

Article

An Appraisal of Environmental and Social Impact Assessment in Ethiopia: The Case of Meta Abo Brewery

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Abstract: This study investigates the implementation and follow-up of the environmental and social impact assessment (ESIA) in Meta Abo Brewery in Ethiopia. Specifically, it aims to assess the implementation mechanism and status of ESIA monitoring and evaluation, the adequacy of the legal and administrative framework for ESIA implementation and follow-up, and the perception of residents towards the ESIA implementation and follow-up by the proponent. A mixed research approach was employed to collect and analyze both qualitative and quantitative data. Thematic and descriptive data analysis was used to analyze data collected through key informant interviews (KII), focus group discussion (FGD), closed-ended questions, and document review. Data were obtained from 11 purposely selected interviewees and 6 FGD participants, as well as 175 randomly selected respondents. This study found the practical implementation mechanism of ESIA monitoring and evaluation as well as weak ESIA monitoring and evaluation status through the case study. The main causes of this weak ESIA system are weak implementation of ESIA monitoring and evaluation by the regulatory body and proponent, weak cooperation among regulatory body and proponent, weak institutional capacity, and weak managerial commitments. The study also indicated a lack of adequate legal and administrative frameworks and the absence of regular revision of relevant legislation. Additionally, the study identified that the proponent has some weaknesses in the ESIA implementation and follow-up. The findings regarding the legal and administrative framework can be developed to guide the formulation and amendment of the ESIA legal and administrative framework not only for Ethiopia, but other developing countries as well. Moreover, the findings of this study can be a groundwork for future studies to fill the gap by understanding the social-cultural barrier and finding appropriate strategies to enhance the ESIA system in developing countries.

Keywords: environmental and social impact assessment (ESIA); ESIA implementation; Ethiopia; Meta Abo Brewery



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1. Introduction

Globally, the brewery industry contributes significantly to economic development [1]. The brewery industry has a vital role in ensuring the sustainability of the local economy and connection, social interaction, health, and wellbeing of society [2]. Moreover, it plays a basic role in promoting economic growth, particularly in developing countries. In Africa, most breweries are owned by private companies and remain well short of the accepted international best-practice level in implementing environmental management systems [3]. However, many breweries in Africa have adopted the ISO 14000 Environmental Management System Standards for the sake of international market interests [4]. This indicates that the environmental and social impacts resulting from the brewery industry have been a concern for many societies. Ethiopia, a developing country, has been implementing several measures to promote the brewery industry around the country. Hence, the Ethiopian Food, Beverage, and Pharmaceutical Industry Development Institute (EFBPIDI) was established “to provide all-round support to the food, beverage, and pharmaceutical industry and thereby accelerate technology transfer, achieve transformation and enable the industry to be competitive at the international level” [5]. Consequently, this industry has grown rapidly,

and has become the most competitive industry, leading to considerable investment in the farming sector for beer production. An EFBPIDI [6] report stated that Ethiopia produces approximately seven million hectoliters of beer per year. Hence, the brewery industry has made significant contributions to the rapid economic development in Ethiopia.

According to Awan [7], anthropogenic activities designed for development projects and economic growth have direct and indirect impacts on the environment. Hence, there has been increasing recognition of potential harm due to the reckless operation of breweries. The major environmental and social impacts associated with the operation of breweries include increases in water consumption, wastewater, solid waste, energy use, and air emissions [8,9]. Additionally, the critical effects of beer production wastewater on the environment were primarily related to the impacts of eutrophication, which leads to the instability of aquatic life and damage of the biological balance in the water bodies, the release of toxic substances into the water bodies, bad smell of water and surrounding air, the influence of water quality, and unbalanced dissolved oxygen in the water [4,9,10]. In developing countries such as Ethiopia, where development projects are rapidly emerging, the environmental and social impacts resulting from development projects are major social issues [11]. Thus, effective implementation and follow-up of environmental and social impact assessment (ESIA) after the approval of a development project are essential.

As stated on the environmental impact assessment proclamation of the Federal Democratic Republic of Ethiopia (FDRE), “the federal or regional environmental authority shall monitor the implementation and follow up of an approved project to evaluate environmental compliance with all commitments made by and obligations imposed on the proponent during approval conditions” [12]. This indicates that the responsibility of the regulatory body is not limited to ESIA approval for development projects, but also includes implementation of follow-up after approval. Although ESIA have been conducted in Ethiopia, the impacts of development projects are prevalent across the environmental, social, and economic activities of the local communities due to a variety of factors [13]. In general, due to weak ESIA implementation and follow-up in developing countries, many development projects are not environmentally feasible and socially acceptable, despite ESIA having been introduced over the past 30 years [14,15]. For example, in Uganda, due to a gap between ESIA legislation and practice resulting from inadequate and ineffective public participation, weak follow-up, low key stakeholder capacity, and political intervention, water pollution resulting from development projects is increasing, particularly in Lake Victoria, rivers, streams, aquifers, and soils [16].

