed.

Since Ethiopia is China's current major investment destination among other African countries, the researcher believes that studying those China's investment projects in Ethiopia from environmental security perspective is of much importance, whose impacts were not studied academically from the environmental perspective to date. Therefore, my MA project seeks to articulate the implications of China's investment in Ethiopia to environmental security by taking the case of Eastern Industrial Zone, which is one of the Chinese grand investment projects in the country with a high potential of affecting the environment.

### **1.3. Research Objectives**

#### **1.3.1. General Objectives**

The study generally aims to explore the implications of Chinese investment in Ethiopia to environmental security by taking the case of one of the major China's investment projects operated in Ethiopia, eastern industry zone.

#### **1.3.2. Specific objectives**

The study is specifically intended to:

- Identify the major environmental threats posed by east industry zone up on the local environment

- Evaluate the effects of the major environmental threats upon the local community
- Examine the efforts to safeguard the local environment from potential dangers of east industry zone.
- Examine the role of the concerned environmental protection experts in managing and monitoring the quality of the local environment in the study area

#### **1.4. Research questions**

The central research questions designed to guide this study are:

1. What are major environmental threats which are observed in eastern industrial zone?
2. What are the environmental implications of Chinese investment in eastern industrial zone for the community living nearby?
3. Are there any efforts to safeguard the local environment from potential dangers of east industry zone?
4. What is the role of environmental protection experts in managing and monitoring the quality of the local environment in the study area?

#### **1.5. Significance of the study**

This study has much significance socially, economically, politically and environmentally as it tries to address the implications of FDI to environmental security particularly of the study area.

More specifically its significances are:

1. Helping the local and regional administrations and communities in particular and the country in general to have awareness and understanding about the implications of FDI to environmental security.
2. More importantly, this is a significant pointer for the policy makers' and investors to identify the problems and understand mechanisms of how to keep the environment secure in the process of investment activity.

3. It will also be expected to serve as a reference for those scholars who want to conduct further research on the FDI and its implications to environmental security.

## **1.6. Scope of the study**

This study is mainly focuses on the implications of Chinese investment in Ethiopia to environmental security by taking the case of one of the major Chinese investment projects in Ethiopia, the eastern industrial zone.

## **1.7. Limitation of the study**

It is better if the researcher assesses all the Chinese investment projects in Ethiopia and their implications to environmental security. But due to shortage of written documents on the area and financial constraints; the researcher focused only on the implications of one of the major Chinese investment projects in Ethiopia, eastern industrial zone to the security of the surrounding environment.

## **1.8. Organization of the study**

The thesis is organized in five chapters to best deal with the questions presented; beginning with the current chapter which is the overall introduction of the thesis. Chapter two briefly covers review of related literatures and different concepts on security, environmental security and the relationships between foreign direct investment and environmental security. This is followed by chapter three which highlights the methodology or the master plan of the thesis. Chapter four focuses on the presentation, discussion and interpretation of the data. Finally in chapter five, the researcher summarizes the major findings of the study and list possible recommendations on how to accommodate east industrial zone and environmental security of the locality.

## **CHAPTER TWO**

### **2. The Concept of Security**

#### **2.1. Introduction**

Within the international relations sub discipline, security is regarded as being an “essentially contested concept”. The contestedness of security arises as a function of the fact that the meaning of security is not an ontological given, but changes across time (Rita, 2008). Since security has no constant meaning, the concept means something different for every tradition with in security studies. Consequently different traditions with in security studies conceive security very differently. The difference is vastly in terms of who or what is to be secured, what is to be secured against and also the nature of the threat itself.

For the purpose of this paper, a state centered political and military conception of security and an extended human centered security with economic, societal and environmental dimension will be the center of argument.

#### **2.2. State Centered Notion of Security**

Security has traditionally been defined in terms of states and the qualities of statehood. The traditional sense of security studies has evolved around seeking cumulative knowledge about the role of military force. According to Luciani (1989), the most common understanding about national security has been revolving around states ability to withstand aggression from abroad.

National security can also be considered as a relative freedom from war coupled with a relatively high expectation that defeat will not be a consequence of any war that should occur (Bellamy 1981). In national security concept a nation is secure to the extent to which it is not in danger of having to sacrifice core values if it wishes to avoid war and is able, if challenged to maintain them by a victory in such a war (David wills, 2011).

According to Kerr (2007), national security is closely linked with the principle of national sovereignty, the monopoly the state holds on the legitimate exercise of violence within a territory, and a conception of the international order as anarchic, with limited supra-

governmental institutions and dominated by international competition. In international relations theory this position claims the name 'realism'. In realism, the basic assumption is that, the international system is anarchic; states should try to maximize their power, because this is the best way to ensure their survival (Collins, 2011).

As indicated above the referent object to be secured in the national security approach is the state and that, it is the state that experiences insecurity. This activity according to David (2011) is primarily couched in the language of war- attack and defense, aggression, defeat and victory. As to David, this conception implies that national security is primarily a zero sum situation i.e., the state must be capable of defeating its opponents through military activity; the one state gaining such superiority means that other states have lost the capacity.

According to William W. Bain (2000), national security is concerned with the safety of particular political communities: sovereign states. He said, in national security approach, individual security is assumed to follow from national security by virtue of our membership in a particular political community. Other than individuals, it often prioritizes economic, geopolitical, or ideological interests of the state and if necessary the use of military force to protect them (Schirch, 2015). Schirch added, in many countries, national security is tasked solely to the military and it is decided by the governments.

In contrast to comprehensive human centered security, the traditional concept of national security embraces two distinct characteristics (Hsiung, n d). First security is commensurate with national survival in a system of world politics that is inherently contentious and anarchical; and the state is the central unit of analysis. Second, understanding force postures and capabilities is a key tenet of traditional security. Sovereign states develop military doctrines: weapons systems serve their defense but may also intensify interstate conflicts and fuel security dilemmas.

In short, the traditional notion of national security focuses on threats to a state sovereignty and the survival of the state as such (Dow and Person, 2003). In this sense, national security is all about the absence of physical threat to the territorial and functional integrity of a state (Hsiung, N d).

But the researcher believes that this state centered security paradigm has its own shortcomings. The major one is its inability to deal with threats to the individual emanating from the state, and

that it hardly can explain state collapse (Hans, 2005). Thakur (2004), also argue that the national security prefers the military in the authoritative allocation of collective goods in favor of arms, while failing to protect citizens from chronic insecurities of hunger, disease, shelter, crime, and environmental hazards.

Concerning the drawbacks of national security conception (UNHDP, 1994), stated that it has been related more to nation states than to people. The super powers were locked in an ideological struggle- fighting a cold war all over the world. The developing nations, having won their independence only recently were sensitive to any real or perceived threats to their fragile national identities. Forgotten were the legitimate concerns of ordinary people who sought security in their daily lives. For many of them, security symbolized protection from the threat of disease, hunger, unemployment, crime, social conflict, political repression and environmental hazards.

Now a day, the traditional understanding of security as the absence of existential threats for the state emerging from another state is being challenged and reconceptualization of security which gives emphasis for human beings security is highly provoked.

The process of rethinking security began in 1970's and 1980's, becoming prevalent in 1990's. In 1990's there was a growing awareness about the interactive processes of technological innovation. Several regional and national structural changes, economic globalization and environmental degradation pose new challenges to human welfare and security that resist military solutions and require cooperative responses (Geoffrey et al, N d). Military establishments are no more the only significant threats to individuals, peoples and states, nor can they be fully relied up on to address all forms of insecurity (Geoffrey et al, n d). Now, it is widely acknowledged that what needs to be secured and what constitutes danger vary from one situation to another and require a rich repertoire of tools and policies.

1990's was also a decade in which a decline in the incidence and probability of interstate war was observed. This was mainly due to the growing of economic inter dependence, democratization, international regimes and the different effect of weapons of mass destruction (Geoffrey et al, ND). On the other side, the incident of intrastate war was increasing (Mahmud, 2008). This brought a claim that individuals should be the referent of security instead of the states since states security has become less vulnerable while that of the individuals suffers even

by their own state. This declares, the definition of security in terms of carefully constructed safe guards against the threats of a nuclear holocaust has become redundant in the post-cold war era (Mahmud, 2008). This added with the end of the cold war has led to a reduction in military budget and provided an opportunity to rethink security.

Besides, addressing those non militaristic threats requires skills and resource ordinarily not found in conventional defense establishments. According to Geoffrey et al (n d), identifying new threats and vulnerabilities and providing the skills and resources to analyze and address them has become the central objective of efforts to rethink security. As a result, the moral dilemma of national security has become confronted by many scholars and practitioners of world politics (William Bain, 2000). A dilemma expresses a conflict between the right of states and the right of human beings, security of the collectivity and security of individual persons (William Bain, 2000). Finally, the doctrine of human security has emerged as one possible response to this conflict.

### **2.3. Human Centered Notion of Security**

***“Human security is not a concern of weapons – it is a concern with human life and dignity” (UNDP, 1994).***

Security threats now are far more numerous, diverse in type, and complex than the (albeit growing) threats to state security (Khagram et al, 2003). According to Kofi Anan, the former secretary general of UN (1997-2006), security can no longer be narrowly defined as the absence of armed conflict, be it between or within states. Annan (2000), said “gross abuses of human rights, the large scale displacement of civilian populations, international terrorism, the AIDS pandemic, drug and arms trafficking and environmental disasters present a direct threat to human security, forcing us to adopt a much more coordinated approach to a range of issues”.

Besides the diversification of security threats, the practice of world politics also reveals a more troubling side of national security: some states are unable or unwilling to provide security for their citizens (William Bain, 2000). According to William Bain (2000), failed or unjust states are typically bastions of tyranny, sources of great misery, and are often themselves the most immediate threat to their citizens security. Such factors gave birth to the concept of human security.

The United Nations human development report of 1994 first popularized the term “human security” by suggesting “Human security is a child who did not die, a disease that did not spread, a job that was not cut and ethnic tension that did not explode in violence, a dissident who was not silenced. Human security is not a concern with weapons it is a concern with human life and dignity.” UNDP shifted the referent of the traditional security concept from the “nation state” to the “people”, from military threats to the protection from the threat of disease, hunger, unemployment, crime, social conflict, political repression and environmental hazards. In its report of 1994, UNDP defined human security as a safety from chronic threats such as hunger, disease and repression as well as protection from sudden and harmful disruptions in the patterns of daily life. This is a very interesting point that the researcher can strongly agree with, because it considers individual persons as an important referent objects of security and other sources of insecurity other than military threat as an existential security threats. The researcher strongly believes that, security shall not be confined only to the wellbeing of nation states from any kinds of external aggression. But primary emphasis shall be given for the overall wellbeing of individual persons from any kind of security threats including environmental hazards which are now becoming the major sources for human and national security threats. This wide understanding of security is further argued by many other security scholars as follows.

According to Hsiung (ND), the concept of security has now been expanded to include economic, health and environmental concerns, as well as the physical security of the individual. Another scholar called Karim Hussien (2004), defined security as “protecting people from critical and pervasive threats and situations, building on their strengths and aspirations. Karim Hussein (2004) added human security abled peoples creating system that give them the building blocks of survival, dignity and livelihood”. According to UNDP (1994), human security is not encompass only the achievement of minimal level of material needs, but also the absence of sever threats to them of an economic or political kind: job security, income security, health security, environmental security, security from crime- these are the emerging concerns of security all over the world. This is a comprehensive understanding of security that takes the contemporary potential security threats in to consideration and also tries to incorporate the very basic things for the human existence. As to William Bain (2000), the doctrine of human security supposes that, security consists of something more than the narrow cold war agenda that focused on problems of nuclear deterrence, military balances, zero sum games, competing power blocks and interstate

diplomacy and war. Thus, rather than considering security primarily in terms of military balances and the costs and benefits of using force to further national interests, the human security approach situates force in a comprehensive framework of tools, processes and systems (Geoffrey et al ND). According to Geoffrey et al (ND), security and insecurity now are most closely related to poverty or resource scarcity or social discrimination. In these cases, traditional security institutions may have only a minor contribution to make or none at all. William (2000), further argued about the broadness of human security which enlarges significantly the scope and substance of the word “security” that includes issues such as environmental degradation, human rights, equity, human potential, health, children, labor standards,. Narcotic trafficking, organized crime, small arms proliferation, religion, ethnicity, gender, identity, governance, civil society and internal conflict.

Furthermore UNDP (1994) identifies the seven dimensions that human security incorporates. These are:

1. Economic security: assuring basic income access to employment and resources.
2. Food security: the physical and economic access to food for all people at all times.
3. Health security: having an access to medical treatment and improving health conditions.
4. Environmental security: living in a healthy physical environment which is spared from desertification, deforestation and other environmental threats that endanger people survival.
5. Personal security: individual’s security from physical violence.
6. Community security: most people derive their security from membership of a social group (family, community, organization, political grouping, ethnic group etc).
7. Political security: living in a society that guarantees basic human rights and freedom of expression.

The commission on human security (2003) also defined human security in its broadest sense that embraces far more than the absence of violent conflict. According to the commission, human security encompasses human rights, good governance, access to education and health care and

ensuring that each individual has opportunities and choices to fulfill his or her own potential freedom from want, freedom from fear and freedom of the future generations to inherit a healthy natural environment. These are the three interrelated building blocks of human security and therefore national security (CHS, 2003). Bogardi and Hans (2005) further elaborated those three conceptual pillars of human security. According to them, freedom from want is about economic and societal security dimensions and is achieved by reducing social vulnerability through poverty eradication programmes. Freedom from fear is about political, military and societal security dimensions which can be achieved by reducing the probability that people confront violence and conflict (Bogardi and Hans 2005). Concerning freedom of the future generations to inherit a healthy natural environment, Bogardi and Hans (2005) argue the environment should be secured by reducing vulnerability of societies confronted with natural and human induced hazards.

