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**COLLEGE OF DEVELOPMENT STUDIES
CENTER FOR ENVIRONMENT AND SUSTAINABLE DEVELOPMENT**

**GAPS AND CHALLENGES OF ENVIRONMENTAL IMPACT ASSESSMENT STUDY
REPORT: A CASE OF BURAYU TOWN, TATEK INDUSTRY ZONE, OROMIA,
ETHIOPIA**

**A THESIS SUBMITTED TO THE COLLEGE OF DEVELOPMENT STUDIES OF
ADDIS ABABA UNIVERSITY IN PARTIAL FULFILLMENT OF THE
REQUIREMENTS FOR THE DEGREE OF MASTER OF ARTS IN ENVIRONMENT
AND SUSTAINABLE DEVELOPMENT**

**BY
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This is to certify that the thesis work contained by Birru Tesso Olkaba entitled Gaps and Challenges of Environmental Impact Assessment (EIA) Study report in Burayu town Tatek Industry zone submitted to the college of development studies of Addis Ababa University in partial fulfillment of the requirements for the Degree of Master of Arts in Environment and Development Studies complies with the regulation of the University and meets the accepted standards with respect to originality and quality.

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DECLARATION

I, the undersigned, declare that this thesis is my original work, that it has not been submitted for any degree at any university, and that all sources utilized are properly credited. The thesis is unique, and it has not been submitted to any university or institution for the award of a degree or diploma.

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ACRONYMS

AMCEN	African Ministerial Conference on the Environment
CLEIAA	Capacity Development and Linkages for Environmental Impact Assessment in Africa
CSA	Central Statistical Agency
EEP	Ethiopian Environmental Policy
EFCCA	Environment, Forest and Climate Change Authority
EFCCC	Environment, Forest and Climate Change Commission
EIA	Environmental Impact Assessment
EIASR	Environmental Impact Assessment Study Report
EIS	Environmental Impact Statements
EPA	Environmental Protection Authority (former)
FDRE	Federal Democratic Republic of Ethiopia
GHG	Green House Gas
GTP	Growth and Transformation Plan
JPOI	Johannesburg Plan of Implementation
KII	Key Informant Interview
KMO	Kaiser-Meyer-Olkin Measure of Sampling Adequacy
NEPA	United States National Environmental Policy Act
SPSS	Statistical Package for Social Science
UN	United Nation
WSSD	World Summit on Sustainable Development

Abstract

This study was aimed to evaluate existing EIA documents available for established factories and thereby identify the gaps of EIA study reports in Burayu town, Tatek Industry Zone as per the standard guideline of the EFCCC. Hence, there were two hundred two different factories' EIASR were available in Burayu town Environment, Forest and Climate Change Authority and the whole documents were accessed for evaluation. The design to evaluate the EIA reports was followed EFCCC (former EPA) EIASR review guideline, 2003. In addition to this, the study applied an interview with regulatory body and the proponents (the owners of the factories). The whole accessed EIASR were evaluated through developing a checklist that based on a Liker scale rated between 1-5 values, and before analysis, the validity & reliability of the variables were tested, then analyzed by using SPSS-20 and the result was interpreted. Whereas, the data collected through an interview by using KII & observation was analyzed qualitatively and interpreted accordingly. The EIA study report rated based on Liker scale were evaluated through the mean score of the variables generated using the SPSS-20 as compared to the Liker scale value and each of the contents of the reports were categorized into: Not satisfactory at all, Unsatisfactory, moderately satisfactory, highly satisfactory, and very highly satisfactory. Based on this, the result of the evaluated documents mean scores was resulted in 50% of the factories' EIA document contents were unsatisfied, 30% moderately satisfied 10% not satisfied at all, and only 10% of the reports' content valued highly satisfied. This indicated that the EIASR prepared for factories in the study area were not fulfilled the standards of the EFCCC (former EPA) review guideline. These gaps were might arise from the low capacity of the consulting firm who were prepared the report and inadequate knowledge of the reviewer (regulatory body). As the data obtained from an interview of the regulatory body, the consulting firms influenced by their customers (factory owners), and they were done their assumption than the reality on the ground and also said, there was lack of enough number & well-equipped experts in the authority & low power to implement the rules & regulations, a low commitment of the government to enforce the investors to undertake an EIASR properly, the investors also seen an EIA as a threat that hinders an investment & not interested to undertake it, and still there were investors who operate a factory without EIASR.

Key Words: Environment, EIA, EIASR

CHAPTER ONE

INTRODUCTION

1.1. Background of the Study

Production activities in any industry can affect the environment through their adverse effects on air, water, soil and biodiversity. It is imperative that investment projects undergo an Environmental Impact Assessment (EIA) in order to evaluate potential harms prior to their implementation in order to protect the environment. Reasonable measures should be taken to avoid or reduce environmental damage if the EIA senses potential harm. The EIA thus leads to the introduction of environmental regulations and certification processes, which may inevitably lead consumers to turn to more environmentally friendly production methods and practices (Abate, 2012)

The EIA can be broadly identified as the systematic identification and assessment of the potential impacts (effects) on the overall environment of the proposed development projects, plans and legislative actions relating to the physical, chemical, biological, cultural and socio-economic components (Canter L. , 1996). It is a planning and management tool that can be used to define the type, extent and likelihood of changes that are likely to occur as a result of a planned operation or policy and to relay this information to responsible parties involved in the decision-making process.

In order to protect the environment, the Environmental Impact Assessment (EIA) of investment projects must be carried out in order to determine their possible harms. Reasonable steps should be taken to prevent or minimize damage to the environment if potential harm is detected by the EIA. In this way, the EIA helps to implement environmental standards and certification procedures, which can eventually lead investors to turn to more environmentally sustainable methods and practices of production” (Jamieson, 2008). It is also necessary to track the execution of approved projects to ensure that projects are carried out in compliance with the

requirements and conditions and to ensure that there are no situations that could have been unexpected at the time of the impact evaluation.

In 1969, through the National Environmental Policy Act, the Environmental Impact Assessment (EIA) was first entered into force in the United States of America. The EIA has been introduced in many other countries since then. As a result, the World Bank released an Operational Directive in 1989, making EIA a mandatory condition for all its investment projects, requiring borrowing countries to comply with this EIA Directive, and using EIA as an instrument in international and national laws to avoid environmental harm (Website: www.worldbank.org/eca/environment).

Furthermore, under Principle 17 of the 1992 Rio Declaration on Environment and Development, "Environmental impact assessment shall be carried out for proposed activities which are likely to have a significant adverse effect on the environment." (Declaration. R., 1992). In June 1985, the Council of the European Community also enacted Directive 85/337, which includes the EIA for planned projects, since it is one of the established anticipatory and legislative instruments used to forecast the environmental implications of any development project, and the Member States of the European Community adopted the Directive (Wolf, 1995).

Following these, developing countries came to use the environmental impact assessment because of the requirements of the World Bank and other development banks and donors, as well as capacity building activities initiated in the wake of the Rio Declaration. But, environmental institutions, the legislation, administration, and capacity to implement environmental assessment and management have developed more slowly in Africa than in most other parts of the world (Appiah-opoku, 2001).

Recently, the rise of industrial waste in developing countries has called for a system of waste management. The priorities of sustainable development emphasize the implementation of renewable and environmentally sound technology and manufacturing processes to free water from chemical pollution (UN, 2017). In Ethiopia, water free from chemical contamination was estimated to be 13 % (Central Statistical Authority (CSA, 2017). In addition, other studies have established three primary industrial sectors in Ethiopia, namely cement, leather and textiles, as

major GTP growth industries for the country and make relatively large contributions to greenhouse gas (GHG) emissions and other pollutants. In particular, the cement sector is the largest emitter of industrial GHGs in Ethiopia, contributing 50 percent, while textiles and leather account for 17 percent (UNDP, 2011). Moreover, substantial water and soil pollution is caused by the leather and textile industries in Ethiopia (Abera, 2014).

Before 2000, development projects in Ethiopia were undertaken without EIA or conscious efforts to predict and mitigate adverse environmental impacts.

The foundation for establishment of an Ethiopian EIA system was laid by Rio Principle in 1992 which endorses the institutionalization of EIA at national level (Gobena, 2016). Following a succession of international conferences and programs related to environmental and sustainable development strategies, an increased number of investment applications required an environmental impact statement (Girma. H, 2000). Subsequently, via Proclamation No. 299/2002 (FDRE, 2002), the EIA was first adopted in Ethiopia and entered into force in 2002 after the incorporation of environmental issues in accordance with Articles 43 and 92 of the 1995 constitution of the country, regulating 'environmental law' and 'environmental target' respectively (Constitution, 1995), and after the establishment of environmental issues.

The Environment, Forest and Climate Change Commission (EFCCC) (former EPA) established an EIA Guideline on the basis of its mandate in 2000, which was legally based on the Environmental Impact Assessment Proclamation (Proc. No. 299/2002) in 2002, following the EPA's re-establishment in the same year. The legal framework for the EFCCC (former EPA) was given by decree 295/2002, enabling the organization to review the EIA at the regional level. As it institutionalized environmental protection, this move was very significant. The EIA proclamation has made the EIA a necessary legal obligation for major construction initiatives, programs and plans to be adopted (FDRE, 2002).

Under Ethiopian law, EIA was used to predict and manage the environmental effects of implementing proposed development activities. This provides an opportunity for developers to use the information to improve their projects' compliance with environmental standards. In so doing, developers will improve the sustainability of their projects as well as their chances of

obtaining project approval. And also, the country was developed the standard guideline documents which intended to serve as basis for guidance in reviewing of environmental impact study reports pertaining to projects of all sectors.

Accordingly, there were a lot of production factories in Ethiopia, among these the factories in Oromia Regional State, Finfine surrounding Oromia special zone, Burayu town; Tatek Industry Zone is one of it. The factories in Burayu town Tatek industry zone have made Environmental Impact Assessment study reports. Then, this research was focused on the evaluation of EIA study reports as per national standard guideline, identified gaps and challenges for the gaps.

1.2. Statement of the problem

In Ethiopia, there was hardly any systematic approach in reviewing environmental impact assessment study reports before 2003 to date. Past experiences in other contexts have shown that reviews of Environmental Impact Assessment Study reports were mainly based on individuals' experiences and opinions (FDRE, 2003).

It was, therefore, imperative to identify & predict the adverse impacts of the currently emanated production industries in various parts of the country should be undertake strong Environmental Impact Assessment (EIA) study reports and realize its implementation. Consequently, these production industries might harm the environment while operation through its emissions & miss management of waste products, unless it realizes the mitigation measures presented in EIA study documents. These study documents were evaluated based on EFCCC standard guideline whether the study report meet the required quality & sufficiency to make decision in good time and faith, to be allowed a project to proceed. Even though EIA has been introduced as a legal requirement & standard EIA study report review guidelines were developed, it was seldom enforced and there are various gaps and challenges that matters the quality of EIAs. Following the establishment of EIA proclamation, many development projects conducted environmental impact assessment before implementation and submitted to the respected regulatory body and also, environmental concerned policy, proclamations, directives, and legal frameworks were formulated& enacted, but the environment was deteriorated from time to time and areas where factories were operated

was adversely affected. So, what was the reason behind for these environmental problems, these and other environmental harms concern me to identify the gaps.

Therefore, this research was evaluated and identifies the gaps of factories' EIA reports and challenges for its implementation in the study area Burayu town, Tatek Industry Zone.

1.3. Objectives of the Study

1.3.1 General objective

This study was aimed to evaluate existing EIA documents available for established factories in the study area and thereby identify the gaps of EIA study reports vis-à-vis the standard guideline of the EFCCC.