The Meta Abo Brewery Share Company is a development project in Sebeta City, and has been expanded by the proponent (Diageo PLC) to increase the quality and quantity of its products. Thus, the proponent conducted the ESIA study to address the mitigation measures for significant impacts and approved the Sebeta City Environment, Forest, and Climate Change Authority (EFCCA) in 2014 [17]. This project currently operates alcoholic and non-alcoholic beverage production. The brewery industry uses a large amount of water, and may also produce high amounts of liquid waste as compared to other development projects [18]. Although mitigation measures of the negative impacts resulting from Meta Abo Brewery were identified through ESIA, the liquid waste was released into the Abo River, which flows along with the brewery. Unfortunately, this river has been used for irrigation and other purposes by downstream villages for many years. It has been severely polluted due to the liquid waste discharged into the river from the brewery. There was also an unpleasant smell emerging from the brewery. In addition, solid waste has also not been well managed. These factors may accelerate environmental damage and affect the daily activities of the community.

Therefore, effective ESIA implementation and follow-up are required to evaluate the ESIA approval conditions of the projects against environmental compliance, since ESIA implementation and follow up is to play an important role in making a project both environmentally and socially viable [19,20]. The effective implementation and follow-up of ESIA depend on an adequate legal and administrative framework that enforces ESIA

implementation and follow-up mechanisms in the development project. Additionally, effective ESIA monitoring from the regulatory bodies and proponents of the project is also important for evaluating ESIA implementation and follow-up [21]. According to the Environmental Protection Authority guidelines [22], a proponent of the project has the responsibility of implementing and following up based on the obligations imposed on him/her as project approval conditions. Moreover, ESIA implementation and follow-up can be reinforced through further detailed studies. Recently, research conducted by Chang et al. [23] on ESIA follow-up for projects in China indicated that critical appraisal of ESIA implementation and follow-up has the potential to improve ESIA follow-up practices. However, their study lacks social aspects. They used various reports and framework reviews as techniques for data collection, but these techniques could not collect primary data.

The low level of the capacity of the environmental protection staff and private consultants, lack of effective ESIA procedures, and political interferences were the main cause of poor ESIA implementation and follow-up in developing countries [24–26]. Even though meaningful progress was made on the ESIA legal and administrative frameworks in developing countries, such as Vietnam [27], Bhutan, Nepal, India [28], Egypt, Uganda [25], Kenya, Rwanda, and Tanzania [29], the implementation and follow up of ESIA was not well improved. Moreover, the legal basis of the ESIA system in South Africa was structured in 2006, but the application of the ESIA system was generally lacking [30]. Similarly, a study on the status of ESIA legislation and comparative evaluation of EIA systems in Gulf Cooperation Council States found that, except for Oman, the level of coordination between the regulatory authority and other planning and pollution control bodies is not defined, and is generally regarded as weak [31]. Furthermore, the factors that influence the ESIA system performance in low- and middle-income countries were connected to weak regulatory frameworks, the performance of actors, awareness of ESIA actors, weak public participation, and socio-economic factors [32,33]. On the other hand, Damtie and Bayou [34] identified major gaps in EIA application through an overview of the ESIA in Ethiopia. The gaps include the lack of a well-structured environmental protection authority, lack of information exchange, and lack of qualified ESIA consultants.

In the broad context, the main purpose of this study is to address the current situation of the ESIA system in the Global South and challenges in the implementation of the ESIA process. The previous studies on five African countries, Angola, Kenya, Mozambique, South Africa, and Tanzania, revealed that they share a common ESIA legal framework; however, it was found that their EIA practices are ineffective, particularly non-existent in Angola due to civil war in the country [35]. For instance, a comparative study on the ESIA systems in Korea and Algeria indicated that both countries have ESIA follow-up systems, such as monitoring and auditing; however, the project operator in Korea is different in keeping track of ESIA implementation status and management record containing the details of the consultation on the construction site [36]. Similarly, several Asia-Pacific countries have well performing ESIA systems due to their strong infrastructures and meaningful implementation of ESIA systems. In contrast, the ESIA practices in developing countries, such as African countries, are usually affected by lack of infrastructures, socio-economic factors, lack of public participation, post-EIA monitoring, and failure to include certain elements of ESIA, since the critical focus of the governments was on short-term production, job creation, and other economic and social benefits obtained from the project [37]. Additionally, the recent study from Uganda indicated ESIA is frequently conducted by the proponent at the end of the process to meet the legal obligations or other needs, such as securing loans, as well as the ESIA process being separated from the project design and implementation process [38]. Thus, in this study, the reason why the EIA practices of the Global South are ineffective are addressed, based on a case study of Meta Abo Brewery in Ethiopia.

In the Ethiopian case, to the best of the authors' knowledge, a comprehensive study on an overview of ESIA implementation and follow-up has not yet been conducted, partic-

ularly in the brewery industry in the Global South, such as Ethiopia. Therefore, the overall objective of this study is to investigate the ESIA practice of Meta Abo Brewery in Sebeta City, which is in the Oromia Special Zone Surrounding Finfinne in Ethiopia. Specifically, this study aims to answer the following research questions.