In human security, people can exercise a range of widened choices safely and freely and that they can be relatively confident that the opportunities they have today are not totally lost tomorrow (UNHDP, 1994). Human security entails a commitment to democratic development and to ensuring quality of life and equity for all human beings: it also recognizes the elementary importance of human rights and fundamental freedoms, the right to live in dignity, with adequate food, shelter, health and education services and under the rule of law and good governance (William Bain 2000). Human security requires the participation of the society and is focused on the individual and community perspectives on security (Schirch Lisa, 2015). According to Schirch Lisa (2015) human security prioritizes violence caused by both state and non-state armed groups, poverty, economic inequality, discrimination, environmental degradation and health and how they affect individuals and communities. To address these problems, human security emphasizes on the need for whole of society efforts including security forces but also government, civil society, business, academic religious, media and other actors ( Schirch Lisa, 2015).

According to David Will (2011), human security can have the following essential characteristics; firstly it is a universal concept, applicable to all people, in all nations. Secondly, its component parts were interdependent with dangers not limited by national borders. The other characteristic of human security is, it is seen as easier to achieve through prevention rather than later intervention. Its being human centered is also another characteristic. It is human centered in that,

its principal focus is on people both as individuals and as communal groups (Thakur, 2004). Thakur (2004), strengthened the human centric nature of human security saying, it is concerned with the protection of the people from critical and life threatening dangers, regardless of whether the threats are rooted in anthropogenic activities or natural events, whether they lie within or outside states and whether they are direct and structural.

Another interesting thing within the conception of human centered security is, human security complements state security, furthers human development and enhances human rights (Hans, 2005). According to Hans (2005) human security complements state security by being people centered and by addressing insecurities that have not been considered as state security threats. Here, the human security approach has not fully rejected the relevance of state centric arguments and the importance of protecting the state from external military violence, but rather posits that, these considerations are not the sole considerations of security, or that indeed they should be dominant (Kerr, 2007). Thus, security is premised upon the principle that, although it is necessary to continue to uphold the right of states to security, so that they may be protected against external threats, the international community needs to make the protection of people and their security an aim of global security policy (William, Bain, 2000).

According to UNDP (1994) the real threats to human security in the 21<sup>st</sup> century are mainly arising from the actions of people taking many forms, such as:

1. Unchecked population growth
2. Disparities in economic opportunities
3. Excessive international migration
4. Drug production and trafficking
5. International terrorism and most importantly
6. Environmental degradation

Now a day's environmental conditions are central to human security and survival must be addressed as one of the means of eradicating poverty (kariuki, 2015).

### 2.3.1. Environmental Security

*“...It is thus inescapable that any concept of international security must in the last analysis be based on this obligate relationship of human kind with its environment” (Westing 1996).*

Previous theories of world politics which explored the problem of security in the context of two settings, domestic and international or internal and external and which sought to reduce insecurity primarily by enhancing state authority and capacity especially by building military capability, remain important, but fail to capture significant aspects of current threats to security. Among such security threats, the most important one which needs a preventive action is environmental degradation. The environment has been seen as a referent object of security and that environmental change has been seen as a security risk (Collins, 2011). This is an undisputable fact because we are now observing problems upon the environment directly or indirectly affect the overall wellbeing of human beings and nation states. Any threat up on the environment has a direct impact on human survival, wellbeing and productivity- in other words, aspects of human security (Khagram et al, 2003). People’s access to natural resources and vulnerabilities to environmental change are directly tied to human security (Ibid). The case at which this study focuses is clearly supporting this argument, because my field data shows that people living near the vicinity of east industrial zone are exposed for multitudes of security threats which will be further discussed in chapter four. Those security threats which are experienced by the people living around EIZ are mainly because of the deterioration of the local environment due to industrial activities within the zone.

The concept of environmental security rises out of a concern that environmental changes and events, especially degradation, are increasingly serious pressure on livelihood security and perhaps contribute to violent conflict (Aaron et al, 2003). According to Collins (2011), environmental security is one of a number of new nontraditional security issues that have served to deepen and broaden the concept of security. He argued, environmental security helps to deepen security, as it entails considering not just the security of states, but also the security of the global environment as well as its many nested subsystems and various social systems. Whereas it broadens security by considering risks other than war principally the risk posed by environmental change to the things that people value (Collins, 2011).

Environmental security was emerged as an important concept in security studies in the 1960s. According to Collins (2011), the factors that gave birth to the concept of environmental security are the following:

- ✓ The development of environmentalism in developed countries after the 1960s;
- ✓ Attempt to contest the meaning and practice of security from an environmental stand point;
- ✓ Change in strategic circumstances, in particular the end of the cold war;
- ✓ Growing recognition of risks.

According to the argument of Muigua (2015), the notion of environmental security should be understood to have two dimensions: on the one hand, it means, maintaining an ecological balance at least to the extent necessary to sustain resource supplies and life support systems, on the other hand, it refers to the prevention and management of conflicts precipitated by environmental decline.

In the attempt to define environmental security, different scholars say different things. According to Barnett (2011) cited in Hans (2005), environmental security can be defined as “the process of minimizing environmental insecurity, having humans as the major focus on security”. Similarly, Rita (2008) defined environmental security as; “the process of peacefully reducing human vulnerability to human induced environmental degradation by addressing the root causes of environmental degradation and human insecurity”. While Glen et al (1998) defined environmental security as a state of the target group, either individual, collective or national, being systematically protected from environmental risks caused by inappropriate ecological process due to ignorance, accident, mismanagement or design; a melioration of natural resource scarcity; maintenance of a healthy environment; a melioration of environment degradation and prevention of social disorder and conflict (promotion of social stability).

It has been argued that, in developing countries, environmental security has more to do with a household’s ability to meet the demand for environmental resources in production and consumption activities (Muigua, 2015). With this regard, environmental security can be defined as: “protectedness of natural environment and vital interests of citizens, society and the state

from internal and external impacts, adverse processes and trends in development that threaten human health, bio diversity and sustainable functioning of ecosystems and survival of human kind” (AC/UNN millennium project ND). Environmental security can be used to refer to an environmental condition that is able to fully satisfy the needs of the people living around an area, those who rely on it for their survival (Muigua, 2015). AC/UNN millennium project (ND), categorizes environmental security concerns into three:

1. Security of the environment which is a good in itself;
2. Security from environmental crisis that can create social instability and conflict and
3. Security from environmental crisis (e.g. water scarcity, air pollution, etc) that would threaten the material well-being of individuals.

Environment is connected to human security. In this case, according to Khagram et al (2003), environmental threats are linked to their overall impacts on human survival, well-being and productivity- in other words, aspects of human security. Human beings and social relationships become the objects, or preferably subjects, that are to be secured from environmental threats not states (Khagram et al, 2003). Geoffrey et al (ND), further argued that, the environmental threat is an important element of a human security in two ways; first, it can itself be a source of insecurity and secondly, it can exacerbate other real or potential forms of insecurity such as poverty, discrimination, terrorism and the like. According to Khagram et al (2003), human security is tied to people’s access to natural resources and vulnerabilities to environmental change.

It is important to look for the major known examples of environmental problems that can have a huge potential of affecting human security. Among others, the most common examples of environmental problems according to Euro model (ND) are:

- Depletion and contamination of the drinking water resources;
- Reduction in fish stocks in oceans;
- Reduction and loss of bio diversity; like extinction of species, deforestation;
- Degradation of soil and pastures;

- Nutritional and health scarcity;
- Loss of stratospheric ozone/ozone depletion;
- Air pollution (especially in cities);
- Global warming and climate change (oscillations);
- Lack of other natural resources of raw materials and energy.

Such environmental problems directly or indirectly impacts human survival, well-being and dignity- all aspects of human security (Khagram et al 2003). According to Collins (2011), environmental change possess real risk to human security by undermining access to basic environmental assets such as productive soil, clean water and food; by contributing to violation of civil and political rights such as to the means of subsistence and health and by restricting peoples access to the economic and social opportunities they need to develop meaningful lives.

Furthermore, according to euro model (ND), environmental crisis can have adverse effects on: Human livelihood; human health and well-being; eco system (including flora and fauna); agriculture and buildings; climate and atmosphere; use of natural resources; utilization and disposal of residues and wastes; related aspects such as resettlement, archeological sites, land scope, monuments and social consequences as well as relevant up streams, downstream and trans boundary effects.

Environmental insecurity can also pose consequences like poverty, food insecurity, displacement, migration or refugee movements and disruption of the social and political institutions which then contributes to conflict under certain set of unfavorable contextual factors (Iltis and Vest, 1999).

Environmental threats affect a diversity of subjects ranging from individuals, families, communities, social organizations, various identify groups (women, children, ethnic, etc), Diasporas not geographically concentrated, governments and biological species of various kinds (Khagram et al, 2003). However the poor will be hit first and hit hardest (Bizikova, 2011). But, if we protect and enhance the environment, we can have a very positive consequence on our

livelihoods, well-being and opportunities for fulfillment (Khagram et al, 2003). Most importantly a healthy environment has a lot to do with countries sustainable development.

#### **2.4. The interface between environmental security and development**

*“Security is necessary for development and the root causes of insecurity are often developmental” (OECD, 1997).*

In most nations of the world, development is the prime concern of their national policy and strategy. Here, we are referring development as a multidimensional concept which should encompass material, social, environmental, political and cultural components with all of them having a direct impact on the quality of human life and should be sustainable in the sense that emphasizes for demographic processes, considering the use of natural resources and mutual influences between a human and his living environment (euro model, ND). Development in the context of sustainability is characterized by the joint consideration of what is to be sustained and what is to be developed. According to Khagram et al (2003), the component to be developed encompasses, economy (which is prioritized), institutions and organizations and the people, while the most common answer for the question “what is to be sustained?” is life support systems where the life to be supported is first and for most human life.

According to the world commission of the environment and development (1987), sustainable development is defined as development that meets the need of the present as well as of the future generations depends on our ability to balance the three pillars of development namely; economic, social and environment, so that not a single one is neglected. In further elaborating these three pillars of sustainable development, Asnaka and Belay (2013) argue that, the social pillar refers to meeting the basic needs of society whereas the economic component refers to efficiently managing the economy to meet material needs and the environmental component is concerned with the conservation and enhancement of the physical and biological resource base and ecosystems.

Sustainable development pursues different aims such as quality of life, peace, and equitable wealth and a clean and healthy environment (Italian ministry of the environment and territory ND). More specifically socio economic development has a strong linkage with the environment in that development cannot be sustainable without considering its environmental dimensions. It

is now accepted that poverty eradication and a lasting prosperity cannot be achieved if ecosystem services and natural capital are degraded or lost (UNEP, 2013).

More recently, it has been argued that maintaining a healthy environment for the people in order to achieve a sustainable kind of development is much importance. According to Khagram et al (2003) this anthropocentric, utilitarian thinking has emphasized the need to protect essential ecosystem services functions of natural environment. Kariuki (2015) further argued in this regard that, the importance of the environment cannot be over stated since without the environment, there would be no survival of any human, animal or plant life. He added that, a clean and secure environment facilitates the right to life by ensuring that any kind of threats to life are neutralized.

Moreover, a healthy environment is also considered as a foundation for socio economic development. According to UNEP (2013) a healthy environment encourages a type of development that minimizes unintended environmental consequences and strengthens adaptation and resilience to environmental and other changes. A healthy environment can serve as a base for livelihood for communities who earn their income in sectors such as agriculture, fishing, forestry and tourism (Livia 2011). According to Livia (2011), livelihood can be sustainable or not, depending on the way the environment is managed. He further argued, the improvement of environmental conditions has a direct relationship with good health conditions, with the resilience of poor people in the face of environmental risks that threaten their livelihoods.

It is argued that, in the absence of environmental security, proper development cannot be sustainably achieved. The quality of environment and its sustainable condition must be key priorities for development to be sustainable (euro model, ND). In that case, the long term preservation of environments inhabitability or eventually the betterment of its condition will be at the center of attention. Therefore achieving environmental security first, as a human right prerogative will ensure human beings to enjoy access to environmental goods and services and in so doing development can be adequately pursued and responsibly achieved.

#### **2.4.1. The implications of foreign direct investment to environmental security**

Now a day, environment which is a base for livelihood and development, is highly threatened by different factors. Among others, foreign direct investment (FDI) which is a key instrument for development is an increasingly significant contributor of environmental problems (Nick and

Richard, 1999). It is undeniable that, FDI promotes in varying degrees economic development; the expansion of employment opportunities; the improvement of employment quality; and the increase of government revenues (CCICED, 2011). FDI also helps the host country in increasing its total productive capacity, creating spillover effects from the transfer of technology, knowledge and skills in to domestic firms (Nick and Richard, 1999).

However, the growing importance of FDI as an engine for economic growth has caused considerable debate concerning the effects of FDI on the environment (Nick and Richard, 1999). Particularly as FDI often goes directly in to resource extraction, infrastructure and manufacturing operations, it results in adverse impacts on local environment- one of the seven elements that human security incorporates (UNDP, 1994), and one of the main three pillars constituting the concept of sustainable development (Thi Hong, 2015). Such FDI related environmental impacts may force the people who are originally living around the areas at where FDI projects operated, to experience a negative impact on their livelihood (Gorgen et al, 2009).

Moreover (Nick and Richard 1999), argues, even though the world economy is massively fuelled by investment, it often observed paving the chance for greenhouse gas emissions, deforestation, loss of biodiversity and other environmental problems to worsen at a faster rate. Most of FDI inflows which are just profit targeting are not often concerned with the processing damped water, toxic gases, industrial waste etc, that will result in a heavy threat of environmental degradation (Thi Hong, 2015). Industrial So<sub>2</sub>, industrial dust, industrial polluted gas emission, industrial chemical oxygen demand emission, industrial solid wastes and industrial polluted water emissions are also the main FDI related problems up on the environment (Yang and Chen, 2011).