1.3.2. Specific objectives

- ✓ To evaluate EIA study reports based on standard guideline,
- ✓ To analyze the reason for the gaps of EIASR in the study area.
- ✓ To identify the challenges for the implementation of EIA in the study area

1.4 Research questions

In order to achieve the above objectives, the following research questions were raised to be answered by the study;

1. Are the EIA study reports prepared as per the standard guideline?
2. What are the gaps in EIA study reports?
3. What are the challenges of EIA effectiveness?

1.5. Significance of the Study

Even if the research was limited to a very specific area, it was addressing the whole components of EIA study report review procedures to evaluate the EIA study documents of different factories within study area, to identify gaps, and challenges for its implementation.

Since, EIA was a recent phenomenon in Ethiopia. Hence, this research was identifying the gaps and challenges of Environmental Impact Assessment, and it helps the governing respected body to closely follow up& take a measure against those who violets environmental rules and

regulations & set solutions for problems hinder its implementation, and also add values on academic purpose.

1.6 Limitations of the Study

The lack of sufficient understanding of EIA it led to a number of misconceptions among those who were key actors in the EIA process, and factory owners and investors also have inadequate awareness about the importance of EIA, and they generally perceive it as a bureaucratic hurdle with no visible importance. Because of these perceptions, it was very challenging accessing the respected regulatory body because of frequent meeting for interview and they were provided limited information, and also the proponents did not interest to provide the reliable data, not obliged to visit and interview them and provide full information, etc. due to these and other reasons the research have a limitation.

1.7 Scope of the study

The study was focused on identifying the EIA documents' gaps and reasons for the gaps and challenges of its effectiveness through the evaluation of existing Environmental Impact Assessment Study Reports (EIASR) available for established factories, as per the EFCCC standard review guideline in the study area, and made an interview with the respected regulatory body and the proponents, and also undertake site observation to full fill the essential data for the study. Spatially the scope of the study was concentrated in Oromia Regional State, Finfine surrounding special zone of Oromia, Burayu town, Tatek Industry Zone.

CHAPTER TWO

REVIEW OF THE LITERATURE

2.1. Review of Conceptual Literature

2.1.1 Environmental Impact Assessment (EIA): An overview of Concepts

Environmental impact assessment (EIA) can be defined as the systematic identification and evaluation of the potential impacts (effects) of proposed projects, plans, programs, or legislative actions relative to the physical, chemical, biological, cultural, and socioeconomic components of the total environment. The primary purpose of the EIA process is to encourage the consideration of the environmental issues in planning and decision-making and to ultimately arrive at actions that are more environmentally compatible (Canter L. , 2018).

This definition shows that EIA is a process that blends many activities. The systematic exploration of interrelationships between the proposal and the environment and among alternatives and impacts is crucial in EIA (Lawrence D. , 2003). EIA is a systematic mechanism that explores the environmental implications of construction decisions and ensures that these impacts are considered during the design of the project (Glasson, 1999). In nature, it is anticipatory, participatory, and systemic and depends on multidisciplinary feedback. The EIA is not constrained or biased to analyzing and mitigating negative impacts on its own, but also constructive ones. It was discussing the potential positive impacts of construction projects and recommend ways to further strengthen them by incorporating project changes. Thus, the EIA is a multifaceted decision-making instrument (Modak, 1999).

2.1.2 Origins and Evolution of EIA

The origins of EIA have been so well told by others (Caldwell, 1982) that only a brief note on the subject is offered here. Although forecasts about how human activity impacts the environment are as old as documented history, the modern use of environmental impact assessment has its roots in the United States Act of 1969 on National Environmental Policy (NEPA). In the late 1960s, the reason for that legislation was the popular recognition that certain critical environmental issues in the United States arose from the government's actions. It

appeared that the appetites of the large infrastructure agencies responsible for water resources programs, highways, and energy installations were unquenchable, and the mission statements of those agencies did not force them to account for the adverse environmental impacts of their actions.

Consequently, in 1989, the World Bank issued an Operational Directive making EIA a standard requirement for all of its investment projects, so that borrowing countries are required to comply with this EIA Directive, and in international and national laws, EIA is used as a tool to prevent environmental damage (Abate, 2012). In addition, the 1992 Rio Declaration on Environment and Development, under Principle 17, provides that "environmental impact assessment shall be undertaken for proposed activities that are likely to have a significant adverse impact on the environment." It also stated that it is necessary to develop, improve, and apply environmental impact assessments to foster sustainable industrial development, promote efficient use of materials and resources, considering the life cycles of products, to realize the economic and environmental benefits of using resources more efficiently and producing fewer wastes (Declaration. R., 1992). The European Community Council also enacted Directive 85/337 in June 1985, which requires EIA for proposed projects because it is one of the proven anticipatory and legislative tools used to predict the environmental consequences of any development project (Craik. N., 2008). Following this, developing countries came to use environmental impact assessment because of the requirements of the World Bank and other development banks and donors, as well as capacity-building activities initiated in the wake of the Rio Declaration (Appiah-opoku, 2001).

2.1.3 Origin and status of EIA in Ethiopia

The foundation for the establishment of an Ethiopian EIA system was laid by Rio Principle 17 in 1992, which endorses the institutionalization of EIA at a national level. This was affirmed by the high-level meeting of the African Ministerial Conference on the Environment (AMCEN) in 1995, which set down an agenda promoting capacity building based on the use of African expertise (ECA, 2005). In response to this agenda, the Capacity Development and Linkages for Environmental Impact Assessment in Africa (CLEIAA) was formed in 2000. Eight years after UNCED, at the World Summit on Sustainable Development (WSSD) in 2000, the Johannesburg

Plan of Implementation (JPOI) identified the use of EIA procedures as a key action. Recapitulating UNCED and WSSD, they promoted the integration of environmental concerns into regional and sub-regional development policies and the balanced integration of economic, social, and environmental issues of sustainable development into the work of regional and sub-regional bodies (ECA, 2005). Following a succession of international conferences and programs related to environmental and sustainable development strategies, an increased number of investment applications required an environmental impact statement (Girma. H, 2000).

According to their mandate, the EPA developed an EIA guideline in 2003 which was given a legal basis with the Environmental Impact Assessment Proclamation (FDRE, 2002), after re-establishment of EPA in the same year. The EPA was given a legal basis with proclamation 295/2002, empowering the agency to review EIA on a regional level. This step was very important, as it institutionalized environmental protection. The EIA proclamation has made EIA a mandatory legal prerequisite for the implementation of major development projects, programs and plans. The proclamation strengthens the position of the Environment, Forest and Climate Change Commission (EFCCC) (former EPA) by stating ‘without authorization from the Commission or from the relevant regional environmental authority, no person shall commence implementation of any project that requires environmental impact assessment’

2.1.4 EIA Legal Frameworks in Ethiopia

Though, the Ethiopian constitution nowhere used the language EIA that provides basic and comprehensive principles and guidelines for environmental protection and management. It has recognized that development activities should not hamper the environment and be done to ensure sustainability.

The concept of sustainable development and environmental rights are enshrined in Article 43(the Right to Development, i.e. Government and the people of Ethiopia responsible for the preservation of natural resources and maintenance of ecological balances), Article 44(Environmental Rights, i.e. everyone has the right to live in a clean and healthy environment), then, the Government will make every effort to provide such an environment, and Article 92 (Environmental Objective) of the constitution of Ethiopia. On the other hand, it states

consultation and community participation is an indispensable part of the decision-making process in development activities. EIA could be considered as one of the most acceptable tools for achieving the above said environmental values included in the constitution (Constitution, 1995).

In addition, the Environmental Policy of Ethiopia contains more detailed of EIA regulations that stimulate EIA practice, and the key objective of the policy is to update and suggest corrective measures to remove deficiencies of the previous policies for the environmental protection and conservation (FDRE, 1997). The thrust of Environmental policy in Ethiopia is to achieve sustainable development in agriculture, water resources, and industrial and infrastructure sectors and as a result improve and enhance the quality of life of its citizens. One of the principles that has been relatively easy to agree upon is environmental policy integration, which is the integration of environmental aspects and policy objectives into sector policies.

The policy contains several sectorial and cross-sectorial policies and various guidelines for its implementations. And also, under section 4.9 of the Policy requires that EIA should include physical, biological, social, socioeconomic, political, and cultural impacts of the proposed project, and mitigation and contingency plans of impacts. A mention is also made about timing and auditing to ensure that EIA is done early and incorporated in the project design. With the understanding that public comment is vital in the decision-making process, the policy anticipates well-built public participation and an independent EIA review system (FDRE, 1997).

2.1.4.1 Environmental Impact Assessment Law

The Ethiopian government issued the Environmental Impact Assessment Proclamation in accordance with the provisions of the environment policy (FDRE, 2002). Any proposed development project or public policy that is likely to have a negative impact on the environment must undergo an EIA procedure, according to the declaration. In terms of development projects, the proclamation states that no one shall begin implementing a proposed project specified by directive as requiring EIA without first completing an environmental impact assessment and gaining approval from the competent environmental agency (Art. 3(1)).

Following the provisions of the environment policy, the Ethiopian government introduced the Environmental Impact Assessment Proclamation (FDRE, 2002). The proclamation requires an EIA process for any planned development project or public policy which is likely to have a negative impact on the environment. With regard to development projects, the proclamation stipulates that no person shall commence implementation of a proposed project identified by directive as requiring EIA without first passing through environmental impact assessment process and obtaining authorization from the competent environmental agency (Art. 3(1)). In accordance with this, project proponents must conduct an EIA and submit a report to the relevant environmental body, as well as follow the terms and conditions of the EIA authorization granted to them when implementing the project (Art. 7). Furthermore, the proclamation authorizes the imposition of a fine ranging from fifty-thousand to one hundred thousand birrs on any project owner who begins construction without first obtaining approval from environmental agencies or who makes false representations in the environmental impact assessment study report (Art. 18).

Furthermore, the proclamation obliges licensing institutions, prior to issuing investment permits or operation license to projects, to ensure that the relevant environmental bodies have authorized the implementation of the projects (Art. 3). In addition, it requires such licensing institutions to suspend or cancel the permit or license they have issued for projects where the concerned environmental body suspends or cancels the authorization given for implementation of the project (Art. 12). These provisions are important to ensure that project owners comply with the EIA requirement. The proclamation also provides for public participation in the environmental impact assessment process. It requires environmental bodies to ensure that the comments made by the public (in particular the comments by the communities likely to be affected by the implementation of a project) are incorporated into the EIA study report as well as into its evaluation (Art. 15). To this end, it requires environmental bodies to make any EIA study report accessible to the public and to solicit comments thereon.

The proclamation also requires public instruments, which are identified by directive as requiring EIA, to pass through environmental impact assessment process prior to their approval. In line with this, it obliges government organs to ensure that their policies have passed through EIA process prior to their submission for approval (Art. 13). Having provided the basic framework of

EIA, the proclamation envisages the issuance of specific directives and guidelines that further specify implementation of the EIA process. Particularly, it requires the Environmental Protection Authority (EPA) to develop a directive identifying categories of projects likely to have negative impact and thus require EIA (Art. 5). It also requires EPA to issue of guidelines that determine the elements necessary to prepare and evaluate EIA study report (Art. 8). The Environmental Protection Authority has already developed such draft directives and guidelines but they have not yet been formally adopted and put into force (FDRE, 2002).

2.1.4.2 EIA Reviewing Guideline Document

Before 2003, Ethiopia had no guidelines for reviewing environmental impact assessment study reports, and the reviews were undertaken mainly based on individuals' experiences and opinions (FDRE, 2003). The Environment, Forest and Climate Change Commission (EFCCC) (former EPA) published Environmental Impact Assessment Procedural Guidelines in 2003, which provide background and general guidance to EIA and environmental management in Ethiopia.

The Commission formulated the guidelines to facilitate all the concerned agencies and proponents, for preparation and review of environmental reports in 2003. These guidelines include various sections on commencing EIA, assessing impacts, mitigation and impact management, and other main features of environmental reports (FDRE, 2003).