- (i) What is the implementation mechanism and status of ESIA monitoring and evaluation?
- (ii) Are the legal and administrative frameworks for EISA implementation and follow-up adequate?
- (iii) How do the residents perceive the ESIA implementation and follow-up conducted by the proponent of Meta Abo Brewery?

A very specific and detailed implementation mechanism and status of ESIA monitoring and evaluation, the legal and administrative framework for ESIA implementation and follow-up, and the perceptions of residents toward ESIA implementation and follow-up by a proponent of Meta Abo Brewery are discussed in this study. Thus, the authors believe that this study could bring additional evidence on Global South ESIA practice, especially it will be a good example to describe the current ESIA practice in Africa. Moreover, this study is significant to provide useful information which helps to improve the current ESIA practice in Ethiopia and other developing countries. Similarly, it is vital to develop understanding and fill the gaps in the existing literature in the case of developing countries by providing significant evidence of Ethiopia's ESIA practice. Moreover, this study allows policymakers, researchers, and stakeholders to acquire the current state of ESIA implementation and follow-up in Ethiopia.

2. Review of ESIA in Ethiopia

2.1. The Evolution of the ESIA System

In Ethiopia, the concept of environment was first stated in the Constitution of the FDRE in 1995 [39], which was the first environmental legal doctrine of the country [13]. In this constitution, major environmental and development concepts such as "rights to development" (Article 43), "environmental rights" (Article 44), and "environmental objectives" (Article 92) are included [40]. Additionally, the Environmental Policy of Ethiopia was adopted in 1997. Subsequently, the federal Environmental Protection Authority (EPA) was established by Environmental Protection Organs Establishment Proclamation No. 295 in 2002, to formulate policies, strategies, laws, and standards which foster social and economic development while enhancing the sustainability of the environment. One of the primary roles of the EPA was the development of the ESIA system in Ethiopia. This presented a great opportunity to implement ESIA practice for diverse development projects throughout many regions of the country. In Ethiopia, the first national institution that incorporated ESIA into its development plan was the former Ethiopian Valleys Development Authority [34]. This authority incorporated ESIA to assess the water environment and health impacts and to obtain indirect financial support from international non-governmental organizations.

Furthermore, the establishment of the EPA initiated the formulation of EIA proclamation 299/2002 and environmental pollution prevention proclamation 300/2002. The formulation of these proclamations led regulatory bodies to enforce the implementation of the ESIA process in diverse development projects. Currently, in Ethiopia, an ESIA study is a precondition for granting a license to operate the major development projects listed in the "Directive Issued to Determine Projects Subject to ESIA" [41]. Accordingly, ESIA has been undertaken to identify environmental, social, and economic impacts and enhance environmental and social management systems to minimize adverse effects during the construction and operation of the project. The primary objective of the ESIA foundation in Ethiopia is to provide decision-makers with adequate information about possible environmental and social effects [13].

2.2. ESIA Implementation and Follow-Up

According to Kiromo [42], ESIA implementation and follow-up are the main components of the ESIA process and cover the activities after ESIA authorization to confirm the implementation of approval conditions and the effectiveness of mitigation measures. ESIA follow-up is a fundamental action to confirm the practical implementation of ESIA in development projects [23]. In addition, the ESIA implementation and follow-up have potential advantages for future environmental and social improvement, as well as for proponents and associated actors [43]. In Ethiopia, ESIA implementation and follow-up practices have been increasing with the establishment of a wide range of development projects. Hence, development projects have become a special means of rapid industrialization and technology transfer that encourages manufacturing industries to accelerate economic transformation from agriculture to industrial-led development in Ethiopia [44]. However, the expansion of these development projects has led to significant negative environmental and social impacts. Therefore, effective ESIA implementation and follow-up practices should be part of such development projects to evaluate the commitments established by the proponent during authorization and to provide corrective action and recommendations.

In Ethiopia, the approval of the ESIA report has been issued by the Environment, Forest, and Climate Change Commission (EFCCC), regional Environment, Forest, and Climate Change Authority (EFCCA), city administrations, and other relevant authorities [12]. As a result, each regulatory body is responsible for the follow-up of the approved ESIA implementation concerning the approval conditions and mitigation measures of significant impacts. In addition, the ESIA follow-up activities conducted by the regulatory body enforce the proponent of the project to implement the approval conditions and manage unpredicted impacts that can lead to legal actions [45]. This means that the proponent is responsible for implementing the ESIA approval conditions during all phases of the project. Moreover, the proponent must control the day-to-day activities of the project, which may affect the environment and surrounding community of the project. In this regard, following the approval of the project, ESIA monitoring, and evaluation should be conducted as the major components of implementation and follow-up tools [46].