There are selected industrial sectors which are often considered as dirty industries. In this regard Joysri et al (2009) mentioned some of them with the possible environmental threat which they can pose. According to Joysri et al, industries such as cement, fuel, wood and transportation can cause air pollution. Some others like, chemical, paper and pulp industries may cause water pollution and industries like metal may cause both air and water pollution. Additionally, programmes like great water dams, cities, mining of natural resources of raw materials and energy can cause fragmentation of natural habitats, loss of fertile soil; deforestation and soil degradation, pollution of water, air and noise (pollution of environment); local climate change etc (euro model, ND).

Especially in agricultural production sector, ecological sustainability is an important subject in the context of foreign investments. Such investment sectors has an adverse impact on biodiversity, carbon stocks and land, soil and water resources (Matthias et al, 2009), which are great sources of livelihood for majority of rural peoples specially in developing country like Ethiopia.

## **2.5. The status of Chinese FDI with respect to environmental security**

China has become a rising power and a new shaper of international development. It is now massively involved in different FDI projects in different countries throughout the world. Particularly her FDI flow towards Africa is increasing from time to time. According to UNCTAD (2013), China's FDI flow towards Africa increased from just \$ 200 million in 2000 to \$ 2.4 billion in 2011, turning china in to the largest developing country investor in Africa.

Even though Chinese massive investment benefits the host countries in terms of economic growth, her environmental record both at home and in Africa has always been the subject of criticism most of it deserved (Shinn, 2016). According to Ruth Gorden (2012), China has come to Africa with new development modalities, but also with poor environmental record. Ruth gorden (2012), further argued, as countries industrialize, economic growth frequently takes priority over environmental regulation and China's experience is no exception. China has now a huge take for the enormously growing of environmental pressure at national and international level. According to Urban et al (2013), China has contributed to climate change due to its rapidly rising greenhouse gas emissions, its surging energy demand and its growing access to overseas natural resources such as water, energy, forest and land.

China's investment in sub Saharan Africa are concentrated in sectors which are environmentally sensitive (such as oil and gas exploration, mining, hydro power and timber) and in infrastructure projects which help to facilitate environmentally sensitive investments (such as, roads, rail way and transmission lines) (Peter, 2008). The Chinese are also developing their projects in remote, ecologically fragile areas where there is a higher risk of environmental degradation, in areas that have so far been protected as national parks and in countries with weak governance structure (Peter, 2008).

Besides, Chinese environmental legislation with regard to implementation is tends to be weak (Shinn, 2015). According to Shinn (2015), Chinese enterprises appear to be 15 to 20 years behind their western counter parts when it comes to the adoption of modern social and environmental approaches to their outward FDI. Major Chinese investors, financiers and equipment suppliers have so far not adopted the international environmental guideline and standards to address the environmental impacts of their projects (Peter, 2008).

But, the Chinese government has rejected criticism of its environmental record particularly in Africa. According to Ruth (2012), in response to accusations that it was undermining environmental standers, Chinese officials insisted that its foreign relations entail non-interference in the internal affairs of other nations, and just as china does not accept other countries imposing their values, social systems, or ideologies up on china, it will not impose its system upon others. Indeed, china regards international standards as western standards, which they do not consider binging (ibid).

Some other scholars are even arguing that china has determined to become a leader in green technologies to address rising greenhouse gas emission at home and abroad and, as part of its strategy to overtake the west in the nascent technologies that are likely to dominate a more ecologically conscious world (Ruth, 2012). Moreover, China had now a disengaged approach to the environmental practices of Chinese companies operating overseas. There is growing evidence that china is now encouraging its companies as they invest in Africa and elsewhere to follow better environmental practices (Shin, 2015).

Finally, the researcher tries to come up with a conclusion that verifier's China's poor environmental performance. According to the researcher's data, china has got a poor environmental performance in her investment activities particularly at the case where this research is conducted. The detailed manifestations of Chinese poor environmental performance shall be discussed later in chapter four.

## **2.6. Legal and institutional set up to protect the environment in Ethiopia**

Like many other countries in Africa, environmental pollution caused by municipal and industrial wastes has become a point of concern in cities and small towns that host certain types of industries. In order to establish a harmonized and symbiotic relationship between economic growth, environmental protection and the health of the people, the Ethiopian government has given special attention at least in establishing institutions and legal tools. For instance, the issue of the environment is clearly documented in the constitution of the country. Article 43 of the constitution stipulates the right of the people to develop, yet underline the importance of ensuring its sustainability of development activities. Article 44 of the constitution also states the environmental rights and the rights of the citizens to live in a clean and healthy environments and the right to claim appropriate compensation (i.e. monetary or non-monetary), provided that development induced activities cause damages to human health, assets, property or eviction from their residence.

The federal government has also crafted comprehensive sectorial and inter-sectorial environmental policies, institutions that are responsible for the implementation of those policies and legal framework. The main goals of the Environmental Policy as stated in the policy document are to improve and enhance the health and quality of life of all citizens and promote sustainable social and economic development. In order to establish a system that enables coordination but differentiates responsibilities among environmental protection agencies at federal and regional level the federal government enacted a proclamation for the establishment of the Environmental Protection Authority (EPA) through proclamation no. 295/2002.

A critical element in creating a functioning regulatory system is giving a specific agency (or agencies) the power to regulate. In this respect, the Ethiopian government has adopted considerable regulatory frameworks to enhance the implementation of environmental protection from serious degradation and pollutions. Some of the most important ones are the Environmental Impact Assessment Proclamation (Proc. no. 299/2002) and the Environmental Pollution Controls Proclamation (Proc. no. 300/2002). In processing environmental management and pollution control, Proc. no. 299/2002 makes Environmental Impact Assessment (EIA) a mandatory legal

prerequisite for the implementation of major development projects, programs and plans that cause harm to biophysical resources, including human health. Therefore, it is a proactive tool and a backbone to harmonizing and integrating environmental, economic, cultural, and social considerations into a decision making process in a manner that promotes sustainable development. Conversely, the main objective of proc. no. 300/2002 was to address a way out for the management: storage and disposal of pollutants in a desired and more preferred manner so as to eliminate them or when not possible, to mitigate the undesirable effects/consequences of pollutants on social and healthy economic developments.

To conclude the chapter, security threats now are far more numerous, diverse in type, and complex than the (albeit growing) threats to state security. Security can no longer be narrowly defined as the absence of armed conflict, be it between or within states. The concept of security has now been expanded to include economic, health and environmental concerns, as well as the physical security of the individual. Security is not a concern with weapons it is a concern with human life and dignity. The referent of the contemporary security concept has now shifted from the “nation state” to the “people”, from military threats to the protection from the threat of disease, hunger, unemployment, crime, social conflict, political repression and environmental hazards. Therefore, primary emphasis shall be given for the overall wellbeing of individual persons from any kind of security threats including environmental hazards which are now becoming the major sources for human and national security threats.

## **CHAPTER THREE**

### **3. Methodology and Research Design**

#### **3.1. Methodology**

The methodology of this study is qualitative one. The reason behind employing qualitative approach for this study is, it is an appropriate approach for social science researches that seeks to explore, investigate, and understand events, theories and human behaviors (Cresswell, 2003). It is also because of its being an appropriate research approach to answer what, who and why questions (Patton and Cochran, 2002). Therefore, since this thesis needs to explore, investigate and understand the Chinese investment in Ethiopia and its implication to environmental security specifically of the study area, this approach would help the researcher to develop detail about the problem at hand and grasp attitudes and perceptions of participants on it through highly involving role in the actual experience of the participants in a natural setting.

Furthermore in qualitative design the researcher present in person among the people and observe institutions or record behavior, not in the laboratory but in its natural settings. In doing so the interest of the researcher lies in the process, meaning as well as in the insight to be gained through words or illustrations (Bogdan and Taylor, 1975). Basically, qualitative research involves an interpretive, naturalistic approach to its subject matter; it attempts to make sense of or to interpret phenomena in terms of the meaning people bring to them and drawing conclusion through interpreting the data gathered from various sources (Kothari, 2004).

Therefore, the intent of this study is exploring Chinese investment in Ethiopia and its implications to environmental security by taking the case of one of the major Chinese investment projects in Ethiopia. Consequently, qualitative research is employed to properly magnify the attitudes, opinions, experiences and perceptions of the participants about China's FDI and environmental security via deep and conscious role of the researcher.

#### **3.2. Research Design**

This research will be designed based on an exploratory study technique. Exploratory research is typically used when there is little or no previous research or theory on the subject under

investigation (Kothari, 2003). Exploratory studies can in fact be understood as conducted case study research or a prelude for further more in depth inquiry. As such this study, seeks to provide some explored information regarding the implication of China's FDI in Ethiopia to Environmental security in the study area.

### **3.3. Data Collection instruments**

There are a number of different data collection or generating tools that are available and one should be selected which is most likely to meet the objectives of the research and gather the correct type of information (Douglas, 1985). In this thesis, to collect the desired information, the researcher used both primary and secondary sources. Mainly the researcher relied on the primary sources. Primary data are timely and better that gives a realistic view about the study area. Moreover, it asserts the degree of accuracy of the research. Those primary data's which are collected afresh, and for the first time, used us to access original and first-hand information and enable us to address the research questions and objectives was collected through employing in depth interview (semi structured and unstructured) with the local communities residing around EIZ, key informants interview particularly with environmental experts from dukem town administration and from ministry of environment, forest and climate change(MEFCC here after), who are considered to be concerned stakeholders for the issue and have appropriate knowledge to the issue at hand and through personal observation. Among others, in-depth interview and key informants interview constituted major tools of primary data collection. Since there is a limited written culture in Ethiopia specifically in the issue and case of my thesis, primary data (interviews) have a significant role. A part from primary data sources, the researcher was also gathered information from secondary data sources like local written documents, minutes, reports, thesis dissertations and newspapers.

#### **3.3.1. Primary data sources**

*A) In-depth interview:* - Interviews are a type of survey where questions are delivered in face to face encounter by an interviewer and the interviewee and it is a kind of conversation aimed at searching relevant information to particular research topic. Face to face interview helps the researcher to have incisive understanding of the respondents' opinion and has the chance to guide as he wants to tough the intended issues. In depth interviews as Dawson (2007); Kalof et al

(2008), elaborated, allow the researcher to achieve a holistic understanding of the interviewees' point of view on the issue through probing for more detail. Furthermore, as to Paton and Cochran (2002), this type of interview is used to explore in detail to develop deep understanding of the respondents' perception and attitudes about the issues at hand through unstructured one. perpendicular to this rational, I prefer to use in depth interviews so as to get detail understanding about the implications of FDI to environmental security through allowing informants free to talk.

In light of this, the researcher employed in-depth semi structured and unstructured open ended interview with fifteen (15) local residents who are living near around east industry zone, one of the Chinese huge investment projects in Ethiopia with high potential threat to the environment. However, as stated by Kumar (2005) a qualitative research does not attempt to either quantify or determine the sample size. Therefore, the researcher was continued data gathering until the data reaches its saturation level in term of the findings and results investigated. When conducting in-depth interviews, the researcher attempted to balance gender and age. The interviews were conducted by Amharic language.

**B) Key informants interview:** - Besides, for ensuring data validity and facts from different dimensions, the researcher involved key informants who are found concerned and have appropriate knowledge to the issue at hand. For that matter, key informants (two) from Dukem town administration environmental protection department and (one) from MEFCC, was interviewed. As confirmed by Williams (1997), key informants are specialists who can furnish better information on a particular issue.

**C) Personal observation:** - The researcher went to the areas around the project under study and observes the existing situation in the study area (what situations are going on). In this direct observation, the researcher was moving to different villages, which are located near around the investment project under study and observe the implications of that project to the security of the surrounding environment.

### **3.3.2. Secondary data sources**

**A) Document review and analysis:** - Is the other method to collect relevant information's about the case understudy. In this method of data collection, information is collected from books,

journals, news release, magazines, minutes of meetings, letters, thesis dissertations, official reports about the issue and internet sources. These sources of data were selected based on their reliability and suitability to the study undertaken. It is all about assessing published/unpublished data which are previously collected and analyzed by another person (Kothari, 2004). In supplementing the data which are collected directly from the horse's mouth, the researcher analyzed the existing documents in relation with the implications of FDI to environmental security.

### **3.4. Data collection procedures**

Data collection procedures are the necessary steps that the researcher follows in the entire process of data collection. In collecting data, the researcher is expected to follow certain procedures which are essential to receive reliable and valuable information's from the participants of the research. Thus, in order to collect a taught full data for this study, I was following some procedures.

At the onset, the researcher was received letter of entry from the institute for peace and security studies, Addis Ababa University to assure the ethical and legal grounds. Having such letters are fundamental for participants to open their door for cooperation in the entire process of data collection. Through this legal ground, I was came close to research participants and introduce myself, disclose why I am there and identify the objective of the research to them. Having said this, I asked them their assent to be part of the research.

In doing this, rapport with participants was established. Unless rapport with participants is developed the reliability and genuineness of data maybe questioned. Here the participants were also asked their interest to take notes and record voices in time of interview. By and large, in the first contact or stage with participant, rapport formation is mandatory. After having the participant's willingness to take part in this study; I just fix the date, time and place for the next sitting based on their choice and end up the first session of my contact with respective participants. Finally I prepared an interview guides for the next session.

In the next meeting with participants, general information's like age, educational status, and position if necessary was communicated. After having such conversations as an ice break, the central issue for interview was done. In this phase, the researcher was raised questions for

interview and keep recording the information's forwarded from the participants. The researcher was probing participants to speak more on the issues under discussion. This kind of contact with participants was continued and stayed respectfully till the researcher reaches to stage of data saturation.