The document provides guidelines for EIA standard procedures and defines the roles and responsibilities of all parties involved. Additionally, the guidelines list specific environmentally sensitive areas and ecosystems, but without particular reference to Ethiopian conditions, and also highlight aspects of potential environmental impacts related to water, air, noise pollution, and so forth. Furthermore, the guidelines provide a list of projects and activities which require full, preliminary, and no EIA. Furthermore, EFCCC (former EPA) published an Impact Assessment Guideline Document which identifies key sectors that should be subject to EIA (FDRE, 2003).

Those sectors highlighted are agriculture, industry, transport, mining, dams and reservoirs, tannery, textiles, hydro-power generation, irrigation projects, and resettlement projects. These key sectors are described in general, and potential environmental impacts are specified and highlighted. The listed potential adverse impacts related to each sector are not comprehensive

and would need to be extended during the EIA study. The EIA procedural guidelines do not specifically give information on the evaluation process and the validation of the assessed impacts. Several ministries and agencies have developed specific and more detailed sectorial guidelines for the environmental impact study. (FDRE, 2002)

2.1.4.2 EIA Reviewing Process

It is easily understandable that the EIA is an instrument that aims to ensure sustainable development by evaluating the impacts of major events, including policies, strategies, initiatives, and/or projects that are likely to have significant impacts on the environment. Balancing poverty and socio-economic needs with environmental issues produces very pressing problems in several developing countries in general and Ethiopia in particular (Adugna, 2016).

In the past, the environment has failed to function holistically in the development efforts of the country, as project evaluation and decision-making mechanisms have been unjustifiably made to focus on short-term technical feasibility and economic benefits. For this reason, previous development practices have failed to anticipate, eliminate or mitigate potential environmental issues early in the planning process (FDRE, 2003). After the policies, proclamations, reviewing guidelines developed in the country, the development projects/ programs undertake EIA before implementation based on the guiding principles and procedures. Thus, the guideline documents were help to decide in good time and faith, whether and under what conditions a project should be allowed to proceed. These guideline documents are intended to serve as a basis for guidance in reviewing environmental impact study reports pertaining to projects of all sectors.

These review guideline document has four series (EIA review guideline, 2003) and these are:

1. Guidelines for review approach
2. Guideline for contents and scopes of report
3. Guideline for checklist of environmental characteristics
4. Guideline for review criteria.

2.1.5 Role of Regulatory Body on Enforcement of EIA Implementation

The Regulatory Authority is either the EFCCC or the Regional Environmental Body, which is mandated to supervise and facilitate the implementation or administration of the EIA using the Proclamation for the establishment of Environmental Protection Bodies 295/2002 and EIA Proclamation 299/2002 and other relevant legislation. It is the Agency's responsibility to ensure that the necessary system containing procedural and technical guidelines is prepared and implemented; those meaningful opportunities are given to the public, particularly to the affected communities, in the EIA process; those opinions, concerns, and positions are considered during the assessment, review, audit and decision-making phases. Accredited responsibility for playing a very decisive role in the EIA system has been granted to the Department. It is therefore fair enough to conclude that the EIA Proclamation may be identified as one of the country's most significant environmental laws ever enacted (Gobena, 2016).

Although the proposed projects do not demonstrate particular features of technical concerns, a set of generic rules applicable to all developmental projects has been prepared to ensure effective implementation of the EIA. This is unique to particular projects, which contain features that have been covered in technical recommendations for various sectors.

Since Ethiopia has a transitional economy, there has been an increase in the trend of Foreign Direct Investment, which has resulted in significant investments in industry and infrastructure. As a result, there is a negative influence on the environment, necessitating the need for EIA to reduce risks and assure long-term growth. As a result, there are some indications that EIA is being used on the ground in Ethiopia by both private project owners and government authorities. Such experiences are becoming more common, as are project owner applications.

Despite these positive beginnings, the true practical element of EIA in Ethiopia has remained weak due to various bottlenecks in realizing the full benefits of EIA. As a result, the following section identifies some important shortcomings and obstacles that are impeding the country's complete implementation of EIA (Mellesie, 2008).

2.2 Review of Theories of EIA Application and Implications

Environmental impact assessment can be broadly identified as the systematic identification and assessment of the potential impacts (effects) on the overall environment of the proposed development projects, plans, and legislative actions relating to the physical, chemical, biological, cultural, and socio-economic components (Canter L. , 1996). To protect the environment, the Environmental Impact Assessment (EIA) of investment projects must be carried out to determine their possible harm.

Since the late 1960s, when the United States National Environmental Policy Act (NEPA) granted EIA legal standing, systems have been emerging all over the world. NEPA required environmental impact assessments for federally funded or supported projects in the United States that were likely to have environmental consequences, and it has since become a model for other EIA systems throughout the world. In addition to NEPA, many state-level EIA systems have been formed in the United States (Glasson, 1999). Since the enactment of NEPA, EIA systems have been constructed and introduced in various forms throughout the world, beginning with more developed countries like Canada (1973), Australia (1974), West Germany (1975), and France (1976), and have since spread to many other countries. As a result, in 1989, the World Bank issued an Operational Directive requiring EIA for all of its investment projects, requiring borrowing countries to comply with the EIA Directive, and utilizing EIA as a tool in international and national laws to avoid environmental harm (Website: www.worldbank.org/eca/environment).

Following these, developing countries came to use the environmental impact assessment because of the requirements of the World Bank and other development banks and donors, as well as capacity-building activities initiated in the wake of the Rio Declaration.

Despite the universal adoption of the EIA and its legal and procedural inclusion into many projects planning processes, concerns over whether the EIA is fulfilling its goals have grown (Sadler, 1996).

This has been attributed to poor implementation of what is seen as an essentially adequate means of environmental protection, but current attention is focused on the EIA's poor integration with the decision-making contexts in which it operates (Cashmore, 2004). However, little thought has been given to the original aims of the EIA or how they might be delivered more effectively through the use of the EIA process.

Before 2000, development projects in Ethiopia were undertaken without EIA or conscious efforts to predict and mitigate adverse environmental impacts.

The foundation for the establishment of an Ethiopian EIA system was laid by the Rio Principle in 1992, which endorses the institutionalization of EIA at the national level (Gobena, 2016).

The Regulatory Authority was either the EFCCC or the Regional Environmental Body, which was mandated to supervise and facilitate the implementation or administration of the EIA using the Proclamation for the establishment of Environmental Protection Bodies 295/2002, EIA Proclamation 299/2002, and other relevant legislation. It is the agency's responsibility to ensure that the necessary system containing procedural and technical guidelines is prepared and implemented; those meaningful opportunities are given to the public, particularly to the affected communities, in the EIA process; and that opinion, concerns, and positions are taken into account during the assessment, review, audit, and decision-making phases. Accredited responsibility for playing a very decisive role in the EIA system has been granted to the Department. It is therefore fair enough to conclude that the EIA Proclamation may be identified as one of the country's most significant environmental laws ever enacted (Gobena, 2016).

2.3 Empirical Review

The preparation of good-quality Environmental Impact Assessment (EIA) reports contribute to enhancing overall effectiveness of EIA. Though addressing these issues can be helpful in achieving quality of EIA. But, the experience of industrially advanced and particularly developing countries suggests that, even if the technical and financial issues are dealt with in an appropriate manner to produce desired results, the quality of EIA cannot be achieved unless socio-political context in which the EIA system has to operate is favorable. In this context, noted that political pressures have been the driving force behind EIA.

The preparation of high-quality EIA reports or Environmental Impact Statements (EISs) is one component of an effective translation of EIA policy into practice. However, just having EIA

policy is not the only pre-requisite for producing good quality EIA reports. One of the causes of poor quality of EIA in Pakistan appears to be relatively little experience of consultants and approval authorities in EIA, Weak Public participation, and lack of skilled EIA professionals within the responsible authorities (Obaidullah, 2008).

2.4 Conceptual Framework

The preparation of good-quality reports from the Environmental Impact Assessment Analysis (EIAS) helps to increase the overall efficacy of the EIA. In circumstances where public involvement is limited and there is a lack of competence on the part of the competent authority, this aspect of the EIA process becomes more important. EIA has been mandatory in Ethiopia since 2000 for any project likely to cause adverse environmental impacts. Guidelines for the preparation and review of the EIA reports were also formulated by the competent authority in 2003. Nevertheless, the EIA has yet to prove to be an effective decision-making mechanism to help protect the environment. The generally low consistency of EIA reports is one of several reasons for this ineffectiveness. The low quality of the EIA Study Report (EIASR) is expected due to lack of awareness, weak public commitment, weak political commitment, advisory and regulatory body capability problems.

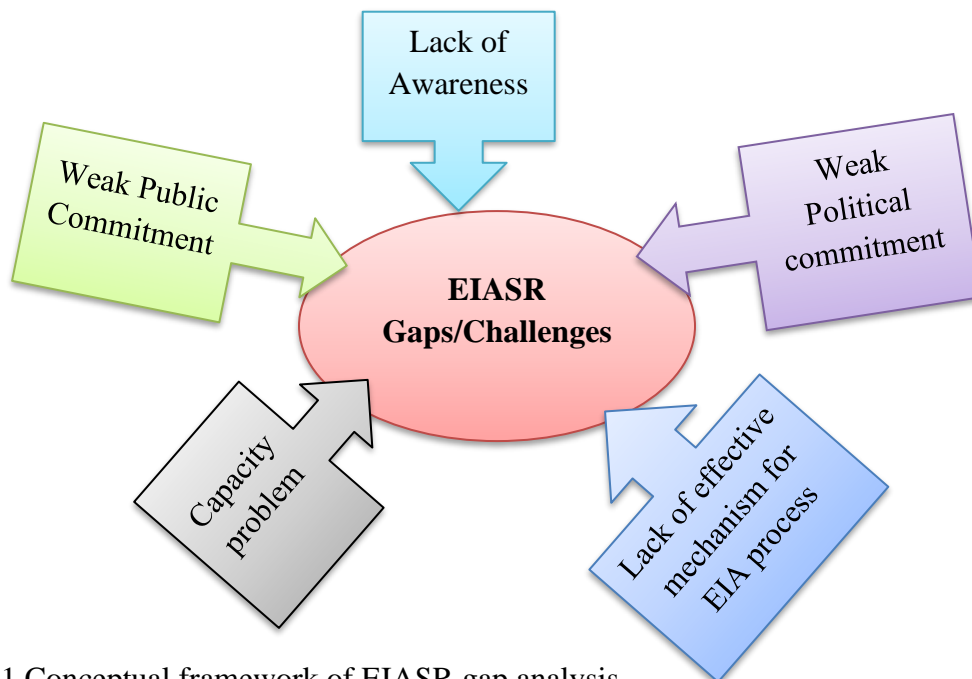


Figure 2-1 Conceptual framework of EIASR gap analysis

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Description of the study area

Burayu town is located in the Oromia Regional State of Oromia Special Zone at a distance of 17km from Addis Ababa. Burayu is the nearest town to Addis Ababa relative to the other towns of the special zone. It is one of the reform and fast-growing towns in the region, and the town has an Integrated Development Plan which was prepared in 2006. Administratively, it is surrounded by Sebeta town in the south, Kolobo (Menagesha) town in the west, Sululta town in the north and Addis Ababa in the east, as illustrated in Figure 1 below. Based on the 2007 census results, the population projection made by Oromia Finance & Economic Cooperation Bureau in 2021, the population of the town is about 109,901, of these, male 54,187 and females 55,714 (CSA, Population and housing Census of Ethiopia, 2007) . Administratively, the town comprises six (6) kebeles, namely Laku Kata, Burayu Kata, Gafarsa Burayu, Malka Gafarsa, Gafarsa Guje, and Gafarsa Nono. Consequently, the study area, specifically the Tatek industry zone, is found in Gafarsa Nono kebele.