Mechanism of ESIA Monitoring and Evaluation

According to Leu et al. [47], the implementation mechanisms are the practical and structural activities, followed by the regulatory bodies and proponents, and the presence of ESIA monitoring and evaluation mechanisms helps to ensure the effectiveness of EIA implementation and follow-up. Additionally, the environmental monitoring and evaluation activity involves the planning of monitoring programs, data collection, data analysis, interpretation, and reporting of data results [48]. Hence, ESIA monitoring and evaluation are the main tools of ESIA implementation and follow-up that help evaluate the effectiveness of mitigation measures of the proposed development project [49]. According to the United Nations Environment Programme (UNEP), the primary aim of monitoring and evaluation is to access information that aids in impact mitigation and management processes, to achieve a better understanding of the relevant cause-effect relationships, and to advance ESIA expectations and mitigation measures in development projects [50]. They help to avoid negative environmental effects through observation, measurement, evaluation, and analysis of environmental parameters.

However, the ESIA evaluation depends on the ESIA monitoring results, and is the process of analyzing the information obtained through the monitoring process for decision making [42]. In addition, ESIA evaluation is the assessment of collected data on environmental parameters to determine the extent to which they are achieved according to the stated standards. Although the ESIA evaluation mainly focuses on the effectiveness and performance review aspects, the impact and mitigation data from ESIA monitoring and auditing are highly important for post-project evaluation [50]. According to Brombal [51], environmental and social monitoring and evaluation results are significant for decision-making processes to manage the environment. In addition, the precision of the monitoring

and evaluation results is highly important for determining the environmental performance of the development project. In addition to providing information that facilitates the impact management system, ESIA monitoring, and evaluation can lead to improvements in ESIA practice for the future [52].

In Ethiopia, the Environmental Protection Organs Establishment Proclamation 295/2002 attempted to address the fact that the Federal EFCCC has a responsibility to monitor and evaluate trans-regional megaprojects, for which the approval of an ESIA is made at the federal level [53]. On the other hand, the regional EFCCA has the responsibility to monitor the projects approved by the regional EFCCA and lower regional levels with other concerned organizations. However, depending on the impacts of the project and whether the local communities complain about its negative effects, both the federal EFCCC and regional EFCCA can monitor and evaluate the implementation of ESIA for the project. In addition, recently, the implementation of old projects that are subject to the ESIA study but did not successfully pass through the ESIA process has been monitored and evaluated by relevant regional environmental authorities. However, ESIA monitoring and evaluation in Ethiopia have been challenged by a lack of enforcement and low institutional capacities, such as unskilled manpower, financial resources, and laboratory equipment [54].

2.3. ESIA Legal and Administrative Framework

2.3.1. ESIA Legal Framework

In recent decades, the government of Ethiopia has made certain efforts toward environmental legislation in response to environmental and social impacts caused by unsustainable economic development practices. The Constitution of the FDRE has been used as the cornerstone document for other environmental legislation in the country [34]. Nonetheless, an environmental policy without appropriate legislation will be ineffective if it lacks a continuous enforcement mechanism. Thus, Ethiopia has designed environmental policies and relevant environmental legislation, as described in Table 1.

Table 1. ESIA Legal Frameworks in Ethiopia.

Title	Description
FDRE Constitution, 1995	Served as the base of the formulation of the Environmental Policy of Ethiopia. Articles 43, 44, and 92 of the constitution addressed the right to development, environmental rights, and environmental objectives, respectively.
Environmental Policy of Ethiopia, 1997	Article 4.9: Environmental impact assessment (EIA). Consideration of physical, biological, social, economic, and cultural issues in EIA. This policy indicates the significance of mitigation measures, public consultation, environmental monitoring, auditing, and EIA technical guideline for managing environmental problems. Moreover, it indicates the essence of the institutional framework.

Table 1. Cont.

Title	Description
Environmental Impact Assessment Proc. No. 299/2002	<p>Article 3 (1): No person shall commence the implementation of any project that requires ESIA without approval by relevant environmental authority.</p> <p>Article 4 (1): The impact of a project shall be assessed based on the size, location, nature, cumulative effect, duration, and other impacts of the project.</p> <p>Article 7 (1, 3): The proponent has the responsibility to undertake ESIA for the project and cover the cost required for the ESIA study.</p> <p>Article 12 (1): The relevant environmental authority shall monitor the implementation of an authorized project.</p> <p>Article 12 (2 and 3): The Environmental authority may order the proponent who failed to implement the approval conditions and other obligations to undertake correction measures and may go up to cancellation of the license to implement the project.</p>
Environmental Impact Assessment Procedural Guideline 1/2003	<p>The first ESIA procedural guideline.</p> <p>This guideline states the roles and responsibilities of the federal and regional environmental authority, proponent, licensing agency, consulting firms, and interested and affected parties in the ESIA practice.</p> <p>It addresses the essences of ESIA implementation and follow-up activities</p> <p>It addresses the significance of internal monitoring, evaluation, and auditing by the proponent.</p>
Environmental Pollution Control Proclamation No. 300/2002	<p>The general provision of this proclamation is safeguarding human health and well-being, maintaining the biota and aesthetic value of nature.</p> <p>It also states the significance of eliminating or when not possible mitigating the pollution from an undesirable consequence or social and economic development activities.</p> <p>Article 3 (1 and 2): No person shall pollute the environment by violating the environmental standard and relevant environmental agencies may take legal or administrative measures against a person who violates the law, release any pollutant to the environment.</p> <p>Article 8 (1a): The environmental inspectors shall ensure compliance with environmental standards and related requirements during project implementation.</p>