### **3.5. Selection of participants and sampling technique**

As the fundamental objective of the research is to explore the implications of Chinese investment in Ethiopia to environmental security particularly of the study area, the local communities around the project understudy, environmental experts from Dukem town administration environmental protection department and from the ministry of environment, forest and climate change are found to be appropriate to gather original data for the issue understudy.

To effectively address the research question of this thesis, the researcher employed non-probability sampling technique. According to Phrasisomabatn (2009), non-probability sampling is preferable in qualitative research for selecting the population to the study because the idea behind qualitative research is to purpose fully select participants that will best help the researcher understanding of the problem and the research question. In addition, it is advisable for target fully and quickly reaches to the sample (Singh, 2007). Having this in mind, the researcher was not required using large number of participants as found in quantitative research.

From the perspectives of Kitchie and Lewis (2003), non-probability sampling involves the selection of cases according to reasons other than mathematical probability. So as to identify the participants of this study the researcher was employed both purposive and snowball non-probability sampling. As to purposive sampling, the researcher was selecting those who are most concerned to the issue and have appropriate knowledge about the issue. On the other hand, snowball sampling technique where the researcher contacts a small members of the target population and gets them to introduce him/her to others (Walliman, 2006; Matthews et al. 2010) was also employed to help the researcher find more information from very important individuals about the issue understudy and from those individuals who are highly exposed for environmental threats aroused from the industry zone.

### **3.6. Data Analysis technique**

The data analysis techniques involved were triangulation. Data analysis triangulation is the combination of two or more methods of analyzing data. The benefits of triangulation can include increasing confidence in research data, creating innovative ways of understanding a phenomenon, revealing unique findings, challenging or integrating theories and providing of the problem (Jick, 1979). In qualitative research, using multiple methods of data collection has a long history. Triangulation of data is crucially important in naturalistic studies. No single item of information should ever be given serious consideration unless it can be triangulated (Lincoln and Guba, 1985).

In doing so, by using both primary and secondary sources, the data was analyzed through triangulating the opinion or views of societies and key informants generated in the form of interview, personal observation and document analyses. To triangulate the data the researcher used narrative/descriptive techniques.

Therefore, based on the above justification the researcher tried to carefully analyze the data pertinent to the objectives and stated problems of this thesis.

### **3.7. Ethical considerations**

According to the manual of the American psychological Association (2010), there must be ethical and legal principles that guide all researcher and scholarly works. The key justification for doing so, as provided in the same material are; to ensure the accuracy of scientific knowledge, to protect the rights and welfare of research participants, and to protect the intellectual rights. The researcher takes due care of these issues. Accordingly, ultimate care was taken not to violet any commonly agreed ethical or legal principles.

Whenever the participants was contacted for interview purposes, first they were required giving their informed consent, voluntary participation and confidentiality.

The other ethncal at the same time legal issue is concerning the ideas of other authors. All ideas that are taken from other people or authors were duly notified.

### 3.8. Brief description of east industrial zone



**Main Gate of Eastern Industrial Zone**



**Aerial View of Eastern Industrial Zone**

**Figure 1: East Industrial Zone**

*Source: - east industrial zone, 2018*

Eastern Industrial Zone is Ethiopia's first industrial park. It was initially planned in 2007 and launched in 2009(EIZ, 2018). It is located in Dukem, Oromia regional state around 37 km south east of the capital Addis Ababa(ibid). This industrial zone is found at the area of prospective industrial corridor of the country, which currently all necessary infrastructures are already

established. It is situated on the main highway to Djibouti approximately 900 km from Djibouti port which handles the majority of Ethiopia's over sea trades (ibid). The east industrial zone is developed and owned entirely by a private Chinese investment group known as Jiangsu Yongyuan Investment Corporation (World Bank, (2011), Geiger, Michael and Goh(2012b) and Emeli Rohn, (2013). The original planned area for east industry zone in 2007 was 500 hectares and 233 hectares of land was developed in the first and second phase. At the request of the developer, the government reserved the remaining 267 hectare for future expansion of the zone. There are around 80 Chinese companies that are contracted there. The cost of this industrial park is estimated to reach about \$713 million. The projects included in this industrial zone are manufacturing projects such as the production of shoes, garment, food and electrical steel materials, Textile, Leather, Agro Product Processing, Metallurgy, Construction Materials, Electro Mechanicals and other industries demanded by Ethiopian and African market. Simultaneously, there are warehouses, Logistics, trade, catering, etc. for the service support enterprises (Emilie, 2013).

## **CHAPTER FOUR**

### **4. The Implications of Chinese Investment in Ethiopia (east industrial zone) to Environmental Security**

#### **4.1. Introduction**

Among other things, foreign direct investment is a significant cause for environmental threats (Nick and Richard, 1999). Especially, those investment projects which mainly focus on manufacturing and construction sectors are the major sources of serious environmental related problems (CCLED, 2011). Now a day's most of foreign direct investment activities are conducted in the form of establishing special economic zones. Special economic zones are demarcated geographic areas contained within countries national boundary where the rules of business are different from those that prevail in the national territory (Farole, 2011). These differential rules principally deal with investment conditions, international trade and customs, taxation, and the regulatory environment; where by the zone is given a business environment that is intended to be more liberal from a policy perspective and more effective from an administrative perspective than that of the national territory (Ibid). According to Farole (2011), special economic zones are significant in terms of transforming the host countries economy in a way that is faster or more effective than would be the case without them.

East industrial zone is one of the special economic zones in Ethiopia. It is the mega investment project developed and operated entirely by Chinese investment group known as Jiangsu young investment corporation (Emilie, 2013). The projects included in this industrial zone are manufacturing projects such as textile, leather, agro product processing, cement, shoes, garment, food, electrical steel materials, metallurgy, construction materials, electro mechanics and other industrial products demanded by Ethiopian and African Market (Ibid).

However, according to Ila (2013), such special economic zones have always been associated with environmental challenges that need a particular attention. Especially peoples living nearest to the industrial sites are at high risk of exposure to hazardous industrial by products such as dust contacts with allergic substances and extreme noise pollution, air and water pollution, all of which pose serious health risks (UNESCO, 2012). Moreover, greenhouse gas emissions,

deforestation and loss of bio diversity are significant environmental impacts of industrial activities (Ibid).

In light of this, this chapter more of examines the issue of environmental security in relation with one of the Chinese mega investment projects in Ethiopia, East Industrial Zone. The chapter presents the findings acquired from the primary and secondary sources of data. It critically scrutinizes the following research objectives: the types of environmental threats posed by the industry zone with their effects on the surrounding residents; the efforts that are being done to safeguard the local environment from potential dangers of the industry zone and the roles of concerned bodies in the management and monitoring of the quality of local environment.

The first section of the chapter deals with the major environmental threats in connection with the industrial zone and their effects on the local communities who are living near around the zone. In this aspect, a number of environmental threats are identified by the local residents, environmental experts and personal observations. The characteristics and effects of environmental threats observed in the study area are discussed as deeply as possible. The second section focuses mainly on the efforts that are being done to safeguard the local environment from potential dangers of the industry zone. In this aspect, efforts particularly on areas like public consultations and trainings about issues related with the local environment and the industry zone, the zones adherence of environmental guidelines and the environmental protection activities undertaken in the study area are critically assessed. The third section of this chapter discusses the roles of concerned environmental experts that they play in the management and monitoring of the quality of local environment so as to minimize the potential threats posed from the industry zone.

#### **4.2. Major environmental threats in the study area and their impacts on the local community**

This section of the paper tries to identify the major environmental threats that are observed in the study area mainly because of the zone. According to the information obtained during the assessment, the people in the study area are exposed to multitudes of environmental threats. Among others, the following are particularly identified by the local residents, concerned environmental experts and the researcher's field observation.

### *A. Disposal of industrial wastes*

Industrial wastes can be characterized as solid or liquid based on their physical character, or as hazardous or nonhazardous based on the toxicity level of the wastes. Although literature suggests that the majority of industrial waste generated in developing countries is non-hazardous, hazardous wastes still represents serious environmental and health threats to these countries (Polprasert and liyonage, 1996). More often, industrial wastes in most developing countries are untreated or insufficiently treated as the business owners intended to avoid the huge costs of establishing and running waste treatment plants. Therefore, they usually follow the end of the pipe strategy while also depositing wastes in unsafe ways such as illegal dumping, open dumping or discharge to river or streams. Additionally, hazardous and nonhazardous wastes are often not segregated and are mixed together with domestic waste at disposal sites (Mato and Kaseva, 1999).

In the case of east industrial zone, the study confirmed that effluent and non-effluent wastes are massively released in to the open surface and exposing the local residents for different kinds of serious environmental related problems. Most of the households who are living around the zone are mainly rely on surface water from nearby river or streams.

According to the information obtained from the local residents, local environmental protection experts and field observations, polluted liquids which are released from the zone are directly discharged in to the open landscape and overflow in to the surrounding residential areas. Thus, in the face of very limited potable water supplies and open surface discharging of industrial waste water, the likelihood of local people being exposed to effluents is high.

According to opinions from local residents, different kinds of ailments are common for them following their exposure to industrial effluents. The incidence of health problems are mostly related to skin allergies and stomachache. One of the local residents called Ato Teka explained the health effects of polluted water in the following way:

*“...At the very beginning no one realized that sicknesses such as skin disease (allergy) and other internal (stomach) health problems were related to the exposure to polluted water in the stream that we used to rely on for many years in the past. We were not given any orientation or warning against the potential*

*health risks of polluted water. Those who walk on bare foot through the flow lines of effluents or polluted streams are exposed to skin allergy and internal disease. Besides, most of our children who look after the livestock in the open field walk on barefoot through polluted water; some of them who took bath in the polluted water faced health problems, skin allergy in particular. As time goes on, the local people began distancing themselves from all the surface water except potable or pond water.” (Interview with Teka Dechasa, 29/05/2018, Dukem Koticha)*

The released effluent from the industries in the zone has also exposed them for many other health problems. One of the victims called Lebelay said in this aspect:

*“...The effluent has a bad smell, especially for those whose farming land is near by the industry zone and those whose walk way is through it. I personally experienced recurrent respiration related diseases because of the bad smell of the released effluents from the zone. Especially, common cold is common for many of us who have a contact with the effluent by one or another means.” (Interview with Lebelay Gumecha, 29/05/2018, Dukem Koticha )*

Another environmental threat associated with untreated waste is land pollution. The released effluent is coming to the local farmer’s agricultural fields and affecting their crops. Cropping is the main base of livelihood for the local communities and unless they could produce a sufficient amount of crops, their livelihood may become highly troubled. For crops to grow well and give a sufficient product, there need to be fertile and healthy land up on which the cropping is conducted. But, in addition to the smallness of the farmland they have, it is now becoming very difficult to harvest a sufficient and qualified crop on that polluted piece of land. According to the local residents’ opinion, the productivity level of their agricultural field up on which the untreated waste flows over is decreasing from year to year. In these regard, Ato Nigusu, who has a farmland near to the zone said:

*“...I have a plot of farm land near to the zone which I use it for crop production purpose. On that farmland, effluent released from the industries in the zone is frequently flown over. Because of this, the crop product that I could earn from*

*the land is highly diminished. I always plough and sow it with different kinds of seeds by employing mine and my family's money, time and energy. We also obliged to utilize our money, time and energy for the growing process of the crop, so that we could finally earn a good product. But it cannot even grow well. It gets yellow, thin and short. Our effort to make the crops grow well is not always bringing us a satisfactory result. Finally, we are obliged to collect less amount and unqualified product. Imagine what amount of cost I employ on the land. But it gives me nothing surplus; rather it exposes me for wastage of time, money and energy. I have no any sort of understanding about alternative means of livelihood. Therefore, since farming is the only option we have in hand, we keep cropping with those problems.” (Interview with Nigusu Lema, 30/05/ 2018, Dukem Koticha)*

The released industrial effluent is also claimed for being a cause for health problems on livestock. Livestock is a major source of income for many households in the study area. Livestock rearing depends mainly on the availability of grazing lands and safe drinking water. In the absence of grazing lands and safe drinking water, livestock rearing is becoming very difficult. Specially, areas around industrial parks may not be safe for livestock rearing given the fact that effluents and other wastes which are released from industries are very likely to pollute the grazing land and the drinking water for livestock.

In areas around Dukem Koticha (the place at where EIZ locates), livestock often drink a stagnant water around the fence of the zone that most possibly is contaminated with bad effluents. Therefore, when livestock drink the contaminated water, they easily get sick and even die. Ato Nigusu who is one of the victims said that:

*“...Because of the less availability of pure tap of water for our livestock to drink, we are forced to let them drink the water found around the zone that most possibly is contaminated and dirty. Because of this, our livestock are facing different health problems. They get thin and weak from time to time and they also frequently get sick and even die. I lost my cow by death after getting sick of drinking a toxic effluent released from the zone.” (Interview with Nigusu Lema, 30/05/2018, Dukem Koticha)*

The value of livestock for the livelihood of households in the study area is immense. Therefore, their long lasting sickness or even death can easily disrupt the economic situation of a household.

I have asked an environmental protection expert in Dukem town administration about whether what have been said by those local residents is true or not. The expert called Ato Abraham confirmed me that environmental problems associated with industrial wastes are not strange for the communities living around the park. He said:

*“...In EIZ, each factory does not have their own treatment plant, rather there is one common effluent treatment plant to treat all the sewages and wastes released from each factory. But, the capacity of this common treatment plant is very low and below the expected standards according to our critical observation and judgment. This added with the zone’s inappropriate monitoring procedures, had led untreated effluents to be released/ discharged in to the local residents’ land which affects them in many aspects like by polluting their water and land and finally exposing them for environmental pollution related health and economic problems. So, the problems that are raised by the local residents are true.” (Interview with Abraham Birhanu, 13/10/218, Dukem Town)*



**Figure 2: Livestock Grazing and Drinking On the Land Covered With Effluents**

*Source: - Pictures taken during field observation, 2018*

In general, untreated effluents which are released from EIZ are still major environmental threats that have negative effects on the overall lives of residents around the industrial zone. It affects their health, economy, livestock etc.