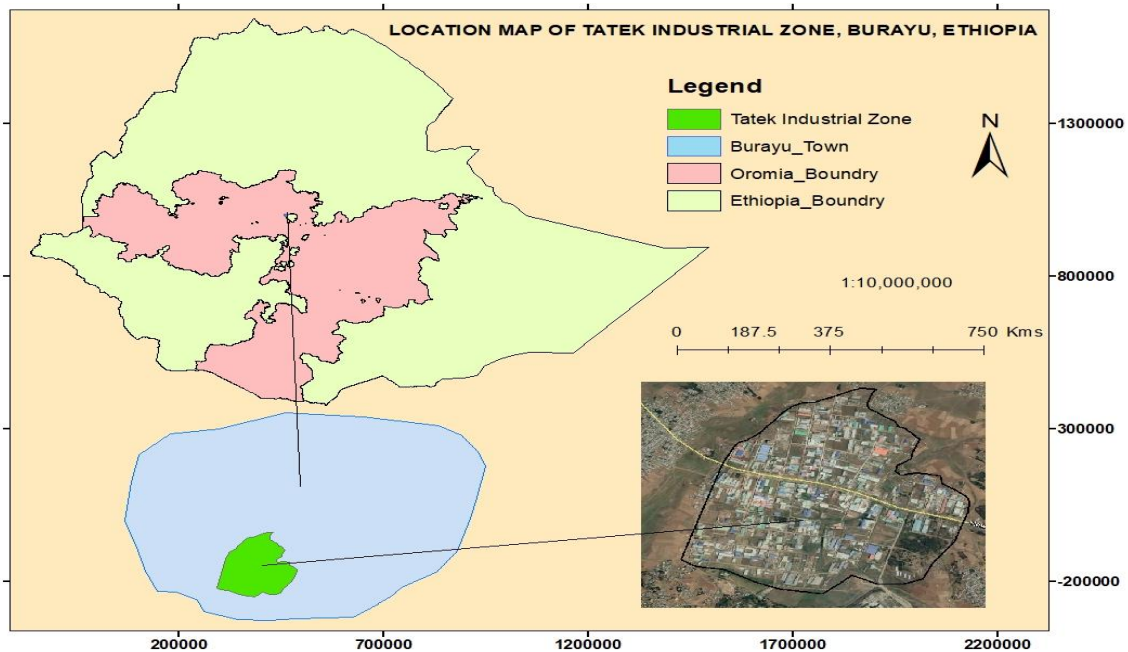


Figure 3-1 Location Map of Tatek Industry Zone, Burayu Town

3.2 Description of the EFCCC (former EPA) Guideline Dimension

In Ethiopia so far there was no systematic approach in reviewing environmental impact study reports before 2003. Past experience has shown that reviews of Environmental Impact Study (EIS) reports were mainly based on individuals' experiences and opinions.

In order to overcome this constraint and make review of reports to the standard, EFCCC (former EPA) has prepared these four guideline series documents with the objectives of:

- ✓ Providing a consistent approach for reviewing EIS reports;
- ✓ Deciding whether there is sufficient information on the background of the project and its environmental setting, alternatives, impacts, mitigation and monitoring;
- ✓ Ensuring that all relevant information has been analyzed and presented based on appropriate methodologies;
- ✓ Ensuring the points of view of all stakeholders have been taken into account;
- ✓ Guiding the reviewing process and facilitating decision making;
- ✓ Indicating a comprehensive information requirement;
- ✓ Evaluating the reports in a systematic and objective manner; and
- ✓ Providing a structured questionnaire for interpreting the information that was provided in the report aspect

These guideline documents are intended to serve as basis for guidance in reviewing of environmental impact study reports pertaining to projects of all sectors. The guideline has four series. These are;

- a) Review Approach
- b) Contents and Scopes of Report
- c) Environmental Characteristics
- d) Review Criteria

Hence, the researcher was used the fourth series (the review criteria) to evaluate the factories EIA study reports. This review criterion was considered for evaluate the EIS report, because, in order to determine the validity and accuracy of information contained in the EIS report and advise on whether a project should be allowed to proceed, the reviewers were decided to use this adopted environmental criteria, but the others review series are focused on the way& procedures through which EIA study conducted.

3.3 Research Design and Approach

Research design is a crucial step involved in the long process of the study. Accordingly, a cross-sectional research design was employed in this study since data was collected at one place and time. This study employed both qualitative and quantitative (mixed type) methods. Primary and secondary data were acquired from various sources in order to achieve the intended objectives of the study. Based on this, this study followed EFCCC (former EPA) EIASR review guideline, 2003, and key interviews with regulatory bodies (Burayu Town Environment, Forest, and Climate Change Authority) and the proponents, and field observation. Accordingly, the samples were drawn from the factors that have an Environmental Impact Assessment Study Report (EIASR) for analysis, and the interviewees were the regulatory bodies and proponents (owners) of the factories through developed checklists. Hence, purposively provide factories that have an EIA study report for evaluation.

3.3.1 Sampling Technique

Based on the information obtained from Burayu town Environment, Forest and Climate Change Authority (EFCCA), there were 202 different types of factories that have EIA study report. Each type of factories was classified by using stratified sampling based on its type. A census technique was employed since the total number of factories' EIASR considered and was manageable. Hence, the analysis in this study was based on the evaluation of the EIA reports of 202 factories, and the interviews were undertaken with three (3) experts from regulatory body and six (6) factory owners, i.e., one interviewee from each category as indicated Table 3-2 below presents the type of industries considered in this study.

Table 3-1 Types of factories with a complete EIA report in Burayu town (202)

S/N	Types of Factories	Considered number of factories	%
1	Food and related Manufacturing factories	39	19.3
2	Construction Materials Manufacturing factories	64	31.7
3	Plastics & related Manufacturing factories	24	11.9
4	Wood, Metals and related Manufacturing factories	32	15.8
5	Electronics and other related Materials and accessories manufacturing factories	30	14.9
6	Miscellaneous factories	13	6.4
	Total	202	100.0

Source: Burayu town EFCC Authority, 2021

3.3.2 Data Collection Methods

The methods of data collection were varied based on the data types. The primary data was collected from an interview made with three respected persons from the regulatory body (one of them was head of the authority and two of them were experts), and six interviewees from the proponent (owners of the factory), i.e., one proponent from each factory category through semi-structured questionnaire. The secondary data were collected from the evaluation of the EIA study report through checklist developed as per review guideline, 2003. In addition to these, through field observation at factories site and it's surrounding the overall conditions of the area and other related data were collected.

Hence, from the EFCCC (former EPA) review guideline, 2003, the checklists were developed for evaluating the factories' Environmental Impact Assessment study report (EIASR) to determine whether they fulfill the standards and criteria outlined in the guideline. Based on this, the checklist prepared for evaluation has ten (10) major variables categorized as per the review guideline, and its validity and reliability were confirmed. In view of this, therefore, the evaluator was to judge the report information based on the checklist.

As per the instruction mentioned in the guideline for each review sub-heading (category) indicated below, the evaluator was to rate the EIAS report for its performance in addressing a list of issues. The evaluator was giving each issue a rating scale between 1-5 values [(1=Not satisfactory at all (significant omissions), 2=Unsatisfactory (because of several omissions),

3=moderately satisfactory (despite some omissions), 4=highly satisfactory (minor omissions), and 5=Very highly satisfactory (little or no omissions)] for evaluation of factories' EIASR.

The variables for evaluation were developed from the guidelines, which were the major contents of the EIA study report as shown in the table below.

Table 3-2 List of Variables VS Liker scale

S/N	Description of variables for evaluation	Scales of Evaluation (highest to lowest value from 5-1)				
		5	4	3	2	1
1	Executive Summary					
2	Introduction& background					
3	Methods, Approaches and assumptions in gaps in knowledge					
4	Administrative, policy and legal framework					
5	Assessment of baseline information and biophysical data					
6	Assessment of qualitative, quantitative, cultural &historical & other information					
7	Analysis of environmental impact of the industry and mitigation measures					
8	Environmental Management Plan and Monitoring/auditing					
9	Conclusion and recommendation					
10	Appendices					

Source: EFCCC (former EPA) Review guideline, 2003

3.3.3 The Validity and Reliability Test of the variables for evaluation

Factor analysis is a data reduction technique in the SPSS package, and it takes a large set of variables and looks for a way that the data may be "reduced" or summarized using a smaller set of factors or components. While reducing or summarizing the data, it was important to test its validity and reliability. There were various techniques to test the data validity and reliability of SPSS through different procedures as follows:

3.3.3.1. Validity Test

A validity test is a measuring characteristic that determines how well a test measures what we actually want to measure. It is a measure of a research instrument's degree of validity or validity. Validity tests were undertaken for all items using factor analysis, with some items omitted owing

to cross loading, to summarize and condense the items into one component matrix, as shown above table 3-2, and presented below.

When performing a factor analysis, it is to assess the suitability of the data for factor analysis. This involves inspecting the correlation matrix for coefficients of 0.3 and above, and calculating the Kaiser-Meyer-Olkin (KMO) Measure of Sampling Adequacy (Kaiser, 1970, 1974). and Bartlett's Test of Sphericity (Bartlett, 1954) The Bartlett's test of sphericity should be significant ($p < .05$) for the factor analysis to be considered appropriate, and the KMO index ranges from 0 to 1, with 0.6 suggested as the minimum value for a good factor analysis. This information can be obtained from SPSS in the same analysis as used for factor extraction.

3.3.3.2 Reliability Test

A reliability test is also a characteristic of measurement concerned with accuracy, precision, and consistency of results between observers, versions of tests, and between items of a test. The variables' dependability was tested using the following methods and procedures:

Using SPSS software to find the reliability was seeing the result of Cronbach's Alpha, i.e., if Cronbach's Alpha > 0.6 , the instrument is reliable, but, if Cronbach's Alpha < 0.6 : not reliable Based on this, the reliability tests were conducted for all items, and the values of Cronbach's Alpha for each item were greater than the standard value (0.6).

3.3.4 Data Types and Sources

Both primary and secondary data were used in this study and a brief description of each is presented in this section.

3.3.4.1 Primary data Sources

The type of data which is directly gathered from the respected entity regarding the objectives of the study was considered as primary data. These types of data were collected through key informant interview (KII), and field observation. The key informants included three (3) respected individuals from the regulatory body (Burayu town Environment, Forest and Climate Change Authority experts), i.e., one of them head of the authority and two of them were experts, and six (6) proponents (owners of the factory) one from each factory category through using checklists.

The information obtained from the key informants and field observations were used to supplement on the results obtained from the evaluation of the EIA reports of the factories in Burayu town.

3.3.4.2 Secondary data Sources

This study aims to evaluate the EIA report of the factories found in Burayu town. Accordingly, from the total of 544 factories existing in the study area, there were about 202 factories' EIA study reports with complete documents was evaluated. That was secondary data source were the main data sources and types used in this study since document evaluation was the main pillar of this study to address the study's objectives.

3.3.5 Data collection procedures

The secondary data were obtained from the evaluation of factories' EIA study report that available in Burayu town Environment, Forest and Climate Change Authority. The evaluation of the EIA reports for the factories in Burayu town was conducted procedurally. First, the lists of the factories were obtained from the office. Access was granted to the researcher who checked on the completeness of the EIA report. Out of the 544 factories, a complete report was found for the 202 factories. Based on this, the review criteria have ten (10) variables used for evaluating the documents by using a Liker scale 1-5 point.

Pertaining to a collection of primary data from the key informants, Burayu town Environment, Forest and Climate Change Authority respected persons and the proponents (owners of the factory).

First, submitting a letter written from the University to the Burayu town Environment, Forest & Climate Change Authority (EFCCA) and get their approval, via they also wrote a letter to the owners of the factory to get their permission for interview. Then after confirming their notification for interview, through developed semi-structured questionnaire in local official language (Afan-Oromo) for both sectors and made an interview with them and a qualitative primary data were collected.