2.3.2. ESIA Administrative Framework

The Environmental Protection Organs Establishment Proclamation No. 295/2002 permits the establishment of the federal EFCCC, environmental protection council, and regional EFCCAs that are mandated for different environmental issues, including ESIA. This indicates the sharing of duties and responsibilities regarding administering and implementing environmental policies, laws, and standards in Ethiopia. Hence, the Federal EFCCC is mandated by a proclamation provided for the establishment of the Environmental Protection Organ Proclamation (Proc. No.295/2002), the EIA Proclamation (Proc. No. 299/2002), and other relevant laws to run and facilitate the implementation and administration of ESIA in Ethiopia [12,22,55]. Since the formulation of the EIA Proclamation 299/2002 in 2002, the Ethiopian government has addressed the mechanisms of ESIA implementation at the federal and regional levels in Ethiopia. Table 2 presents the institutions responsible for the ESIA administration in Ethiopia.

Table 2. ESIA Administration Framework in Ethiopia.

Institution	Roles and Responsibilities
Environment, Forest, and Climate Change Commission (EFCCC)	<p>Previously established by proc. No. 295/2002 as Federal EPA.</p> <p>Proc. 295/2002, Article 6 (1): Coordinate measures to ensure the environmental objectives provided under the constitution and basic principles in the environmental policy of Ethiopia.</p> <p>Proc. No. 295/2002, Article 6 (2): Prepare, review, and update environmental policies, strategies, and laws in consultation with competent agencies, concerned organs, the public at large, and upon approval, monitor and enforce their implementation.</p> <p>Proc. 916/2015, Article 30 (1b): Establish a system and follow up implementation for undertaking ESIA set by the government or private companies.</p> <p>Proc. 916/2015, Article 30 (1e): Establish a system for evaluating and decision-making per the ESIA Proclamation.</p>
Environmental Protection Council	<p>Established by Environmental Protection Organs Establishment Proclamation No. 295/2002.</p> <p>Review proposed environmental policies, strategies, and laws, and advice on the implementation of environmental policy of Ethiopia.</p> <p>Review and approve directives, guidelines, and environmental standards prepared by the environmental authority.</p>
Regional Environment, Forest, and Climate Change Authority (EFCCA)	<p>According to proc. 295/2002 Article 15 (1b), the regional environmental agencies which currently known as EFCCA has the responsibility for environmental monitoring, protection, and regulation, and Article 15 (2a) of this proclamation stated that the regional environmental agencies shall ensure the implementation of the federal environmental standards and regulations.</p> <p>The ESIA procedural guideline 2003 stated that Regional Environmental Agencies has the responsibility to adopt and customize federal level ESIA guideline and systems in line with their respective local realities, administer, oversee, pass decisions on ESIA of projects; subjects to licensing and execution by the regional authority</p>

2.4. Responsibility of the Proponent

A proponent is a private company or governmental organization that develops a project. A proponent is required to proactively integrate an environmental concern into its social and economic development project, program, policy, plan, or strategic initiative according to the requirements of relevant environmental laws and directives. According to the Ethiopian EIA procedural guideline [22], the proponent of the project has the following responsibilities:

“Implement the environmental and social management plan, establish environmental units to monitor and evaluate, and report the environmental and social performance of the project for concerned regulatory bodies, ensure the conditions of an authorization, involve all interested and affected parties in project implementation and follow up, aware of the communities about positive and negative environmental and social impacts of the project, promote conservation-based development and work with objectives of continuous improvement, report regularly about its unforeseen environmental and social effects, establish the database and network with all concerned parties”.

Although many countries have ESIA legislation in place, several proponents do not comply with the ESIA implementation and follow-up during project construction and operation phases, which could be due to a lack of awareness of its relevance, a lack of funding or legislation, or a lack of enforcement authority [56]. For example, in China and India, there is a lack of post-project compliance and follow-up by proponent [23,57].

Additionally, the previous study conducted in Ireland highlighted the poor implementation of ESIA approval conditions by proponent [58]. Similarly, the studies, conducted in African countries such as Cameroon, Kenya, Rwanda, and Tanzania indicated that one of the main reasons why proponents are hesitant to execute and follow up on the ESIA report is the high expense [24,29]. On the other hand, the ESIA regulations in Brazil offer inadequate administrative consequences in comparison to the financial strength of the proponents [59]. Additionally, some studies indicated that the lack of legal framework for ESIA implementation and follow-up and weak capacity and commitment of proponents and regulating agencies were the main barriers to ESIA implementation and follow-up [56]. For example, Kenya and Ethiopia have all acknowledged a lack of competence in implementing agencies to enforce the law [60].