### ***B. Air pollution***

Air pollution is of great immediate concern than any other aspects of pollution. Human beings can live without food and water for days together but for only five minutes without air. The major sources of air pollution are industrial activities. Gaseous and nongaseous substances emitted from various industries may render air pollution through mixing with it. The emission of various gases such as, sulfur dioxide, carbon mono oxide, Nitrogen oxide, particulate matters, chlorophloro Carbone, ammonia, flyash particles, smoke, dust and toxic materials cause serious problems surrounding the industrial environment.

In the study area, environmental problems like air pollution are quit common mainly because of EIZ. According to the local residents' opinion, the smokes, dusts and other gaseous and non-gaseous substance which are emitted from the industries in the zone are highly polluting the local atmosphere. These emitted substances from the zone have a high potential of affecting the local communities' life in many aspects. One of the local residents called Lebelay said that;

*“...The emitted smoke has brought us different health problems on our visual and respiratory system. In addition to this, the local temperature is increasing from time to time. The current temperature of Dukem Kotticha is completely different from the previous times. Now a days, it gets very high. This is I think associated with the gaseous substances emitted from the industries in the zone. I said this because there was no such kind of high temperature in our surrounding before the establishment of the zone.” (Interview with Lebelay Gumecha, 29/05/2018, Dukem Koticha)*

Another local resident named Ato Abera added that:

*“...Even though the smoke and dusts emitted from the zone were said to be grounded under the earth, it is not applied in practice. The smokes and dusts are massively emitted in to the air surface with negligence sense. The emitted dust and smoke is exposing us for different kinds of health problems like,*

*common cold, sight problem, and other respiratory related problems. The air is now becoming heavy for us to breathe well.” (Interview with Abera Mumecha, 29/05/2018, Dukem koticha)*

Another manifestation of air pollution in the study area as mentioned by the local residents’ is the drying of plants. It is now observed that some plants which are planted near around the zone are getting dry and unable to grow well from time to time. The local residents associate this fact with the pollution of the air due to the zone. One of the victims in this aspect called Ato Teka said that:

*“...I have eucalyptus tree near to the zone which covers ¼ hectare. The reason why I plant the eucalyptus tree is to constantly benefit me and my family by selling it in every three years gap without employing much cost on it. But now, it starts drying because of the bad air condition associated with the industrial zone. I am even not benefited for one round. This is really a big loss for me and my family.” (Interview with Teka Dechasa, 29/05/2018, Dukem koticha)*



**Figure 3: A Dried Eucalyptus Tree Near East Industry Zone**

*Source: - Pictures taken during field observation, 2018*

The air pollution because of the industrial zone is also affecting the community by deteriorating the working conditions. There are no safe working conditions for people whose working place is near to the zone. Whenever the air is polluted, it is becoming very difficult to keep working with that condition. The opinion of one local resident called Ato Nigusu consolidates this fact as follows:

*“...It stifles us when we try to do some farming and other activities near to the zone. I have a farming land near to the zone. Whenever I go there to do farming and other related activities, I can’t stay for an hour. It is difficult to breathe in and out when a high amount of smoke and dusts emitted in to the surrounding air surface. Generally, I and other people like me who own a farming land near to the zone cannot work safe especially while factories in the zone are at operation.” (Interview with Nigusu lema, 30/05/2018, Dukem koticha)*

Therefore, we can say that air pollution is a quiet common environmental threat in the study area that needs high emphasis from the zone and any of the concerned environmental protection bodies. The condition affects the life of the people who are living near the vicinity of the industrial zone. Unless the anti-air pollution activities are done, conditions are going to be more and more worsen.

### ***C. Noise pollution***

Noise pollution is undesired sound that is disruptive or dangerous and can cause harm to life, nature and property. It is often said that noise differs from other forms of pollution in that, unlike atmospheric pollutants for example, once abated; noise leaves no residual accumulation in the environment or the human body (Rahman, 2016).

Now a day, noise problem has been increasing throughout the world due to the increasing expansion of industries, increasing number of vehicles, expansion of urbanization, recreational centers etc. Among others, industrial noise is one of the most wide spread source of noise pollution throughout the world. Especially at places where there is a high concentration of industries, the likelihood of industrial noise is very high.

The result of exposure of noise can cause reduction in output of work, Lack of efficiency, impairment of hearing and feeling of annoyance etc. (Ali Abbasi et al, 2009). Studies on human working in noisy environments indicates that heart disease, accidents at work place, Irritation, speech interference, sleep and concentration interference, headache problems, respiratory problems, nervous problems, stress, high blood pressure, anger and frustration, lower resistance to disease and infection, circulatory problems, ulcers, asthma, colitis, headaches, gastro intestinal disorders and many other physiological and psychological problems have been linked directly to noise (Rahamn, 2016).

Since there is a high concentration of industries in the study area, noise pollution is a day to day problem experienced by residents around those industries. Especially, residents who are living near around EIZ are severely exposed to such problems as to their opinion.

The industries in the zone make a very high noise that negatively affects the lives of residents living near around it. Some of the victims are giving their opinion as follows.

The noise which is coming out of the zone is posing a serious headache upon the people living around it. One of the local villagers called Ato Teka has reflected his opinion as:

*“...I personally got a serious headache immediately when I heard a noise made by the industries in the zone. I can't even get well soon by taking a pain killer unless I get myself away from my village. Imagine in what a difficult situation I am living.” (Interview with Teka Dechasa, 29/05/2018, Dukem koticha)*

Ato Teka additionally mentioned that sleep interference is also another serious problem in association with the noise of industries. He said:

*“...Sleeping while industries in the zone are at operation is very difficult because of the high noise they emit. As we know, we human beings desire a quiet time and condition to sleep safe. But in our village, these conditions are unthinkable. It is only when those firms/factories / are stop working that we could get a safe sleeping time which is a rare case.” (Interview with Teka Dechasa, 29/05/2018, Dukem koticha)*

This problem is further emphasized by a man called Ato Abebe. He said:

*“...We are neither able to sleep safe nor well utilizing our time for other activities. We are obliged to stay awake until the firms stop working for a break time. The worst thing is we even are not able to actively and safely do some home activities within that time gap because of the noises disturbance.”*  
(Interview with Abebe Abera, 08/06/2018, Dukem koticha)

Communication interference is also the major problem faced by the residents in the study area in connected with the noise of industries in the zone. It is very difficult to communicate one another for inhabitants near around the zone. Transferring and receiving a message orally is becoming very difficult because of the noise made by the industries.

A man called Ato Sahilmichael confirmed this fact saying:

*“...If I want to communicate with someone who is a bit far from me, it is very difficult for each of us to hear one another. I cannot even hear what my wife and children talk to me living together in the same house. Look! We members of families who are living in one house cannot even hear one another because of the noise made by the industries in the zone.”* (Interview with Sahilemichael Arsed, 29/05/2018, Dukem koticha)

Another man called Ato Dechasa said:

*“...No message can be transferred orally from one to another when industries are making a noise. This has its own negative effect. Look for example, if something dangerous is happened against some body and if that person needs a help, no one can hear and reach him on time through oral call because of the noises interference.”* (Interview with Dechasa Tumse, 08/06/2018, Dukem koticha)

The noise is also adversely affects the performance of any person during his working, problem solving, reading or doing any sort of work. According to the opinion of the people who are living near around the zone, the noise which is emitted from the industry zone is hindering them from accomplishing any sort of work. It makes them not concerted to things, tired, sick etc. Because of such problems, people living or working near around the zone are troubled to effectively perform

their activities. Ato Nigusu is a farmer who has a farming land immediately near to the zone. He articulated the problem as follows:

*“...Conditions are not safe to keep working there while a huge noise is emitted from the zone, because we get a serious headache, easily tired and other unsafe working conditions. We are not even hearing one another. These bad conditions because of the noise, are forcing us to seize working before completing what we were planning to do. And this finally brought a negative consequence on the amount of product that we are going to collect at the last. Here, you can see that the noise affects us in two aspects, i.e. by deteriorating our health and by decreasing our working performance.” (Interview with Nigusu Tumse, 06/06/2018, Dukem koticha)*

Reading, writing and other activities which need a high concentration, are difficult to be done in areas near to the zone mainly because of the noise emitted from it. In this regard, Ato Nigusu added:

*“...My children who are living with me are students. As they are students, they need to read and write something. But, I saw them troubled to do so because, it is very difficult to read and write with concentration in the presence of that noise. This is also the case for other students whose living house is near around to the zone.” (Interview with Nigusu Tumse, 06/06/2018, Dukem koticha)*

When I was there for conducting interview and field observation purpose, I experienced the noise pollution that the zone poses up on the community living near around it. I realized that it was very difficult to stay for a while near to the zone even without doing something. I immediately felt a bad headache when the firms in the zone start emitting a noise.

Therefore, according to the study people who are living near around the zone are highly exposed for high level of noise emitted from the industries in the zone. The noise seems to become an indispensable part of the life of people live near around EIZ. Noise pollution is a neglected issue in the study area. But it is causing severe health hazards for the people who are living near the vicinity of the zone. It is imperative for the decision makers, leaders, planners, engineers and concerned persons to keep the noise level within the acceptable limits.

***D. problems associated with poor drainage system***

Drainage systems are constructed to ensure that waste water and sewage is transported neatly to disposal points there by keeping the environment well drained and free of waste. Drainage systems need to be sustainable in that, it should intend to regulate surface water runoff close to where it falls and simulate natural drainages as closely as possible. Sustainable drainage system provides opportunities to reduce the causes and impacts of flooding, remove pollutants and help to enhance water quality.

In the study area, there is a great need for a proper management of sustainable drainage systems in order to help manage surface water runoff. There are no well-prepared ditches that could use for the free flow of floods, especially in areas near around to the zone. It is common to see streets and farmlands covered with stagnant water after a short period of rain fall. The stagnation of water on the streets and farmlands is causing the local community for different problems such as blockage of local walk ways, destruction of crops and other plants, damage of properties and for different water borne diseases.



**Figure 4: A Stagnant Water/Flood Near Around East Industrial Zone**

Source: - pictures taken during field observation, 2018

Specially, problems associated with the blockage of local walk ways are the most serious ones which perhaps shared by all the residents near around to the zone. Whenever it rains in every summer, areas around the zone are filled with flood. Since there are no sufficient and appropriate ditches for the flood to flow well, the flood is ponded over streets and farming lands. With such situations, it is very difficult for the local communities to safely get in and out to their home and working places. Walking here and there for different purpose is very difficult in walk ways covered with water/flood/. A man called Sahilemichael said on this regarded that:

*“...The flood which comes from other areas is unable to flow by this area. Because all the constructions in the zone are hindering it and alternative pipes/ditches/are not prepared. Sometimes the flood is even reached to our home. That makes me and my family not to freely come in and out to our home and our working places and the same is true for other people who are living particularly in villages found immediately near to the zone.” (Interview with Sahilemichael Arsed, 29/05/2018, Dukem koticha)*

Sahilemichael added that:

*“...Here around, there was a bridge to cross and get into that area (a piece of farming and grazing land found immediately near to the zone away from a little stream). But now, there is no way for us to pass into that area of land because it is blocked with stagnant water. The problem is occurred in every summer since the zone’s establishment.” (Interview with Sahilemichael Arsed, 29/05/2018, Dukem koticha)*

The covering of the local walk ways with flood has been creating a very serious problem for almost all the residents of the village (Dukem koticha) that hinders them not to walk safe here and there. Especially those babies, weak and old persons who are relatively less capable of facing road difficulties, are troubled in this regard. Ato Lebely said in this regard:

*“...Every summer, this place (the place located immediately near to the zone’s south eastern direction) is always covered with flood. We can’t pass through*

*this road (the road ten meters east to the zone). It is always (especially in every summer), filled with flood. Although the zone tries to reopen and cleaned the existing ditch and improvements were observed, it was again filled with alluvial and other different deposited materials. This makes the flood not able to flow but ponded over the streets and farming lands. It hinders our day today movements, and sometimes the ponded water even deluge our house in times when strong rain rains.” (Interview with Lebelay Gumecha, 29/05/2018, Dukem koticha)*

According to the local people opinion the other quiet serious problem in connection with poor drainage system of the zone is the destruction of crops and other plants. There are farming lands immediately near around to the zone which are used for crop production and plantation. But, it has been very difficult to do so due to the fact that water is ponded over those pieces of lands following the absence of appropriate and sufficient drainage system. On this regard a farmer called Ato Nigusu said:

*“...I have a farm land immediately near to eastern part of the zone. That piece of land of mine is filled with flood water whenever summer comes. Because of this, it is very difficult to plough and sow it on time. It takes too much time for the land to get dried and ready for cultivation. Even if it gets dried and ready for cultivation, it may not be productive enough because it is already eroded and lost its fertility by the flood.” (Interview with Nigusu Lema, 30/05/2018, Dukem koticha)*

Another farmer called Ato Tadesse said:

*“...By every summer, a lot of farmlands near to the zone which are already sowed and covered with different kinds of crops are always filled with flood. This is due to the fact that the flood is unable to flow to any direction because of the hindrance of the fence and constructed sheds in the zone. This condition narrows the chance of sowed crops to grow well. But, if there had been appropriate and sufficient drainage system, there wouldn't have been such problems.” (Interview with Tadesse Mumecha, 08/06/2018 Dukem koticha)*



**Figure 5: A Crop Near Around East Industrial Zone Destroyed By Stagnant Water**

*Source: - pictures taken during field observation, 2018*

Therefore, there need to have effective drainage systems and strive towards ensuring free flow of water during and after heavy down pours.