3.4 Methods of Data Analysis

The data for this study was qualitative and quantitative, and it was gathered through a variety of approaches and from a variety of sources. The information gathered from the assessment of the Environmental Impact Assessment Study Report (EIASR), interviews with Burayu Town EFCC Authority experts and factory owners (proponents), and observations was assessed subjectively and quantitatively based on this.

Using the data from the EIASR evaluation, the researcher was calculated a mean score for each variable in using SPSS-20 and statistically compared the mean score of each variable to the review criteria.

- ✓ 1.00– 1.80 =Not satisfactory at all (significant omissions)
- ✓ 1.81–2.60 =Unsatisfactory (because of several omissions)
- ✓ 2.61–3.40 = Moderately satisfactory (despite some omissions)
- ✓ 3.41–4.20 = Highly satisfactory (minor omissions)
- ✓ 4.21–5.00 = Very highly satisfactory (little or no omission)

Whereas, the data collected through interview by using KII & observation was analyzed quantitatively through narration and interpreted accordingly for writing the report.

CHAPTER: FOUR

RESULT AND DISCUSSION

4.1 Description of the Factories in Burayu town

4.1.1 Establishment of the factories in Burayu

Many investors have begun to invest in the production of goods and services in various sections of the country as a result of the country's new investment strategy, which encourages both local and foreign investors to create jobs opportunity and foreign direct investment (FDI) attraction. One of the places allocated for investment that provided to investors was the Tatek site in Burayu town, Oromia Regional State. As a result, a large number of investors began investing and establishing various sorts of factories. Food, beverages, construction materials, plastic and associated products, wood and metal products, electronics and related materials, and other related products were the main products produced in the area.

According to data acquired from the Environment, Forest and Climate Change Authority (EFCCA) of Burayu town, there were around 544 factories in the area. Among these factories operating in the town there were only 202 of factories have an Environmental Impact Assessment Study Report (EIASR) available in their office. The factories began operating in the area in 2009. The majority of the factories, 35.1 percent were established in 2015, while 13.4 percent of the factories were established in 2017. And the rest were established from 2018 onward.

According to EIA proclamation No. 299/2002, article 5(1), every project which falls into any category listed in any directive issued pursuant to this proclamation shall be subject to environmental impact assessment. Hence, based on this proclamation, it is coercion to conduct an EIA study before implementation. But, only the above-mentioned number of factories actually undertook an EIA.



Figure 4-1 Depicts overview of Tatek industry zone, Burayu

4.1.2 Types of Factories in Burayu.

There are a variety of factories that produce a variety of commodities for both domestic and international markets. Food and related manufacturing factories, construction materials manufacturing factories, plastics and related manufacturing factories, wood, metals and related manufacturing factories, electronics and related materials manufacturing factories, and other mixed factories are the most common types of factories. As indicated in Table-4-1, the bulk of these factories produce construction materials followed by food and associated items, which account for 32 percent and 19 percent, respectively.

Table 4-1 Number of factories in Burayu town (544)

S/N	Types of Factories	Number of factories in Burayu Town	%
1	Food and related Manufacturing factories	132	24.3
2	Construction Materials Manufacturing factories	64	11.8
3	Plastics & related Manufacturing factories	198	36.4
4	Wood, Metals and related Manufacturing factories	49	9.0
5	Electronics and other related Materials and accessories manufacturing factories	30	5.5
6	Miscellaneous/ Mixed factories	71	13.1
	Total	544	100.0

Source: Burayu Town EFCC Authority, 2021

4.2 Evaluation of the EIA of factories and Description of Mean score of the variables

4.2.1 Description of the Mean score of the variables

A mean score of the variables indicated the average values of the scales or liker scale, whereas a standard deviation is a statistic that measures the dispersion of a dataset relative to its mean. As indicated below (Table 4-2) the variables scored a mean of 1.00 to 1.80 become very low as compared to the standard guideline and it is not satisfactory at all (significant omission), those scored from 1.81 to 2.60 become low & it is unsatisfactory (because of several omissions), a mean score of between 2.61 to 3.40 became medium & moderately satisfactory (despite some omissions), a mean score of in between 3.41 to 4.20 became high & it was highly satisfactory (minor omission) and mean score of 4.21 to 5.00 become considered as very high as compered the standard review guideline & it is very highly satisfactory(little or no omission).therefore; according to the value of Liker scale listed below (Table 4-2), each variables evaluated as per its mean score.

- ✓ 1.00– 1.80 =Not satisfactory at all (significant omissions)
- ✓ 1.81–2.60 =Unsatisfactory (because of several omissions)
- ✓ 2.61–3.40 = Moderately satisfactory (despite some omissions)
- ✓ 3.41–4.20 = Highly satisfactory (minor omissions)
- ✓ 4.21–5.00 = Very highly satisfactory (little or no omission)

Table 4-2 Description of the mean score and standard deviation of the variables

Descriptive Statistics					
Description of the Variables	N	Mean	Std. Deviation	Cronbach's Alpha	Mean score value level
Executive Summary	202	3.71	0.918	0.921	Highly satisfactory
Conclusion and recommendation	202	3.36	0.856	0.910	Moderately satisfy
Analysis of environmental impact of the industry and mitigation measures	202	2.78	0.633	0.810	Moderately satisfy
Environmental Management Plan and Monitoring/auditing	202	2.65	0.827	0.611	Moderately satisfy
Assessment of baseline information and biophysical data	202	2.48	0.568	0.642	Unsatisfactory
Appendices	202	2.33	1.048	0.776	Unsatisfactory
Assessment of qualitative, quantitative, cultural & historical & other information	202	2.11	0.678	0.730	Unsatisfactory
Introduction & background	202	2.08	0.633	0.623	Unsatisfactory
Methods, Approaches and assumptions in gaps in knowledge	202	2.05	0.699	0.946	Unsatisfactory
Administrative, policy and legal framework	202	1.48	0.632	0.851	Not satisfactory
Valid N (list wise)	202				

Source: Review of EIASR SPSS analysis result, 2021

As a result, the variables such as Assessment of baseline information and biophysical data, Appendices, Assessment of qualitative, quantitative, cultural, historical, and other information, Introduction & background, Methods, approaches, and assumptions in gaps in knowledge, and administrative, policy, and legal frameworks were scored with a mean score of 2.48, 2.33, 2.11, 2.08, 2.05, and 1.48, respectively, and fell below the low level. This means that the EIA study report and its variables received such a low and very low score that the report was unsatisfactory in terms of content and fell short of the review guidelines. Variables like conclusion and recommendation. Analysis of the industry's environmental impact and mitigation strategies, environmental management plans, and monitoring and auditing, on the other hand, received a mean of 3.36, 2.78, and 2.65. These scores were characterized as moderate, and the content of the papers resulted in moderately satisfactory results, but they were still below the standard.

Finally, the variable (Executive Summary) received an average score of 3.71, placing it in the highly satisfactory category.

4.3 Evaluation of the EIA Study Report of the Factories in Burayu town

The EIASR of each factory was analyzed and displayed below based on the review guideline requirements. For the purposes of this study, the total number of 202 various types of factories was divided into six (6) primary categories based on their production similarities. Among them are food and related manufacturing plants, construction materials manufacturing plants, and plastics and related manufacturing plants, Miscellaneous or diverse mixed factories, wood, metals, and related products fabrication plants, electronics, and other materials and accessories Manufacturing factories, Miscellaneous or various mixed factories.

As a result, the EIASR analysis results for each factory were reported as follows:

.4.3.1 Food and Related Products Manufacturing Factories

According to the data acquired from the Burayu town Environment, Forest, and Climate Change Authority (table 4-3), there are 39 food and associated product manufacturing factories with an EIASR. According to the evaluation results analysis, most of the contents of the Environmental Impact Assessment Study Reports scored a mean of below moderate value when compared to the EFCCC (former EPA) review criteria. These figures were categorized as low and very low. This means that the EIASR food and associated product manufacturing factories fell short of the standard in those areas and were unsatisfactory in comparison to the guidelines. The remaining variables, such as Executive Summary, Conclusion and Recommendation, Analysis of the Industry's Environmental Impact and Mitigation Measures, Environmental Management Plan, and Monitoring/Auditing, all received a moderate mean value, with none receiving a high or very high value. This meant that the reports from food and associated product manufacturing facilities were unsatisfactory and below par.

Table 4-3 Food and related products manufacturing factories and its mean scores

OLAP Cubes			
Type of the Factory: Food and related manufacturing factories			
Description of Variables	N	Mean	Std. Deviation
Executive Summary	39	3.44	.905
Conclusion and recommendation	39	3.02	.904
Analysis of environmental impact of the industry and mitigation measures	39	2.96	.738
Environmental Management Plan and Monitoring/auditing	39	2.71	.757
Assessment of baseline information and biophysical data	39	2.55	.591
Introduction and background	39	2.26	.595
Appendices	39	2.16	1.122
Assessment of qualitative, quantitative, cultural and historical and other information	39	2.15	.669
Methods, Approaches and assumptions in gaps in knowledge	39	2.09	.794
Administrative, policy and legal framework	39	1.68	.851

Source: Review of EIASR SPSS analysis result, 2021

4.3.2 Construction Materials Manufacturing Factory

There were 64 factories of construction materials with an EIASR accessed from regulatory bodies, as shown in the table below (table-10) As a result, the quality of the factories' EIA study reports was evaluated. Assessment of baseline information and biophysical data, Assessment of qualitative, quantitative, cultural, historical, and other information, Introduction and background, Methods, Approaches and assumptions in gaps in knowledge, Administrative, policy, and legal framework received a mean of 2.51, 2.40, 2.26, 2.09, 1.96, and 1.48, respectively. This suggests that almost 60% of the reports' material fell below the moderate mark and did not meet the review guideline's requirements. The variables Analysis of the industry's environmental impact and mitigation methods, Environmental Management Plan, and Monitoring/auditing were all given a moderate score, with the exception of Executive Summary, Conclusion, and Recommendations, which were given a high score (3.84 and 3.45). As a result, the EIA research report of the Construction Materials Manufacturing Factory failed to meet the guideline's standards.

Table 4-4 Construction materials manufacturing factory and its mean score

OLAP Cubes			
Type of the Factory: Construction Materials manufacturing factory			
Description of Variables	N	Mean	Std. Deviation
Executive Summary	64	3.84	.891
Conclusion and recommendation	64	3.45	.691
Analysis of environmental impact of the industry and mitigation measures	64	2.84	.600
Environmental Management Plan and Monitoring/auditing	64	2.77	.730
Appendices	64	2.51	.945
Assessment of baseline information and biophysical data	64	2.40	.568
Assessment of qualitative, quantitative, cultural and historical and other information	64	2.26	.763
Introduction and background	64	2.09	.567
Methods, Approaches and assumptions in gaps in knowledge	64	1.96	.575
Administrative, policy and legal framework	64	1.48	.597

Source: Review of EIASR SPSS analysis result, 2021

4.3.3 Plastics and Related Products Manufacturing Factories

As shown table below; there were about 24 plastics and related products manufacturing factories that have an EIA study report were evaluated and its results presented below. From the contents of the report, 20% (Executive Summary, and Conclusion and recommendation) of it was full filling the criteria of the review guideline. But, 80% of the report contents (Analysis of environmental impact of the industry and mitigation measures, Environmental Management Plan and monitoring/auditing, Appendices, Methods, approaches and assumptions in gaps in knowledge,, Assessment of baseline information and biophysical data, Assessment of qualitative, quantitative, cultural and historical and other information, Introduction and background, and Administrative, policy and legal framework) were below the standard, and not satisfactory as compared to the review guideline.