On the other hand, the proponent of the project will be encouraged through external supervision, monitoring, and evaluation by the regulatory bodies. The Environmental Authority can write a warning letter addressing corrective actions to be taken to the proponent who fails to implement the ESIA authorization conditions and obligations imposed upon them (Proc. 176/2012). When the proponent is not committed to taking corrective measures within the given time, a penalty will be imposed on them to compensate for the damage to the environment (Proc. No. 299/2002). Although Iran's ESIA legislation does not include any penalties for the proponent who violates the ESIA approval conditions [27], if the project proponent in Ethiopia fails to implement the ESIA authorization conditions, the penalties may be as substantial as the cancelation of the issued authorization license [53]. Moreover, according to the Oromia Regional State EIA Proclamation 176/2012, the implementation of EIA shall be monitored and evaluated by the regional environmental authority to assess its compliance with all commitments made by and obligations imposed on the proponent [61].

3. Materials and Methods

3.1. Study Area

Meta Abo Brewery shown in Figure 1 was established in 1963 in Sebeta City by the Ethiopian government with a starting capital base of ETB two million [17]. Many years later, in January 2012, Diageo PLC, the world's leading premium alcoholic beverage company, acquired Meta Abo Brewery. The topography of the project area, including the Meta Abo Brewery, is dominated by mountainous features, and rolling hills. The climatic conditions of the Sebeta City area can be classified as a subtropical highland climate. The average annual rainfall is 819 mm, and the highest and lowest rainfall months are August and January, respectively. There are two seasons: the wet season from July to September, and the dry season from October to June. The maximum and minimum average annual temperatures are 23.3 °C and 8 °C, respectively. March, April, and May are the warmest months, while November, December, and January are the coldest months.

Although there are other development projects in Ethiopia that lack effective ESIA implementation, Meta Abo Brewery in Sebeta City was purposively selected for additional reasons. First, this study case was limited to Meta Abo Brewery due to a lack of time and resources to conduct the study on various projects. Furthermore, Meta Abo Brewery conducted an ESIA study during its expansion in 2014, which makes it easy to evaluate its ESIA implementation and follow-up activities. For these reasons, Meta Abo Brewery was selected for a case study of ESIA implementation and follow-up practices.