The local environmental protection experts in Dukem town administration who are the immediate concerned bodies to look for environmental situations of the study area confirmed me that all of these environmental problems identified by the local residents are really the case in the study area. Ato Abraham from the town administration environmental protection department said that:

*“...All that are identified by the local residents as an environmental threats posed particularly from east industrial zone are the common cases that we usually reported from the host community. Even though our department is full of limitations to conduct an appropriate monitoring and regulatory activities, we are trying our best to do what is expected from us using the available human, material and financial resources at hand. From the assessments we made, we have confirmed that the above mentioned environmental threats are exactly the*

*cases in the area. Therefore, our office fully supports all the concerns of the local residents.” (Interview with Abraham Birhanu, 13/10/2018, Dkem town)*

In general, east industrial zone has been posing different kinds of environmental threats upon residents who are living near around it. Among the major environmental threats which are aroused from the zone, the following are identified by the local residents as being very common.

1. Disposal of industrial wastes (both liquid and solid)
2. Air pollution
3. Noise population
4. Problems associated with poor drainage systems

These grand manifestations of environmental threats which are posed by the industrial zone have brought plenty of negative impacts up on the lives of the near residents. It is clear that living in a polluted environment has caused people for a number of socio-economic, health and psychological impacts. More specifically, socio- economic development which is major part of human security has become strongly affected following the appearance of such environmental threats.

The same is true in the study area. The local residents identified a number of serious socio-economic, health, psychological and other related challenges that they are experiencing due to the zones damage (impact) up on the local environmental. Among others, in health and psychological aspects:

- ✚ Serious headache
- ✚ Common cold
- ✚ Allergic problems
- ✚ Decreasing the capacity of hearing
- ✚ Different water borne diseases
- ✚ Different respiratory diseases
- ✚ Stress and annoyance
- ✚ Skin disease/ allergy
- ✚ Irritation
- ✚ High blood pressure

- ✚ Health problems on live stokes etc. were mentioned

Socio economic impacts which are common in the study area mainly because of environmental problems posed by the zone include;

- ✓ Decreasing of crop production because of pollution of land and water
- ✓ Inability of plants and trees to grow well and even getting dry.
- ✓ Decreasing of livestock production because of lack of sufficient and safe grazing land and other necessary conditions.
- ✓ Economic cost for human and livestock health care and treatment mainly due to problems associated with environmental threats.
- ✓ Economic cost for purchasing food for animals, since there is no sufficient and safe grazing land.
- ✓ Blockages of local walk ways etc. were just mentioned.
- ✓ Drying of plants
- ✓ Deteriorating working conditions
- ✓ Communication interference
- ✓ Sleep and concentration interference
- ✓ Decreasing individuals working performance
- ✓ Damage of different properties e.t.c.

The environmental threats associated with EIZ may not be confined only to the above mentioned ones. Those are only to the understanding of the residents near the vicinity of the zone. The researcher believes that if deep and further studies supported with laboratory equipments are conducted, there might possibly be further environmental problems which are not easily understood by the local residents.

#### **4.3. THE EFFORTS TO SAFEGUARD THE LOCAL ENVIRONMENT FROM POTENTIAL DANGERS OF EAST INDUSTRY ZONE**

According to UNDP (1994) human security is not encompass only the achievement of minimal level of material needs but also the absence of sever threats to them of an economic or political kind: job security, income security, health security, security from crime and environmental security. UNDP (1994) considered environmental security as one of the basic elements of human

security. Therefore, any threat up on the environment has a direct impact on human survival, wellbeing and productivity- in other words, aspects of human security (Khagram et al, 2003). Peoples access to natural resources and vulnerabilities to environmental change are directly tied to human security (Ibid). The above argument is exactly the case in the area at which this study is conducted. All the data collected show that, people living near around east industrial zone are exposed for multitudes of security threats as clearly discussed in the previous section of the chapter.

But, environmental security which is the most important part of human security is often threatened by investment activities from which industrial activities are the major ones. According to CCID (2011), the large scale influx of foreign direct investment in sectors such as manufacturing and infrastructure constructions shall heighten environmental pressures on the host country. Nick and Richard (1999) further argued that the impacts of foreign direct investments particularly manufacturing industries on host communities and countries is often mixed in environmentally sensitive sectors.

Therefore, to ensure the overall security of peoples, investment activities which are claimed to be a significant contributor of environmental problems shall always keep operating friendly with the environment. Particularly industrial zones at which there exist different kinds of industrial activities with a high potential of negatively affecting the environment need to be cautious on this regard.

An industrial park which is friendly with the environment and has a positive impact up on the people's life is known as Eco- industrial park. An eco-industrial park is a community of manufacturing and service businesses seeking enhanced environmental and economic performance through collaboration in managing environmental and resource issues including energy, water and materials (Michelle, 2001). The goal of an eco- industrial park is to improve economic performance of the participating companies while minimizing their environmental impacts (Ibid). Components of this approach include, green design of park infrastructure and plants; cleaner production; pollution prevention; energy efficiency and intercompany partnering (Ernest A, 2001). An eco- industrial park also seeks benefits for neighboring communities to assure that the net impact of its development is positive (Ibid). But, when we try to verify this

internationally agreeable fact in the case of EIZ, the data obtained shows EIZ cannot be labeled as an eco-industrial park. The detail will be presented later in this section.

Since the focus of this study is environmental security, emphasis shall be given for one of the key components of eco- industrial park which is environmental protection. For one industrial park to be an eco- friendly, it needs to reduce environmental impact or ecological foot print through substitution of toxic materials, absorption of carbon dioxide, material exchanges and integrated treatment of wastes (Saikku, 2006). Most importantly, the industrial parks should continuously improve the environmental performance of the individual business and the community as a whole (Ibid).

East industrial zone is no exception. It needs to take a great care for the local environment in the process. It should consider environmental protection activities so that, it could not negatively but positively affect the overall lives of the people living around. From such perspective, this study has made an assessment of the efforts that are being done to safeguard the environment in the study area particularly on the following three aspects.

#### *A. Community trainings and consultations*

Consultations with local communities are crucial in raising community awareness for development activities. This is specially the case for the establishment of large scale industries with potential environmental impacts in rural areas. People (especially those in rural areas) whose environmental awareness is relatively low, but residing near to industrial activities need to avail for a timely and sufficient trainings and consultations concerning the potential dangers of industrial activities up on the environment and the possible ways to keep their local environment safe from those potential dangers. According to proclamation No 300/2002, the environmental awareness of local communities should be raised through community trainings and/ or consultations that will enable them to protect themselves as well as their property against the danger posed by toxic substances. The consultation should involve mainly the affected and those found within the close vicinity of the projects site. Against this backdrop, the question was raised to the interviewees if they ever received any form of training or consultations by local, regional or federal government experts or by the people from the industry zone on how to protect their

household members and/ or their livestock against the discharged effluents and other toxic substances released from the industry zone.

According to the information obtained from interviewees, consultations and trainings on industrial pollutions did not given for the people living near to the zone though they are the direct victims of the potential problems. The information obtained during this assessment reveals that both the government and the investors are not willing and committed to do so. They both are neglecting the issue. The government seems focusing mainly on promoting industrialization via attracting foreign investors paying any cost including environmental security. And the investors are running for their profits by minimizing any kind of costs including the cost of the environment. During the interview with the local communities, I have been informed that most of the people residing around the industry zone are even don't know well who the investors are. Almost all things were done between government officials and those of Chinese investors.

This shows how much the local communities are neglected from their rights and benefits, especially concerning their safety from environmental dangers. One of the local residents whose name is Ato Girma said:

*“...Leave aside the consultations and trainings; we are not even provided with timely and sufficient solutions for the existed environmental problems because of the industrial activities in the zone. Because of this, we are experiencing diversified environmental problems since the zone's establishment till now.”*  
(Interview with Girma Garri, 06/06/2018, Dukem Koticha)

Another local resident called Ato Alemayehu said:

*“...Following high level and recurrent environmental problems, some of the local residents including me are trying our best to come up with our own pollution controlling mechanisms. But we are not effective owing to the high and complex nature of the problems and lack of appropriate knowledge concerning pollution controlling mechanisms. This gap could be filled by providing us with consultations and trainings about pollution controlling and preventing mechanisms that could help us at least to minimize the possibility of high level environmental threats posed by the industrial zone. But, there were*

*no such kinds of occasions starting from the site selection till now.” (Interview with Alemayehu Edie, 05/06/2018, Dukem Koticha)*

I also raised a question for two of the three environmental protection experts assigned in Dukem town administration environment protection department to verify whether or not any of the responsible offices or the zone itself had organized community awareness creation, training or consultation on the dangers of certain type of industrial wastes and about the possible mechanisms to protect environmental threats. The responses of both experts were “NO”, not at all. According to the explanation of these interviewees, organizing such issues are not considered as relevant for the fact that some line officials consider it “waking up the communities against the investors”

The purpose of limiting community based awareness creation on the danger of exposure to industrial wastes, is likely to avoid any action that might discourage investors which covertly means protecting them from installing waste storage and disposal/ treatment plants that incur unnecessary costs on them or causes them abandon their project .

On this basis, the appointment of the environmental protection experts is on the level of a political commitment and not by holding the required minimum knowledge and skills on the issue. For instance, of the three staff members assigned to the department of environmental unit as an environmental expert in Dukem town administration, two of them studied an academic field (law, and mathematics) that have nothing to do with the technical aspects of industry, industrial wastes or the basic knowhow on pollutants and their characteristics. According Ato Abraham, an environmental protection expert in Dukem town administration:

*“...Higher government officials are not willing to allow any of us to do any action or raise any idea (including those outlined in the legal tools) that would ‘disappoint’ investors. Their activities and the government policy are to attract as many investors as they can”. (Interview with Abraham Berhanu,13/10/2018, Dukem town)*

But, literatures said that an investment without considering the environment doesn't bring sustainable development and is always against human and national security. Kariuki(2015) argues that the importance of environment cannot be overstated since without the environment,

there would be no survival of any human, animal and plant life. Kariuki(2015) further argues that the environment should be clean and secure at any situation so that the right to life shall be facilitated by ensuring that any kind of threats to life are neutralized. Moreover, in the absence of environmental security, proper development cannot be sustainably achieved. The quality of environment and its sustainable condition must be key priorities for development to be sustainable. Therefore, the researcher suggests that those higher government officials need to give priorities for any kinds of environmental protection activities in the study area including allowing environmental protection experts to make the necessary environmental legal procedures to be strictly implemented.

In general, there exists a big gap concerning community trainings and consultations aiming to aware the local community about environmental protection and conservation issues. This situation could create a favorable condition in widening the possibility of environmental problems on the local communities whose awareness about environmental security is relatively low and are in the faces of the wide spread discharge of effluents and other pollutant substances from the industrial zone in to the open environment in the area. This negatively contributes for the creation and exacerbation of diversified environment problems in the study area.

### ***B. Adherence of environmental protection guidelines***

To protect the environment from damage due to various investment activities, the Ethiopian ministry of environment, forest and climate change (MEFCC) has prepared guidelines for the preparation of environmental management plan. It is assumed that strictly following the guidelines is an essential component for keeping the investment projects environmentally friendly. However, those guidelines might be violated by investment projects and ultimately brought a threat up on the environment. In this backdrop, an attempt has been made to see whether east industrial zone is following such guidelines to safeguard the environment.

Since environmental standards are set by MEFCC, I firstly went to the ministry and brought the following information concerning EIZs status from adherence of environmental protection guidelines. The information obtained from the ministry reveals that EIZ is not following the guidelines. Higher environmental protection expert from the ministry called Wondimagen said:

*“...We do inspections up on big investment projects including EIZ in every quarter of a year. In the case of EIZ, we found it below the standards in all environmental auditing we conducted up on it. The failure of the zone from meeting the standards can even let it disqualified or closed.” (Interview with Wondimagegn Zemedkun, 07/10/2018, Addis Ababa)*

The ministry argued that the existing bad environmental situations in the study area are the manifestations of the failure of the zone from meeting the standards.

Moreover, according to the assessment of MEFCC, there appears no independent environmental protection unit within the zone having skilled and independent environmental experts that genuinely follow-up and regulate the zones activity with respect to environmental protection guidelines. The absence of such independent environmental protection unit plays a significant role for the zone not to follow the guideline and finally to pose a threat up on the environment.

When MEFCC reason out why the zone is not following the standard, it identifies two bodies as primarily responsible i.e. the investors and the government. According to the ministry, the zone itself is a prime responsible factor for the violation of the standards. Most factories within the zone are looking for and emphasizing on maximizing their profits using any means available. For that matter, they push the environmental protection activities aside from their prime concern. Besides, the investor’s lack of appropriate knowledge to strictly follow the standards is also mentioned by MEFCC as the gap observed from the zone which lets them not to follow the environmental standards.

When we come to the 2<sup>nd</sup> responsible agent, we found higher government officials with the attitude “prior to industrialization.” As to MEFCC, those higher government officials create difficulties like;

1. They are not voluntary to hire well skilled (aware) environmental protection experts.
2. They do not allow the existing few experts to freely and independently take the necessary measurements up on the companies found pollutant mainly owing not to discourage them.