Table 4-5 Plastics and related products manufacturing factory and its mean scores

OLAP Cubes			
Type of the Factory: Plastics and related manufacturing factories			
Description of Variables	N	Mean	Std. Deviation
Executive Summary	24	3.91	.894
Conclusion and recommendation	24	3.88	.768
Analysis of environmental impact of the industry and mitigation measures	24	2.54	.560
Environmental Management Plan and Monitoring/auditing	24	2.50	.828
Appendices	24	2.45	1.184
Methods, Approaches and assumptions in gaps in knowledge	24	2.41	1.083
Assessment of baseline information and biophysical data	24	2.28	.605
Assessment of qualitative, quantitative, cultural and historical and other information	24	1.88	.601
Introduction and background	24	1.85	.651
Administrative, policy and legal framework	24	1.43	.515

Source: Review of EIASR SPSS analysis result, 2021

4.3.4 Wood, Metal and Related Products Manufacturing Factories

As presented table below, there were 32 factories that produce wood and metal products that have an EIA study report reviewed and analyzed. Based on this, the factories' EIA report contents were scored a mean of low level, on variables; Assessment of baseline information and biophysical data, Appendices, Environmental management plan and monitoring/auditing, Methods, approaches and assumptions in gaps in knowledge, Assessment of qualitative, quantitative, cultural & historical and other information, Introduction and background, Administrative, policy and legal framework, and it accounts 70% of the parts of EIA report content which was unsatisfactory as compared to the review guideline. Only 30% of the reports content satisfied as compared to the guidelines.

Table 4-6 Wood, metal and related products manufacturing factories and its mean scores

OLAP Cubes			
Type of the Factory: Wood, Metal and related manufacturing factories			
Description of the Variables	N	Mean	Std. Deviation
Executive Summary	32	3.71	.880
Conclusion and recommendation	32	3.18	1.025
Analysis of environmental impact of the industry and mitigation measures	32	2.78	.731
Assessment of baseline information and biophysical data	32	2.56	.624
Appendices	32	2.20	.993
Environmental Management Plan and Monitoring/auditing	32	2.18	.943
Methods, Approaches and assumptions in gaps in knowledge	32	2.00	.616
Assessment of qualitative, quantitative, cultural and historical and other information	32	1.96	.522
Introduction and background	32	1.88	.596
Administrative, policy and legal framework	32	1.36	.531

Source: Review of EIASR SPSS analysis result, 2021

4.3.5 Electronics, Accessories and other Related Materials Manufacturing Factories

As the data indicated by the regulatory body, there were about 30 electronic and accessory materials manufacturing factories that had an EIA study report. Those reports fully fulfilled the criteria of the review guidelines only in 10% of their contents, namely, the Executive Summary. And 40% of the reports of the content scored a mean of moderate values, like, Conclusion and recommendation, Environmental management plan and monitoring/auditing, Analysis of environmental impact of the industry and mitigation measures, Assessment of baseline information and biophysical data, i.e., the reports of these factories were moderately satisfactory in these contents as compared to the review guideline.

Whereas the remaining 50% of these factories' EIA study reports were scored at the mean score of low and below low level in content like: Introduction and background, Appendices, Assessment of qualitative, quantitative, cultural, historical, and other information, Methods, approaches, and assumptions in gaps in knowledge, and Administrative, policy, and legal framework.

This indicated that the quality of the EIA study reports of electronics, accessories, and other related materials manufacturing factories was below standard and not satisfactory as per the review guidelines.

Table 4-7 Electronics and accessories and related materials manufacturing factories, and its mean score

OLAP Cubes			
Type of the Factory: Electronics and other related materials and accessories manufacturing factories			
Description of the Variables	N	Mean	Std. Deviation
Executive Summary	30	3.78	1.028
Conclusion and recommendation	30	3.40	.716
Environmental Management Plan and Monitoring/auditing	30	2.76	.862
Analysis of environmental impact of the industry and mitigation measures	30	2.71	.452
Assessment of baseline information and biophysical data	30	2.67	.425
Introduction and background	30	2.20	.761
Appendices	30	2.08	.998
Assessment of qualitative, quantitative, cultural and historical and other information	30	2.04	.582
Methods, Approaches and assumptions in gaps in knowledge	30	1.96	.474
Administrative, policy and legal framework	30	1.31	.517

Source: Review of EIASR SPSS analysis result, 2021

4.3.6 Miscellaneous (Mixed) Factories

As the data obtained from the respective office indicated, there were 13 different types of factories (miscellaneous) that produce different products and have an EIA study report. There were 40% of the contents of the EIA study report were above the moderate levels, which moderately satisfied the criteria of the review guideline. whereas the remaining 60% of the report's content was scored at a mean score below the low level when compared to standard guidelines in content such as, Analysis of the industry's environmental impact and mitigation measures, Assessment of baseline information and biophysical data, Introduction and background, Assessment of qualitative, quantitative, cultural, historical, and other information, methods, approaches, and assumptions in gaps in knowledge, and Administrative, policy, and other information. None of the factories' report scored a mean value of a high level (satisfactory). This showed the quality of the reports was below the standard review guidelines.

Table 4-8 Mixed types of the factories and its mean

OLAP Cubes			
Type of the Factory: miscellaneous/ mixed factories			
Description of the Variables	N	Mean	Std. Deviation
Executive Summary	13	3.42	.866
Conclusion and recommendation	13	3.34	1.015
Environmental Management Plan and Monitoring/auditing	13	3.03	.726
Appendices	13	2.62	1.210
Analysis of environmental impact of the industry and mitigation measures	13	2.47	.529
Assessment of baseline information and biophysical data	13	2.42	.460
Introduction and background	13	2.23	.633
Assessment of qualitative, quantitative, cultural and historical and other information	13	2.23	.844
Methods, Approaches and assumptions in gaps in knowledge	13	2.04	.594
Administrative, policy and legal framework	13	1.67	.593

Source: Review of EIASR SPSS analysis result, 2021

In general, the overall EIASR evaluation result showed above, 60% of the factories' report content scored a mean score of below low level, 30% of the content scored a mean score of moderate, and only 10% of the content scored an average value of high level.

Therefore, it was concluded that the factories' EIA study report available in Burayu town EFCC Authority did not satisfied the criteria of the EFCCC review guideline.

4.4 Identified Gaps and challenges

As indicated above, the result of the evaluation of EIASR showed that more than half of the factories' report contents scored a mean score of below level and only about ten percent of the report contents' mean scores had an average value of high-level result, which showed as a whole the document quality was below the EFCCC (former EPA) standard review guideline.

Hence, regarding the gaps and challenges of the Environmental Impact Assessment study report, the following were considered to be the main reasons identified in the EIA study process in the study area:

4.4.1 Lack of Capacity

The problem of capacity was seen from the perspective of consultants and of the regulatory body itself. Consultants are very important actors in the EIA process as they are the ones who prepare the EIASR on behalf of the proponents. According to Wo/Ro Rahel Hirphassa, Burayu town EFCC Authority head, because they write the EIASR on behalf of the proponents and risk being significantly influenced by their customers. When evaluated collectively, the EIAS of many consulting firms do not meet the EFCCC's (former EPA) standard guidelines. Many consulting firms simply write their assumptions rather than describe the actual scenario, since there is no code of conduct or criteria governing how such a multidisciplinary task should be handled. According to an interview with Ato Abdulahi Umar Mohammed, manager of Tamirat Mulatu Gedano Blanket plant, and Ato Abebe Hailu, manager of Boja Plastics factory, they did not have any method to confirm the consultants' capacity, or whether they had full knowledge of the EIA research or not.

The Burayu Town Environment, Forest, and Climate Change Authority was supposed to control environmental and related activities in the area, according to Proclamation No. 2013/2018, enacted for the reorganization and redefinition of the powers and duties of the executive organs of Oromia National Regional State, but it doesn't (Oromia Regional State, 2018). They would remain crippled if they did not have sufficient powers. The applicants of EIASR were typically ineffective, the documents were usually large, and the authorities lacked a suitable and well-equipped number of specialists, so they were overworked and unable to examine the EIASR in the manner that was expected of them. As a result, getting a good EIA process in such a tense situation was quite challenging. In this regard, the reviewed documents in such a situation did not fulfill the guidelines' standards (Interview, Wo/ro Rahel Hirphassa).

4.4.2 Low level of knowledge towards EIA

Another issue that created a gap in the successful execution of the EIA was that many officials and investors were uninformed about it, and this lack of knowledge led many officials and investors to view it as a process designed to make development activities more difficult. Consider it anti-investment and anti-development, as well as a time-consuming, expensive, and complex process that stymies growth (Interview, Ato Leta Zeleke; Burayu Town EFCCA expert, 2021).

On the other hand, based on the data obtained from the factories' owners' interviews with six factories, the EIASR of the five factories was conducted three years after the establishment of the factories. This showed that there was a low level of awareness towards the EIA, whether it was beneficial or not in relation to their project.

Furthermore, project owners and investors undervalue the necessity of the EIA. In general, they perceive it as a pointless bureaucratic stumbling block. Many people regard EIA as a threat to investment and other development activities rather than a tool for long-term development as a result of these assumptions, and many factories continue to operate without conducting EIA studies. (Interview with W/ro Rahel and Ato Leta Zeleke).

In addition to these, the Tamirat Mulatu Gedano Blanket factory still didn't operate fully according to the rules and regulations stated in EIASR since the factory emitted dust into the surrounding environment because they were operated in rented sheds and it is difficult to establish and implement dust control technology and there was an absence of land for disposing and burning byproducts (Interview, Ato Abdulahi Umer Mohammed).

4.4.3 Lack of Effective Mechanisms for the EIA Process

Investors obtained an investment license and investment land from the investment office and the land administration office, according to Wo/Ro Rahel and other experts, and then they began investing without conducting and submitting an EIASR. There were no mechanisms for tracing factory owners or investors who had been issued investment licenses, and one can easily imagine how difficult it would be to know the investors who have been issued investment or trade licenses and are implementing their projects at unknown sites or industry shades, i.e., within one shade there were a variety of factories, and the owners refused to let us in while we were there for follow-up and control. On the other hand, the proponents were critical of the regulatory bodies like the Land Use Administration, Investment Office, and Environment, Forest, and Climate Change Authorities in getting services. According to Ato Bekele Adnew (Apple Juice and Bottled Water Manufacturing Factory owner), there was no fast and sufficient service provision from the government sectors, and they got it only after a lot of appointments.

4.4.5 Weak political Commitment

Despite the government's efforts, such as the establishment of environmental institutions and the enactment of laws that demonstrate a commitment to environmental concerns, the created institutions face significant political pressures to remain focused on growth. All of the relevant institutions were understaffed and lacked the authority to carry out their responsibilities. Existing laws lack enforcement tools, are inflexible, and can be easily evaded by commercially motivated legislation. (Wo/ro Rahel, 2021).

Furthermore, as proponents stated during the interview, there was less commitment and a lengthy process in service provision for them, such as electric power supply for Enizhat Industrial and Chemical Plc. (Soap factory), investment land still not given for Tamirat Mulatu Gedano Blanket factory, according to Ato Abdulahi, and they were produced or operated in rented sheds.

On the other hand, according to Ato Mohammed Adem (Addis Transformer Manufacturing Factory) manager, the factories' establishment in the area was not clustered based on similarities and types of their products for implementation of waste disposal system and management, hence, it is difficult to implement waste disposal technologies, i.e., if identical factories or factories that have similarities in their input, output, and wastes or byproducts clustered in an area, it is commonly implemented waste or emission control technology, etc. but not in an area. In general, these and other constraints show there was a weak or less governmental commitment to implementing effective EIA rules and regulations accordingly.

4.4.6 Weak public participation

According to the EIA Proclamation (299/2002) the public must participate in two stages: during the study of the EIA and during the review process of the EIASR. However, when we look at public participation in the creation of the EISR, we see that it was very low. Some project owners list the names of a few people, along with their signatures or thumb marks, as those who took part in the EISR. The regulatory body, for its part, is unsure whether the lists attached to the EISRs by the consultants were genuine or not. As a result, the EFCCC added a new criterion requiring grass-roots officials to endorse public participation (Ato Leta Zeleke, interview).