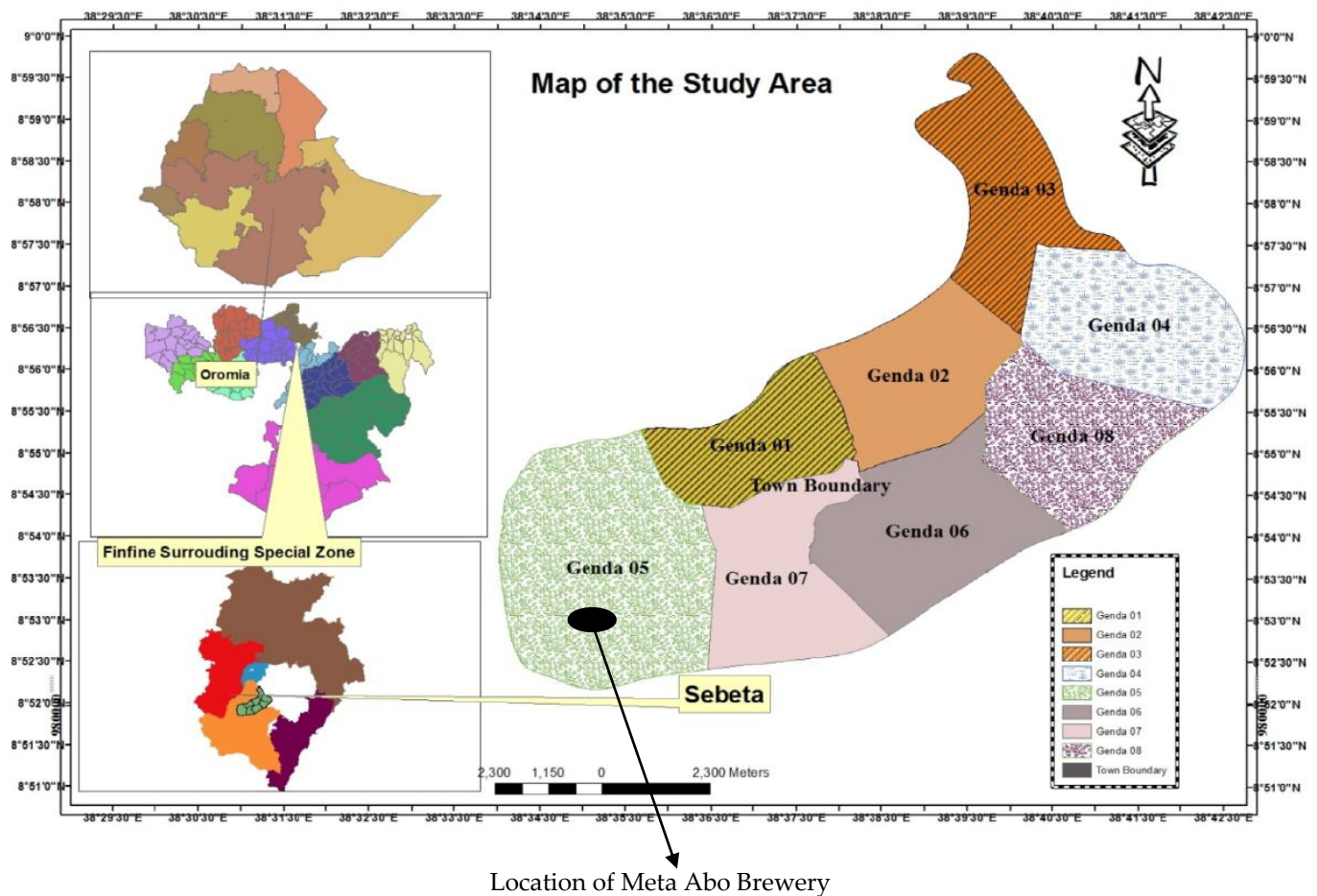


Figure 1. Map of the Study Area [62].

3.2. Research Design, Data Sampling, and Collection

A mixed research design was used to collect comprehensive data for this study. Qualitative research was conducted to provide in-depth information about the current problems in ESIA, whereas quantitative research was conducted to seek empirical evidence to support the findings of the study. This mixed research design not only provides a more comprehensive acceptance of research data than a single research method [63], but can also increase the reliability and validity of this study. In addition, Yamane's [64] sample size determination formula, which is $n = \frac{N}{1+N(e)^2}$ at a 95% confidence interval, was applied to obtain the proper sample size. As a result, a sample size of 175 among 312 households potentially affected by Meta Abo Brewery in Sebeta City was chosen for the collection of the quantitative data regarding the perception of residents on the implementation and follow-up of ESIA by the proponent in Meta Abo Brewery. According to Taherdoost [65], larger sample sizes reduce sampling errors. However, the sample size of the respondents should be neither extremely large nor very small; it must be the optimum number to obtain an appropriate amount of data.

Moreover, a key informant interview (KII) was used for this study. KII is a very effective data collection method to collect appropriate and detailed information from well-informed and experienced respondents on specific issues. Thus, a total of 11 key informant respondents from government organizations and Meta Abo Brewery were selected as shown in Table 3. They are well-informed experts regarding the implementation mechanism and status of ESIA monitoring and evaluation, as well as a legal and administrative framework for the implementation and follow-up of ESIA. The six interview questions about the implementation mechanism and status of ESIA monitoring and evaluation and eight interview questions about the adequacy of a legal and administrative framework for

the implementation and follow-up of ESIA were answered. KII of this study was conducted from February to March in 2020, and the consistency and completeness of the answers from the informants were qualitatively cross-checked with the results obtained from the document review and focus group discussions.

Table 3. Summary of Data Collection and Analysis Methods of the study.

Specific Objectives of the Study	Methods	Sampling Techniques	Sample Frame	Sample Sizes	Data Collection Tools	Data Analysis Methods
Assessing the implementation mechanism and status of ESIA monitoring and evaluation in Meta Abo Brewery	Qualitative method	Purposive sampling	Oromia EFCCA	2	Key Informant Interview (KII)	Thematic Analysis: Themes and Figure
			Sebeta City EFCCA	2		
			Meta Abo Brewery	2		
			Sebeta City EFCCA, HO, SCIO, LSAO, & AO	6	Focus Group Discussion (FGD)	
Studying the adequacy of the legal and administrative framework for the ESIA implementation and follow-up in Meta Abo Brewery	Qualitative method	Purposive sampling	EFCCC	3	KII	Thematic Analysis: Themes
			Oromia EFCCA	1		
			Sebeta City EFCCA	1		
			Sebeta City EFCCA, HO, SCIO, LSAO, & AO	6	FGD	
Analyzing the perception of residents on the implementation and follow-up of ESIA by the proponent in Meta Abo Brewery	Quantitative method	Random sampling	312 Households	175	Closed-ended questionnaires	Descriptive statistics (5-point Likert scale): Percent
	Qualitative method	Purposive sampling	Sebeta City EFCCA, HO, SCIO, LSAO, & AO	6	FGD	Thematic analysis: Themes

Note: Sebeta City Health Office (HO), Investment Office (IO), Labor and Social Affairs Office (LSAO), and Administration Office (AO).

Additionally, this study employed primary and secondary data sources to increase the validity and reliability of the study. In data sampling, purposive sampling is significant when not all members of the sample frame have sufficient and equal information regarding the study. According to Saunders et al. [66], purposive sampling is often used when conducting qualitative research with a small sample and when a researcher wishes to select particularly informative cases to increase the validity of the study. Furthermore, using both purposive and random sampling techniques can compensate for reliability by decreasing sampling errors in the study. In addition, the researcher can use their judgments to select the best respondents, which enables them to answer their specific research questions to meet the objectives of the study. Based on the mixed research design used in this study, data collection and analysis methods applied to each specific objective of this study are described in Table 3.