But, according to MEFCC, this attitude of officials by itself is problematic because,

*“Encouraging investment activities which are contrary to the environment results multitudes of economic, social, psychological and health crisis. Therefore, those government bodies need to revise their attitude towards investment activities and environment protection issues and need to boom up their commitment for the implementation of environmental protection activities.” (Interview with Wondimagegn Zemedkun, 07/10/2018, Addis Ababa)*

The same question was also forwarded for environmental protection experts in Dukem town administration environmental protection department. Though the department is the most immediate concerned body to nearly follow up and regulate the zone’s activity from environmental protection perspectives, it has plenty of limitations to do so. According to Ato Abrham from the town administration environmental protection department:

*“...Lack of sufficient and skilled/ well aware man power (environmental expert), lack of financial and material supports, and most importantly the presence of high political influence on environmentalists are among others that challenge the department from doing a genuine following up and regulating activities.” (Interview with Araham Birhanu, 13/10/2018, Dukem town)*

But, according to Ato Abraham, using the available human and other necessary resources in hand, the town administration is trying its best to nearly follow up the status of the zone from environmental protection perspectives. Therefore, the overall status of EIZ from following the national standard perspectives is said to be low. Ato Kuma from Dukem town administration environmental protection department additionally argued:

*“...If we need to be honest to the standards, no firm in the zone keeps operating for even three days. Almost all firms in the zone are not found loyal to the standards. They just keep operating with a huge tender of the government.” (Interview with Kuma Chala, 13/ 10/ 2018, Dukem Town)*

In general, the information obtained from MEFCC and Dukem town administration environmental protection department shows that EIZ is not following the host country’s environmental protection guidelines. This plays its own role in negatively affecting the safety of the local environment.

### ***C. Environmental protection activities undertaken***

Whether an investment project is responsible or not for damaging the environment due to its nature of activity, every investment project is responsible to involve in undertaking environmental protection and conservation activities in different forms to protect and rehabilitate the surrounding environment. Such activities may be in the form of tree plantation, gardening and following proper waste disposal mechanisms and other important environmental protection activities.

According to the information obtained from the town administrations environmental protection department, the zone is good in terms of planting trees and gardening activities, especially within its compound. The internal part of the zone is green and beautiful that attracts the eyes of the observers. The tree plantation and gardening activities may help minimizing the possible environmental threats which may pose by the industrial activities in the zone.



**FIGURE 6: *Greening and Gardening Activities within East Industrial Zone***

*Source: - Pictures taken during field observation, 2018*

But, according to Ato Abrham from Dukem town administration environmental protection department, environmental protection and conservation activities undertaken outside of the zone's compound are not as such significant to protect the surrounding community from harmful environmental threats raised. The waste disposal mechanism, the drainage system and other important pollution prevention mechanisms have a lot of defects that expose the local residents

for multitudes of environmental related problems. One of the local residents named Sahilemichael strengthens this idea saying:

*“...There are no significant environmental protection and conservation activities being done by the zone to protect the surrounding community from environmental threats. We are experiencing diversified environmental problems associated with the zone because of the zone’s and the concerned bodies’ negligence.” (Interview with Sahilemichael Arsed, 29/05/ 2018, Dukem Koticha)*

What is most amazing above all is, the zone’s pollution controlling and grievance handling trend which is very weak. Even though the zone poses diversified environmental dangers up on the surrounding community, the zone has a big gap in terms of timely and appropriately controlling the existing pollutions. I have been informed from the opinion of Dukem town administration environmental department experts and the local residents that there are a lot of grievances (complains) mainly from the local residents in this aspect. A man called Sahilemichael said:

*“...Whenever problems against the environment occurred due to the zone, the willingness and commitment of the zone to provide immediate and appropriate solutions is very sluggish. They have tried to show some efforts of controlling the existing pollutions after plenty and recurrent complains and notices of the local residents and local environmental experts.” (Interview with Sahilemichael Arsed, 29/05/2018, Dukem Koticha)*

The information obtained from Dukem town administration environmental protection department further revealed that the zone feel less responsibility to provide timely and appropriate solutions for the already occurred environmental problems. Ato Abraham from the town administration said that:

*“...Even though recurrent notice and complains are forwarded to the zone mainly from us and from the surrounding community, the zone is reluctant in providing immediate and appropriate responses.” (Interview with Abraham Birhanu, 13/10/ 2018)*

In general, the study reveals that efforts to safeguard the local environment from potential dangers of the industry zone are not satisfactory to enable the zone operating friendly with the environment. Accordingly, there exist no community consultations and trainings concerning environmental protection and pollution prevention mechanisms. Furthermore, the zone is not found to be in line with the environmental standards and less known in undertaking environmental protection and conservation activities. From these facts, we can generalize that the industry zone has weak environmental performance.

#### **4.4. The role of concerned stakeholders in the management and monitoring of the quality of local environment**

In order to facilitate the protection of the environment for the reasons stipulated in the Ethiopia federal constitution under article 44(1) and 92(1&2) on the one- hand and to promote the sustainable use of natural resource for economic growth, the environmental protection organ(EPO) was established in 2002 by proclamation no.295/2002. The main objective of establishing the EPO was to assign a responsible institution that formulates policies, strategies laws and standards that assist the implementation of environmental protection. According to the proclamation, the environmental protection institution is also responsible in promoting the sustainable use of scarce natural resources in a manner that fosters social and economic development. On this basis, Article 14 and 15 of the proclamation No. 295/2002, all sectors and regions in Ethiopia were entitled to establish their respective environmental protection unit and agencies respectively. Accordingly, environmental protection offices were established at regional, zonal, wereda and kebele levels. Yet, realizing environmental protection and promoting suitable economic growth is greatly influenced by the level of implementation of the legal tools and the quality of human expertise assigned to the offices. According to the article 8(1) of the pollution control proclamation no. 300/2002, environmental inspectors working at the woreda levels holds the mandate to enter in to any land or premises in their administrative unit at any time to ensure the compliance of projects or firms with the environmental standards outlined. Regarding the technical aspects of environmental inspection, environmental inspectors are also allowed to take samples of any material and carry out or cause to be carried out tests to determine whether or not it causes harm to humans and/ or the environment. Based on the information captured during filed inspections or based on the results of attest, inspectors shall

order corrective measures to be taken: or could order corrective measures to be taken: or could order the immediate cessation of the activity. In the case study area, there were three environmental inspectors all together at the time of the study assigned to carry out the inspection activities. One of the inspectors studied law and was policy officer by profession but was assigned to the position by the authority as an environmental expert. The second inspector holds an educational background in mathematics. Only the remaining one environmental inspector who had a degree in geography and environmental studies was said to be appropriate to the position.

In an interview with three of the environmental inspectors they were asked how often they carry out field inspection activities and what technical tools they employ. Some reflections of the inspectors are given below:

*“... We did not have a regular plan or time table to make field visits and inspections to the zone. Instead, we are always there to conduct field inspection whenever we get information from local residents. Regarding the technical knowledge or skill we possess, honestly speaking, neither of us have technical knowledge or the necessary tools or finance to be used to conduct on site test or take the sample to determine the concentration level of pollutants in the effluents. Therefore, we rely on three of our five sense organs: Eye, Ear and Nose. We rely on our eyes to check simply if the color of the water is changed or turbid or not and whether or not they are discharging effluents directly into the open space or not, Ears and nose are also used to check if industries make loud sounds or if there is bad odor or not.” (Interview with Dukem town administration environmental protection department environmental protection experts, 13/10/ 2018, Dukem Town)*

One of the three environmental inspectors in Dukem town administration called Kuma has shared his own experiences in the following manner. He said:

*“...As you probably guess, I and my other colleagues too did not acquire the appropriate specialization and technical skills that make us special in the area. We are interested to properly discharge our responsibilities at least to reduce the likelihood of environmental pollution that could harm the local people. The*

*technical or financial support we obtain from the local or line office at the higher level was very much limited. We often travel on foot or some time pay for cart or Bajaj any time when we travel to sites for inspection. Regarding the technical skill or facilities used to take measurements of the waste, we have nothing to rely on and therefore we make inspections visually by looking at the volume and color of the effluents discharged...” (Interview with Kuma Chala, 13/10/2018, Dukem Town )*

Those interviewed environmental inspectors were also asked about the administrative support and backing they receive from different levels of the line higher officials. The responses obtained from respondents were very similar. In spite of the legal tools in place and the strong official promotion for a sustainable use of natural resources at various platforms, the actual implementation on the ground is very limited. Officials were less attracted to the strict interferences of environmental inspectors or other environmentally concerned stakeholders, but rather try to avoid any activities that could go against the interests of current or potential future investors.

I have also forwarded a question for higher environmental experts in MEFCC aiming to know the role and functions undertaken by the minister office to help maintaining the local environment safe from the possible threats of east industrial zone. Information obtained from the interviewee's show that the minister office plays a role in the form of making assessments concerning environmental performance of the zone in every quarter of each year. In that quarter assessment, the office identifies the strengths and weaknesses of the zone from environmental protection aspect and it reports the result of the assessment to the zone, so that the zone will utilizes it as a feedback to make further efforts and to fill the identified gaps. But, according to a higher environmental protection expert from the ministry called Wondmagegn;

*“...The office is troubled to collect genuine information regarding the zones environmental protection activities due to the absences of independent environmental protection unit. There need to be an independent environmental protection unit within the compound of the zone that nearly follows up the environmental performance of the zone and report us each and every thing about the zone and the local environment. Though there exists a number of*

*challenges to obtain appropriate information, our office has been making an assessment up on the zones environmental performance in every quarter of each year since the establishment of the ministry office.” (Interview with Wondimagegn Zemedkun, 07/10/2018, Addis Ababa)*

But, according to Ato Wondimagegn, the problem is that the office’s corrective comments and directions are not seriously taken in to consideration mainly because of lack of willingness and commitment of the companies found within the zone. Low level willingness and commitment of higher government officials to allow concerned environmental experts to take strict measures up on those pollutant companies is also another reason for the under consideration of MEFCC’s recommendations and directions.

In general, though efforts were there from different concerned bodies in managing and monitoring the quality of the local environment, we couldn’t dare to say those efforts are effective in bringing the desired result i.e. minimizing the possibility of environmental threats in the study area and enabling the local society to live free from environmental problems particularly arising from EIZ. This is mainly due to lack of skilled and sufficient environmental protection experts to do effective regulatory and monitoring activities up on the zone, lack of willingness and commitment of higher government officials to support the strict implementation of environmental laws and policies and most importantly, lack of willingness and commitment of then zone to undertake the necessary environmental protection activities. Therefore, we can say that with the absence of sufficient and effective managing and monitoring activities from different concerned bodies, the possibility of the zone to pose environmental threats is very high.

## **CHAPTER FIVE**

### **5. Summary, Conclusion and Recommendation**

#### **5.1. Summary**

This thesis is all about the implications of Chinese foreign direct investment in Ethiopia to environmental security by taking the case of eastern industrial zone which is one of Chinese mega investment projects in the country. The thesis begins by arguing the importance of environment in both human and national security concepts. It is argued that environmental security is one of the very important elements of human security in that; environmental threats are linked to their overall impacts on human survival, wellbeing and productivity- in other words aspects of human security. Moreover, environmental changes can hamper individual security by affecting livelihoods and promotes transnational security crises for states and regions. Therefore, the quality of environment and its sustainable condition shall be at the center of attention.

After articulating the importance of environment in the security concept, the thesis deals with one of the factors which seriously affect the environment that is FDI. Many scholars argue that the large scale influx of FDI in to sectors such as manufacturing and infrastructure constructions are heightening environmental pressures on the host country. The thesis also argues that economic growth produced by FDI is often fuelled at the expense of the natural and social environment and the impact of FDI on host communities and countries is often mixed in environmentally sensitive sectors. Specially, most of FDIs conducted by China particularly in developing countries including Ethiopia are always been the subject of criticism most of it deserved. Many agree that China has come to Africa with new development modalities, but also with poor environmental record. To make the issue more articulated, the researcher selects EIZ, which is one of the Chinese mega FDI projects in Ethiopia with a high potential of posing environmental dangers. Having an objective of exploring the overall environmental implications of EIZ, the research raises the following four basic questions.

1. What are the environmental implications of Chinese investment in eastern industrial zone for the community living nearby?

2. What are major environmental threats which are observed in eastern industrial zone?
3. Are there any efforts to safeguard the local environment from potential dangers of east industry zone?
4. What is the role of environmental protection experts in managing and monitoring the quality of the local environment in the study area?

In the effort of addressing such questions, qualitative research methods with exploratory research design were adopted. The researcher collected the necessary information from primary sources (in-depth interviews with members of the local community, key informants interview with concerned experts in the area and the issue) and via personal observation. Secondary sources like books, journals, newspapers, thesis dissertation and official reports about the area and the issue were also consulted to come up with a clear understanding about the environmental security implications of EIZ.

Finally, the collected data was analyzed through triangulating the opinions or views of the local communities and key informants and the information obtained from personal observation and document analysis. The results obtained from the analyzed data can be summarized as follows:

- ✚ The efforts to safeguard the local environment from potential dangers of the industry zone are not sufficient and significant to enable the zone operating friendly with the environment. Accordingly, there appear no occasion of consultations and trainings with the local community about industrial related environmental threats and the possible ways or mechanisms to prevent those threats. Furthermore, the zone is found to be working not in line with the environmental standards of the host country and also less known in undertaking environmental protection and conservation activities.
- ✚ Though efforts were there from different concerned bodies, we couldn't dare to say they were effective in bringing the desired result, i.e. minimizing the possibility of environmental threats in the study area and enabling the local community to live free from environmental problems particularly arising from east industrial zone. There are no skilled and sufficient environmental protection experts to do effective regulatory and monitoring activities up on the zone. Even the existing concerned environmental offices

and experts are always under the influence of higher government officials and this hinders them not to take strict regulatory and monitoring activities up on the zone.