In addition to this, from the reviewed EIASR, almost all factories' EIA reports didn't have the public consultation minutes attached to the documents. This indicated that the consulting firms didn't undertake public discussion during the EIA process.

Another factor that reduces public participation was the widespread belief that the government has already decided to support a particular project and will, despite everything, continue to support its implementation. With such a viewpoint, the majority of those who should participate in the EIA process, predictably, pick out, believing that their efforts would be ineffective. They even believe that their comments will simply fuel animosity between the general public and government officials and project owners. The public must also be involved in the review process,

but this aspect has been completely overlooked, and the review process is now only for experts, not citizens, this was due to the time given for review is too short to engage the public, and there was no budget to solicit public participation, which is a costly process. (Interview with Derartu Urgecha, Burayu town EFCCA expert).

CHAPTER: FIVE

CONCLUSION AND RECOMMENDATION

5.1 Conclusion

The study evaluated and identified the gaps and the challenges of effectiveness of the factories' EIA study reports as per the EFCCC standard guideline. Hence, in light of the findings obtained in this study, the following conclusions were made.

The above points lead the researcher to the conclusion that, the evaluation result of Environmental Impact Assessment Study Report (EIASR) of 202 factories as per the EFCCC (former EPA) guideline 50 % of the variables scored a mean score of below low level and which was unsatisfied. Whereas, 30% of the mean score of the variables fall in moderate level and which was moderately satisfied, 10% of the result showed not satisfied at all, and only 10% of the mean score of the variables valued at high level and which indicated that, the reports' content was highly satisfied as per the review guideline.

As shown the low quality of an EIA study report rose from, the regulatory bodies who reviewed the document and endorse the environmental clearance certificate. On the other hand; the proponents (owners of the factors) seen an EIA as a threat that hinders an investment, time consuming, and delays the implementation of the projects and they were undervalue the implementation of EIA. In addition to these, as observed while document evaluation almost all the documents were not containing the public consultation minute that ensures the participation of the community in the area. And the other reason of the low commitment of the government in implementation of the rules and regulation of EIA and low power in acting while an investor violet an EIA rule.

As it was already pointed out in the main body of this work, the lack of effective EIA implementation was not only harmful to the environmental and society, but also it will have detrimental effects on the projects. Moreover, it must not be forgotten that most of the development activities are run with the public money, directly or indirectly. If projects or programs fail due to environmental reasons, ultimately it will be the public that will suffer from a triple loss; financial, social as well as environmental.

For the full realization of the motto “Development without destruction” all of our talk on EIA must be put into action. While dealing with issues of the environment, one must have detailed knowledge. Without familiarity with the nature of the environment, it would be difficult to properly address environmental issues. Human interaction with the environment must no longer continue a “take from” relationship, in which we take resources from the environment in a unidirectional way. The relation also must be a “give to” one, in which they invest in nature. It is the “give to and take from” kind of relationship between humans and the natural environment which is considered to be healthy. Existence of this kind of relationship is a guarantee for sustainable development, and EIA is a tool to ensure that the balance is right.

5.2 Recommendation

The quality and implementation of an EIASR were influenced by various actors who involved in its process. Even though, there were a lot of environmental protection rules and regulations were developed, the environment was degraded from time to time. Environmental Impact Assessment study is one of the activities to be undertaken for the projects before implantation to decide whether the project is environmentally viable or not and recommend mitigation measures to reduce its impact. Then; to ensure the quality of the EIASR and appropriately implemented, the following recommendations were presented;

1. Close follow-up the process of EIA operation, identify the consulting firm who conduct an EIA to ensure the quality of the study report,
2. Improve the capacity of the regulatory body experts who reviews the EIASR according to the guideline to confirm the document,
3. The EFCCA should be committed to enact the rules and regulations in accordance to minimize the gaps and implement properly to reduce the adverse impacts of the projects on environment,
4. Government ensures sectorial integration to control investors legality in their operation,
5. Continuous awareness creation for proponents/ project owners to change their attitudes towards EIA to accept it as important tool for environmental protection and assurance for their continued activities,
6. Ensure the involvement of local communities who directly affected by a project through EIA process, etc.

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Appendices

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Checklist for EIASR Review

This checklist is prepared for a review of Environmental Impact Assessment Study Report (EIASR), among the factories in Tatek Industry Zone of Burayu Town in Oromia Region. The purpose of the EIASR review is to conduct a study, which was serving as a partial fulfillment of the requirements for the degree of Master of Arts in Environment and Development Studies.

The objective of the review is to identify the gaps and challenges for EIA implementation of factories in the study area based on the 2003 Ethiopian Environment, Forest and Climate Change Commission (former EPA) review guideline. Therefore, in order to determine the validity and accuracy of information contained in the EIAS report the reviewer use the following checklists in the table below and rates each issue a rating between 1 and 5.

Name of the Factory: _____

Year of EIASR prepared: _____

Name of reviewer: _____ Signature _____ Date: _____

Instruction

Rating between [1-5] under the column “Performance against criteria” to summarize how well Environmental Impact Assessment Study Report (EIASR) fulfills the specified criteria

1. Not satisfactory at all (significant omissions)
2. Unsatisfactory (because of several omissions)
3. Moderately satisfactory (despite some omissions)
4. Highly satisfactory (minor omissions)
5. Very highly satisfactory (little or no omission)

S/N	Description of the Environmental Impact Assessment Study Report (EIASR) Structure	Rating of Performance against criteria	Remarks, if any
1	Structure and Content of the Report		
1.1	Executive Summary;		
	Does the report contain the following aspects under this section?		
a	Title and location of the factory;		
b	Name of the proponent (Promoter/Owner of the Project or factory)		
c	Name of the consultants and/or organization preparing the EIS report;		
d	A brief factory description		
e	The major impacts of the factory (Positive and negative impacts)		
f	Recommendations for mitigation/ compensation;		
g	Proposed implementation strategy		
h	Proposed monitoring and evaluation activity		
1.2	Introduction;		
	Are the following issues briefly explained under this section?		
a	Background information that can be used for the factory EIA study in context;		
b	An outline of the proposal (e.g., location; proposed alternatives in terms of location, design, process, input, etc. input and resource requirement, life-span of development);		
c	Objectives of the assessment;		
1.3	Methods and Approach to the study;		
	Are the following points clearly stipulated in the		

	EIARS document?		
a	Approaches employed for EIA and evaluation;		
b	Description of the approach/ methodology		
1.4	Assumptions and/or Gap in know ledges		
	In this regard therefore; is the reporter (the expert who prepared the report) clearly states the level of assessment by considering the following points?		
a	Identification of knowledge gaps, assumptions and unavailable information;		
b	Reasons for the incomplete nature and/or assumptions of information;		
c	The implications of those identified knowledge gap and assumptions for decision making;		
d	Proposals and/or suggestions to avoid the identified constraints and limitations.		
1.5	Administrative, Legal and Policy requirements		
	Are the following information included in the document?		
a	Identification of planning and administrative procedures followed		
b	The relevant legislations;		
c	Indication of how compliance has been achieved with respect to other environmental requirement provisions;		
1.6	Assessment;		
	Are the required assessments in this section carried out for each of the alternatives? (the assessment to be in terms of specificities, not in		

	generalities)		
1.6.1	Baseline information/ assessment on the project /factory proposal		
a	Size and nature of development		
b	Brief description of project alternatives		
c	Sources, types, characteristics, and volume of raw materials		
d	Time schedule for phasing of development (i.e., construction, operation, maintenance, decommissioning		
e	Removal and disposal of waste		
f	Human and Resource Materials costs		
1.6.2	Biophysical Environment/ Human Environment		
	Are the following elements included in the document?		
a	Land tenure system of the area & surrounding land use		
b	Public services and infrastructures in and around the factory		
c	Physical constraints of the area		
d	Boundaries of the factory and its implication on the environment		
1.6.2.1	Qualitative and quantitative biophysical environment data		
a	Climatic condition of the area		
b	Soil, geology, hydrology, topography, and flora & fauna of the area		
1.6.2.2	Qualitative and quantitative socio-economic data		

a	Demographic indices/characteristics		
b	Living standard of the community		
c	Housing condition, availability of energy, water supply, health service of the area		
1.6.2.3	Cultural and historic environment		
a	Sites of national parks		
b	Sanctuaries, monuments, statues		
c	Religious significant areas		
1.6.2.4	Other illustrative information		
a	Location maps		
b	Figures & tables		
1.6.2.5	If the factory likely produces trans-regional impacts		
a	Description of both the local and regional impact		
b	Biophysical and human environment		
1.6.3	Analysis of information to the Environmental impacts of the factory		
	Are the following elements/points included in the documents?		
a	Magnitude, geographic extent, duration, and frequency of the impacts		
b	Reversible or irreversible, risk of uncertainty, and size of group affected		
c	Brief description and analysis of each impact (e.g., nature, significance, and extent);		
d	Affected stakeholders in and around the factory area;		
e	Impacts on the environment which results from the incremental impact of the factory when added to other past, current and reasonably		

	foreseeable future proposals;		
f	Potential accident or hazard scenarios covered in the assessment;		
1.6.3.1	A comparison of proposal options		
a	Size, siting, technology; layout of the factory		
b	Source of raw materials		
1.6.4	Mitigation Measures		
	Are the following mitigation measures described in the EIASR?		
a	Preventing, reducing or minimizing impacts before they occur;		
b	Eliminating an actual impact over time by incorporating appropriate maintenance measures during the life of the factory;		
c	Rectifying an impact by repairing, rehabilitating or restoring the affected environment;		
d	Compensating for an impact by replacing or providing substitute resources or environments as well as contingency plans in case of emergencies;		
e	Maximizing beneficial impacts through specific additional actions.		
1.6.4.1	Environmental Management Plan (EMP)		
	Are the EMP includes the following information in the document?		
a	Description of the proposed mitigation measures;		
b	Implementation of schedule for mitigation measures		
c	Cost estimate of mitigating measures;		
d	Capacity building requirement in terms of human		

	and material resources;		
e	Stakeholders (parties), which are responsible for implementing mitigation measures		
1.6.4.2	Monitoring / Auditing		
	Are these issues clarifying the following aspects?		
a	A check that a factory is in compliance with environmental requirements;		
b	Periodical monitoring & evaluation, and analysis of selected environmental parameters		
c	Production and submission of reports for the concerned environmental agency;		
d	Checks that mitigation measures are being implemented during plantation/ construction and operation phases		
e	Appraisal of mitigation measures		
1.7	Conclusions and Recommendations;		
	Are these issues described under this section?		
a	Brief discussion of key issues;		
b	Statement of adverse impacts and the suggested measures to compensate them;		
c	Identification of management and monitoring needs;		
d	Recommendations;		
e	Net benefits, which justify the factory by indicating of both positive and negative impacts;		
f	Explanation of how adverse effects have been mitigated;		
g	Explanation of use or destruction of any irreplaceable components;		
h	Provisions for follow-up surveillance and		

	monitoring.		
1.8	Appendices.		
	Are the following aspects provided in the documents as appendices?		
a	Terms of Reference (TOR);		
b	Endorsement letter from the concerned relevant environmental agency or local administration;		
c	Safety or product quality certificate;		
d	Health and product quality assurance certificates as the case may be;		
e	Flow charts and site maps;		
f	Brief corporate environmental policy;		
g	Detailed technical reports;		
h	Approved minutes of public involvement process;		
i	List of Members of the Study Team (names, qualifications, etc.).		

Key Informants semi-structured qualitative interview guide for Regulatory body (Afan Oromo Version)

**Yunivarsiitii Finfinnee
Kolleejjii Qorannoo Misoomaa Biyyaa
Muummee Eegumsa Naannoo fi Misoomaa**

Gaafannoo Abbaa Taayita Eegumsa Naannoo, Bosonaa fi Jijjiirama Qilleensaa Magaalaa
Burayyuu Gaafachuuf Qophaa'e

Barbaachisummaan gaafannoo kanaa, haala bulchiinsaa fi to'annoo Warshaalee Magaala Buraayyuu keessatti argaman, akkasumas dhiibbaa warhaaleen kunniin naannoo irraan ga'an ilaalchisee gaaffii fi deebii Abbaa Taayitaa Eegumsa Naannoo, Bosonaa fi Jijjiirama Qilleensaa Bulchiinsa Magaalaa Buraayyuu gaafachuuf qophaa'edha.

1. Sadarkaa barnootaa fi muuxannoo hojii keessanii walitti dhufeenya eegumsa naannoo waliin qabu nuuf ibsaa.
2. Hojii fi aangoo mana hojii keessanii maali?
3. Gamaaggama raga qorannoo eegumsa naannoof qophaa'e gaggeessuf adeemsa hordoftan ibsaa?
4. Ragaaleen qorannoo dhiibbaa naannoof qophaa'anii waajjira keessan jiran murtoo dabarsuuf ulaagaa barbaachisu ni guutuu?
5. Gamaaggama ragaalee qorannoo dhiibbaa naannoof qophaa'an gaggeessuf hanqinni akka waajjiraatti jiru maali?
6. Hordofiifi gamaaggama hojiirra oolmaa qajeelfama dhiibbaa naannoo akkaata maaliin hordoftu/
7. Qajeelfama eegumsa naannoof ba'e hojiirra oolchuuf hudhaaleen isin mudatu maali?
8. Deemsa isin hordoftanii fi yeroo hangamiitti gamaaggama gaggeessitu?
9. Sababiin warshaaleen tokko tokko qorannoo dhiibba naanno ituu hin hojjechiisiin Oomsha keessa jiran maalii?
10. Dhiibbaa warshaaleen naannoo irratti qaban akkamitti ibsitaa?
11. Warshaaleen balfaa summaa'aa naannoot dhangalaasuu? Akkasumas, dhiibbaa inni fayyaa uummataaf qabu maalii?
12. Warshaalee qajeelfama eegumsa naannoo cabsaniifi hin hordofinne akkamitti hordoftan, tarkaanfii maal fudhatu?

13. Hojii fi itti gaafatamummaa waajjira keessanii akkaata akkamiin ibsituu? Akkasumas warshaalee qajeelfama cabsan tarkaanfii maal fudhattuu?
14. Faayidaa warshaaleen uummata naannoof qabu maalii?
15. Miidhaa warshaaleen uummata naannoo irratti qabu ibss?

Key Informants semi-structured qualitative interview guide for Regulatory body

Addis Ababa University

College of Development Study

Center for Environment and Development

Key Informants semi-structured qualitative interview guide for Regulatory body

The purpose of this interview questionnaire is to collect firsthand information about the role of regulatory body/government play in managing and implementation of EIA rules & regulations in Burayu Town.

1. Would you please tell me briefly about your background (Education, work experience, current position and your area of related with EIA regulation in Burayu town)?
2. What is/are the duties and responsibilities (mandates) of your office?
3. Would you explain the process you followed to review EIASR? If your office empowered to review.
4. Explain, how do you think the EIAS reports of these factories available in your office fulfill the EIA standards and contain adequate information for decision making?
5. Would you explain the knowledge/capacity gaps to realize the duty and responsibility of your office?
6. How do you follow the implementation of EIA rules and regulation?
7. What is/ are the challenges your office has faced in the existing guidelines, rules, regulations and standards to implement?
8. What procedures you follow for the evaluation, and at what frequency you evaluate?
9. What is/are the reason for factories operating without EIASR in the study area?
10. How do you think the adverse impact of the industry in the study area?
11. Do you think, the factories release toxic substances? Explain what its adverse health impact for the residents?

12. What procedures you follow to control the factories activities, and measures do you take, for those who violet an environmental rules & regulation?
13. How do you describe the mandate and powers of your office? And, have you empowered to close/relocate, if the factory/factories have a risk to human health or to the environment?
14. What is/are the advantages of the factories for the local community?
15. Describe the disadvantage of the factories for the local community?

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Key Informant Interview (KII) semi-structured interview guide for Proponents/owners of the factory

1. Do you tell me your name, educational background, and responsibility in a factory?
2. When was your factory established?
3. Did your company conduct EIA before it was established?
4. How do you think about EIA? (as a useful or a hindrance of investment)
5. Do you think that EIA study is a useful criterion for projects before deciding to implement?
6. Do you think that, you fulfill the terms and condition of authorization?
7. Do you implement/ realized the EIA standards as stated on EIASR? If no, why? Explain.
8. Is/Are there any challenges that you encountered to implement the EIA standards?
9. Is/ Are there any challenges encountered you from the community in the area? If yes, explain.
10. Are you confident on capacity/knowledge of the consultant who undertakes the EIA for your factory? How explain.

Factor Analysis to test Validity

Component Matrix^a	
Description of Variables	Component
	1
Introduction Background information used for the factory EIA Study context	.853
Introduction an outline of the Proposal	.853
Extraction Method: Principal Component Analysis.	
a. 1 component extracted.	

Component Matrix^a	
Description of Variables	Component
	1
Assumptions and/or Gap in knowledge the implications of those identified knowledge gap and assumptions for decision making	.971
Assumptions and/or Gap in knowledge Proposals and/or suggestions to avoid the identified constraints and limitations	.943
Assumptions and/or Gap in knowledge Reasons for the incomplete nature and/or assumptions of information	.941
Extraction Method: Principal Component Analysis.	
a. 1 component extracted.	

Component Matrix^a	
Description of Variables	Component
	1
Administrative, Legal and Policy requirements the relevant legislations	.899
Administrative, Legal and Policy requirements Indication of how compliance has been achieved with respect to other	.882

environmental requirement provisions	
Administrative, Legal and Policy requirements Identification of planning and administrative procedures followed	.868
Extraction Method: Principal Component Analysis.	
a. 1 component extracted.	

Component Matrix^a	
Description of items	Component
	1
Assessment-Biophysical Environment/ Human Environment of Public services and infrastructures in and around the factory	.783
Assessment-Biophysical Environment/ Human Environment of Physical constraints of the area	.740
Assessment-Biophysical Environment/ Human Environment of Land tenure system of the area & surrounding land use	.603
Assessment- Baseline information/ assessment on the project /factory proposal Size and nature of development	.574
Assessment- Baseline information/ assessment on the project /factory proposal Removal and disposal of waste	.495
Assessment-Biophysical Environment/ Human Environment Boundaries of the factory and its implication on the environment	.478
Extraction Method: Principal Component Analysis.	
a. 1 component extracted.	

Component Matrix^a	
Description of Variables	Component
	1
Assessment-Qualitative and quantitative biophysical environment data of Climatic condition of the area	.843
Assessment-Qualitative and quantitative biophysical environment data of Soil, geology, hydrology, topography, and flora & fauna of the area	.838
Assessment-Qualitative and quantitative socio-economic data of Demographic indices/characteristics	.779
Assessment-Qualitative and quantitative socio-economic data of Living standard of the community	.499
Assessment-Cultural and historic environment of the Sanctuaries, monuments, statues	.495
Extraction Method: Principal Component Analysis.	
a. 1 component extracted.	

Component Matrix^a	
Description of Variables	Component
	1
Analysis of information to the Environmental impacts of the factory Brief description and analysis of each impact	.837
Analysis of information to the Environmental impacts of the factory Reversible or irreversible, risk of uncertainty, and size of group affected	.818
Mitigation Measures- Rectifying an impact by repairing, rehabilitating or restoring the affected environment	.726
Mitigation Measures- Compensating for an impact by replacing or providing substitute resources or environments as well as contingency plans in case of emergencies	.683
Analysis of information to the Environmental impacts of the factory	.673

Potential accident or hazard scenarios covered in the assessment	
Analysis of information to the Environmental impacts of the factory Affected stakeholders in and around the factory area	.649
Analysis of information to the Environmental impacts of the factory for a comparison of proposal options for Source of raw materials	.372
Extraction Method: Principal Component Analysis.	
a. 1 component extracted.	

Component Matrix^a	
Description of Variables	Component
	1
Environmental Management Plan for Implementation of schedule for mitigation measures	.880
Environmental Management Plan for Description of the proposed mitigation measures	.790
Environmental Management Plan Cost estimate of mitigating measures	.642
Extraction Method: Principal Component Analysis.	
a. 1 component extracted.	

Component Matrix^a	
Description of Variables	Component
	1
Conclusions and Recommendations-Explanation of how adverse effects have been mitigated	.899
Conclusions and Recommendations-Statement of adverse impacts and the suggested measures to compensate them	.885
Conclusions and Recommendations-Explanation of use or destruction of any irreplaceable components	.856
Conclusions and Recommendations-Net benefits, which justify the factory by indicating of both positive and negative impacts	.820
Conclusions and Recommendations-Identification of management and monitoring needs	.819
Conclusions and Recommendations-Brief discussion of key issues	.812
Conclusions and Recommendations-Provisions for follow-up surveillance and monitoring	.731
Conclusions and Recommendations-Recommendations	.419
Extraction Method: Principal Component Analysis.	
a. 1 component extracted.	

Component Matrix^a	
Description of Variables	Component
	1
Appendices-Brief corporate environmental policy	.877
Appendices-Flow charts and site maps	.861
Appendices-Detailed technical reports	.813
Appendices-Terms of Reference (TOR);	.506
Extraction Method: Principal Component Analysis.	
a. 1 component extracted.	

SPSS results of Reliability Test

Executive Summary

Reliability Statistics	
Cronbach's Alpha	N of Items
.921	5

Introduction & Background

Reliability Statistics	
Cronbach's Alpha	N of Items
.623	2

Methods, approaches, and Assumptions in Knowledge gaps

Reliability Statistics	
Cronbach's Alpha	N of Items
.946	3

Administrative, Legal and Policy requirement

Reliability Statistics	
Cronbach's Alpha	N of Items
.851	3

Assessment of Baseline and Biophysical data

Reliability Statistics	
Cronbach's Alpha	N of Items
.642	6

Assessment of Qualitative and Quantitative data

Reliability Statistics	
Cronbach's Alpha	N of Items
.730	5

Analysis of the information to the environmental impact and mitigation measures

Reliability Statistics	
Cronbach's Alpha	N of Items
.810	7

Environmental Management Plan and Monitoring & Auditing

Reliability Statistics	
Cronbach's Alpha	N of Items
.611	3

Conclusion and Recommendation

Reliability Statistics	
Cronbach's Alpha	N of Items
.910	8

Appendices

Reliability Statistics	
Cronbach's Alpha	N of Items
.776	4

List, responsibility and profile of key informants of the factory owners

S/N	Type of Factories	Name of key informants from factories	Responsibility in a factory	Educational background
1	Food and related Manufacturing factories	Ato Elias Yeshitila	Manager	BA Degree
2	Construction Materials Manufacturing factories	Ato Daniel Lema	HR Manager	Diploma
3	Plastics & related Manufacturing factories	Ato Abebe Hailu	Manager	Diploma
4	Wood, Metals and related Manufacturing factories	Ato Abdulahi Umar Mohammed	Manager	BA Degree
5	Electronics and other related Materials and accessories manufacturing factories	Ato Mohammed Adem	HR Manager	BA Degree
6	Miscellaneous factories	Ato Ashenafi Asfaw	Manager	MBA

Source: Field Survey, 2021

Below some pictures depicts an interview undertaken with proponents/ factory owners' managers or delegates;



A) Interview made with Manger of Wakene Food Complex Factory



B) Interview made with manager of Tamirat Mulatu Gedamu Blanket Factory



C) Interview made with Enzshat Industrial and Chemical Plc. (Soap Factory)