✚ Disposal of industrial wastes, air pollution, noise pollution and poor drainage system are the major and most serious environmental threats that are observed in the study area. Such environmental problems which are occurred due to EIZ are exposing the local residents for multitudes of economic, social and health problems. Those environmental insecurity related problems are posed mainly because of the irresponsible and negligence behavior of the companies found in the industry zone and also due to the weakness of the host countries government to actually and strictly implement the existing legal procedures and regulations and to take appropriate responses. Based on the study result, the researcher therefore recommends for the responsible governmental body to re-examine the actual implementation of legal investment procedures, and re-adjust them in a way that allows the development of industrial zone in a more efficient and rational manner.

## **5.2. Conclusion**

Environmental security is a very important element of human security in that, environmental threats are linked to their overall impacts on human survival, well-being and productivity- in other words aspects of human security. Human beings and social relationships become the objects, or preferably subjects, that are to be secured from environmental threats. Environmental threats are important elements of a human security in two ways; first it can itself be a source of insecurity and secondly, it can exacerbate other real or potential forms of insecurity. Moreover, environmental changes can hamper individual's security by affecting livelihoods and promotes transnational security crises for states and regions. Hence environmental degradation is a significant threat for security of both individuals and nation states.

In general, any kind of environmental problems directly or indirectly affect human survival, well-being and dignity-all aspects of human security. Taking these into consideration, now a day environmental security is becoming the major component of countries security issue be it national or human security. The main components of environmental security form the basis of the environmental policy making on national, state and local levels. In these regard, Ethiopia is taking a leading role in both regional and global response to environmental related problems. In order to establish a harmonized and symbiotic relationship among economic growth, environmental protection and the health of the people, the Ethiopian government has given special attention at least in establishing institutions and legal tools.

For instance, the issue of the environment is clearly documented in the constitution of the country. Article 43 of the constitution stipulates the right of the people to develop, yet underline the importance of ensuring its sustainability of development activities. Article 44 of the constitution also states the environmental rights and the rights of the citizens to live in a clean and healthy environments and the right to claim appropriate compensation (i.e. monetary or non-monetary), provided that development induced activities cause damages to human health assets, property or eviction from their residence. The federal government has also crafted comprehensive sectorial and inter-sectorial environmental policies, institutions that are responsible for the implementation of those policies and legal framework.

Even though great national, regional and international concern is being given for environmental security, threats against it are growing from time to time. Among others, investment activities especially in the industrial sector are becoming a significant contributor of environmental threats. It is observed in different parts of the world particularly in developing countries that, the large scale influx of foreign direct investment especially in sectors such as manufacturing and infrastructure constructions are heightening environmental pressures on the host country. Such FDI related environmental, impacts may force the people who are originally living around the areas at where those FDI projects operated, to experience a negative impact on their livelihood.

Specially, most of FDI's conducted by China particularly in developing countries including Ethiopia have always been the subject of criticism most of it deserved. Many agree that, China has come to Africa with new development modalities, but also with poor environmental record. Chinese experience in Ethiopia particularly in the study area is not the exception. EIZ which is an entirely Chinese owned investment project is posing serious environmental problems upon the communities living near around it. Though there were official agreements between the Ethiopian government and the Chinese owned investment group (Jiangsu Yongyuan Investment Corporation) for the later to operate by respecting all the legal and policy frameworks of the host country. The fact on the ground is different from this. The investment project didn't find respecting the environmental guidelines of the host country Ethiopia. It has been posing a multitude of environmental threats upon the local community since its establishment. Most particularly the study shows; disposal of industrial wastes, Air pollution, noise pollution and poor drainage system are the major and most serious environmental problems in the study area. All these environmental threats are becoming a reason for the deterioration of the lives of the communities living around the industrial zone.

The study reveals that, the local residents are exposed for different kinds of serious health, economic and social impacts because of the released polluted liquids from the zone. Polluted liquids which are released from the zone are directly discharged into the open landscape and overflowed into the surrounding residential areas. This situation exposed the local residents for different kinds of health problems mostly related to skin allergies and stomach health problems. Untreated industrial effluents released from the zone are also a cause for land pollution. It is observed in the study area that, the effluent is coming to the local farmer's agricultural fields and

affecting their crops. Besides, the released industrial effluent is also found to be a reason for health problems on livestock when they drink the stagnant water around the zone which most possibly is contaminated with bad effluents released from the zone.

Another most serious environmental threat occurred in the study area due to the industry zone is air pollution. According to the study, the local residents are exposed for smokes, dusts and other gaseous and non-gaseous substances particularly emitted from the industry zone. Such conditions further exposed the local residents for different health problems like visual and respiratory diseases. The polluted air because of the industry zone is also affecting the local community by deteriorating the working conditions. It is very difficult to keep working in an environment polluted with dusts, smokes and other bad smells mainly emitted from the industry zone.

Noise is also a day to day environmental problem experienced by residents around east industrial zone. Due to the emission of high level of noise from the zone, the local residents are exposed for different risks like a serious and repetitive headache, sleep interference, communication interference, affecting the working performance of peoples and for many other noise related problems.

The last but not the least major environmental threat which is commonly observed the study area is a problem associated with poor drainage system. In that area, there is no a well-prepared drainage ditch that could protect the society from problems like; blockage of local walk ways, destruction of crops and other plants, damage of properties and from different water borne diseases.

Beyond the zones irresponsible and negligent response for environmental protection and conservation activities, the major responsible factor for the occurrence of such environmental pitfalls in that depth is the host country's low level of commitment and capacity for the actual and strict implementation of the existing legal procedures and regulations and to take appropriate responses. Though there exists a clear cut legal procedure for industrial pollution control with the hope of protecting the environment and the well-being of citizens from potential damages caused by this sector, this study shows that the government lacks commitment and capacity to make those legal tools appropriately and strictly implemented in the study area. There are no sufficient and well aware environmental experts to make appropriate and strict regulatory and monitoring

activities upon the zone. The influence of higher government officials over the existing environmental protection bureaus and experts is also another reason for the absence of strict and actual implementation of legal procedures over the zone. These all create a favorable condition for the zone to carelessly and negligently pose different environmental threats that affect the overall lives of residents around it.

### **5.3. Recommendation**

The Ethiopian government has formulated a couple of legal procedures for industrial pollution control with the hope of protecting the environment and the well-being of its citizens from potential damages caused by this sector. For instance, proclamation no, 300/2002 of the federal government aims at controlling and addressing all matters arising from environmental pollution. Sub-article 1 and 4 of the proclamation states that every person is strictly prohibited from polluting or causing others to pollute the environment and discharging of pollutants beyond the environmental standards are subject to cleaning or covering the cost of cleaning the pollutants. Sub-article 4 and 5 of the same proclamation gives the regional authorities to take appropriate legal measures in line with the damage level they caused on the environment. The legal measures range from monetary penalties of up to US\$ 2500 to the closing or relocation of the whole enterprise.

In spite of these clear-cut legal tools related to the control and protection of the environment, this study show that the reality looks different, and that local people and their livestock are exposed to different kinds of environmental problems. I therefore recommend that the respective federal and regional government bodies should re-examine the compliance to and actual implementation of the existing legal procedures and regulations, and respond appropriately. In doing so, the government must strive to enable the concerned offices and individuals with the full capacity to appropriately regulate and monitor the industry zone not to pose challenges up on the local environment. Among others, the following issues shall be given more emphasis so as to make the industry zone friendly with the environment.

- ✓ Concerned offices who are there to manage and monitor the local environment should be provided with supports like, sufficient and well aware environmental experts and sufficient finance and necessary equipment that could enable them to appropriately regulate the industry zone
- ✓ Leave the concerned environmental protection offices and individuals free of any higher officials influence to appropriately regulate the industry zone's environmental performance and to take the necessary measures up on companies who are found pollutant. Higher government officials in Ethiopia should leave aside their attitude of

“encouraging investment at any cost for the sake of industrialization of the country” and become more committed for the strict implementation of environmental protection acts and measures up to taking all the necessary legal measures up on those pollutant companies.

- ✓ The government should work cooperatively with civil society organizations, the private sector and NGOs to advance the sustainability of the local environment.

Furthermore, the author suggests the increased provision of community awareness about the effects of industrial pollution and their remedial measures in order to reduce the potential health and livelihood impacts in these localities. In addition to this, the researcher believes, environmental issues in the study area can best handled with the active participation of all concerned citizens at the relevant levels.

Finally, yet importantly, the researcher suggests that the respective federal and regional government bodies should re-examine the compliance to and actual implementation of the existing legal procedures and regulations pertinent to control of environmental pollution and respond appropriately.

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## APPENDIXES

### **Appendix 1:** guiding questions for in depth and key in formants interviews

The purpose of this guiding question is to collect the data on the issue of “Chinas investment in Ethiopia and its implications to environmental security; the case of east industrial zone.” The questions which are conducted for the local communities and key informants are based on the statement of the problem, research question and objectives of the study. Thus, used as a main base line for the detail questions and every question is derived and in line with the main research questions and objectives. The interview employed semi structured questions based on the questions listed below and follow by unstructured as needed.

The participant in the interview includes the local communities’ residing near the vicinity of east industrial zone and the concerned environmental experts particularly from Dukem city administration environmental protection department and from Ethiopia ministry of environment, forest and climate change.

#### ***A. Interview guide questions for local residents***

1. Was there any kinds of pre environmental protection activates done by anyone else, to reduce the possibility of environmental challenges following the establishment of the industrial zone?
2. What kinds of effort are being done by the companies in the industry zone not to pollute the local environment?
  - A. Do they train and consult you about environmental protection activates
  - B. Are they loyal to the host countries environmental protection laws and regulations? Or are they strictly follow the host countries environmental legal procedures?
  - C. Are they undertaking further environmental protection and conservation activists?
3. What kinds of efforts are undertaken by the concerned environmental offices and experts to keep the safety of the local environment especially from the potential dangers of east industrial zone?

- A. Do they provide you any kinds of trainings and consultations about environmental protection activates, so that you could minimize the possibility of environmental dangers posed by the individual zone?
  - B. Are they qualified and committed enough to do a strict and actual monitoring and regulating activates upon the zone so that it must respect and follow the host countries environmental legal procedures?
4. What seems the grievance handling or solution giving trends and mechanisms of the industry zone and the concerned environmental offices and experts?
  5. What are the major environmental threats posed by the zone up on the local environment and what negative impacts have you been experiencing following the pollution of the environmental due to the industry zone?
  6. What kinds of support did you received from the concerned environmental protection office and experts especially when the industrial zone poses serious challenges up on the local environmental?
  7. What kinds of efforts did you do yourself to minimize the negative effects of the environmental problems occurred due to east industry zone?

***B. Interview guide questions for concerned environmental protection experts***

1. What pre- environmental protection activates was done in the study area before the establishment of the zone?
  - A. By the zone it self
  - B. By your office
2. What kinds of supports did your office provide to safeguard the local environment from potential dangers of the industry zone? For example;
  - A. Did you provide the local community with the necessary trainings and consultations about environmental protection activities.
  - B. How often did you carry out field inspection activates and what technical tools you employ
3. How much your office is qualified and committed enough to make the necessary environmental legal procedures respected and implemented by the industry zone?
  - A. Have you qualified and sufficient environmental protection experts in your office to do the necessary environmental protection activities in the study area?

- B. Is your office provided with all the necessary government supports like, finance and logistics
  - C. How much your office is free of political influence in strictly doing the necessary environmental protection activates and in taking the necessary strict measure upon the companies who went wrong?
4. What did you say about the efforts of east industrial zone to keep operating friendly with the environment?
    - A. Did it train and consult the community about environmental protection issues?
    - B. Did it strive to go parallel with countries environmental legal procedures?
    - C. Did it do further environmental protection and conservation activities?
    - D. How do you example the complain or grievance handling mechanisms and trends of the industrial zone?
  5. To what extent your comments and suggestions are taken in to consideration by the industry zone
  6. What major environmental threats the zone posed upon the local communities and what negative effects did you see experienced by the local communities following the environmental problems occurred due to east industrial zone.
  7. What a support did your office provide to minimize the negative effects of the environmental deterioration up on the local communities mainly due to east industrial zone?

## Appendix 2: List of Informants

### A. List of local communities

No	interviewee name	Place of interview	Date of interview	Remark
1	Lebelary Gumecha	Dukem kotich	29/05/2018	Farmer
2	Teka Dechasa	>>	>>	>>
3	Sahilemichael Arsedi	>>	>>	>>
4	Abera Mumecha	>>	>>	>>
5	Nigusu Lema	>>	30/05/2018	>>
6	Tulu Mideksa	>>	01/06/2018	>>
7	Alemayehu Edie	>>	05/06/2018	>>
8	Bekelech Demssie	>>	>>	>>
9	Debele megesso	>>	06/06/2018	>>
10	Nigusu Tumse	>>	>>	>>
11	Girma Garri	>>	>>	>>
12	Tadesse Mummecha	>>	08/06/2018	>>
13	Dechasa Tumse	>>	>>	>>
14	Abebe Abera	>>	>>	>>
15	Eshetu Abera	>>	>>	>>

## B. List of concerned environmental protection experts

No	interviewer name	Place of interview	Date of interview	Remark
1	Abrham Birhanu	Dukem town	13/10/18	head of dukem town administration, environmental Protection department
2	Kuma Challa	>>	>>	waste disposal and conservation regulation Expert in dukem town administration Environmental protection department
3	Wondimagegen zemedkun	Addis Ababa	07/10/2018	environmental and social impact Assessment expert in ministry Of forest environment and Climate change

**Appendix 3:- Sample of photos picked (taken) during field observation**



**Main Gate of Eastern Industry Zone**



**Aerial View of Eastern Industry Zone**













## Declaration

*I, the undersigned, declared that this thesis is my sole and original work and it has not been submitted to any academic institution whatsoever. All the sources and materials used in the thesis have been duly acknowledged and properly referenced.*

*Declared by* \_\_\_\_\_

*Signature* \_\_\_\_\_

*Date* \_\_\_\_\_