4. Results

4.1. Implementation Mechanism and Status of ESIA Monitoring and Evaluation

The implementation mechanism of ESIA monitoring and evaluation indicates the practical operation of monitoring and evaluation processes by regulatory bodies and

proponents to control the environmental and social impacts of the project. Then, this study explored the implementation mechanism of ESIA monitoring and evaluation in the study area, which is explained in Figure 2.

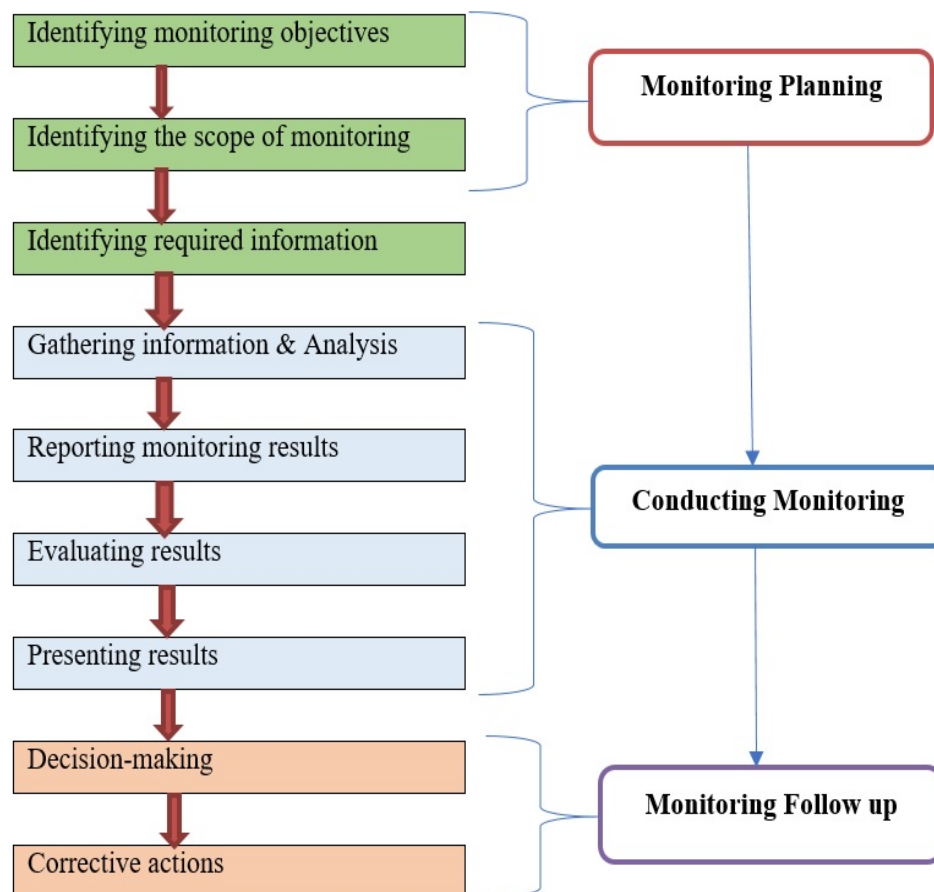


Figure 2. Mechanisms of ESIA Monitoring and Evaluation.

According to the data analyses of key informant interviews (KII) and focus group discussion (FGD), the status of ESIA monitoring and evaluation by the regulatory body and the proponent of Meta Abo Brewery was weak due to the weak enforcement of ESIA monitoring and evaluation and the lack of regular ESIA monitoring and evaluation. In general, ESIA monitoring and evaluation were conducted by the regulatory body and proponent after they were inundated with complaints from local communities affected by the impacts resulting from the brewery. As a result, this type of temporary ESIA monitoring and evaluation was not able to lead to significant changes in regard to the brewery. Additionally, the data analysis of the document review indicates that actual ESIA monitoring and evaluation have not been implemented in accordance with the planned monitoring and evaluation activities specified in the ESIA report developed by the proponent.

On the other hand, it was found that the determinants of effective ESIA monitoring and evaluation are qualified and skilled human resources, financial resources, laboratory material resources, collaborations among stakeholders, a commitment of the management, and adequate and updated legal and administrative framework. In addition, political influence and institutional arrangements may also determine the effective implementation of ESIA monitoring and evaluation. However, in the case of this study, the primary reason for the weak institutional capacity for ESIA monitoring and evaluation is the lack of skilled human resources, financial resources, and laboratory equipment. For example, due to the lack of adequate laboratory facilities for regulatory bodies, the monitoring data are tested

by private companies, and the laboratory test payments are paid by the proponent. This may influence the objectivity of the ESIA monitoring data analyses, which can influence decision-making. There was also a lack of cooperation among the regulatory bodies from the federal to the regional (Sebeta City) level and also between ESIA relevant bodies. In addition, government officials were remiss in their duty to allocate financial support for ESIA monitoring and evaluation activities due to political influence. Thus, depending on the KII, FGD, and document review results, this study found that the implementation status of ESIA monitoring and evaluation by a regulatory body and proponent regarding Meta Abo Brewery was not satisfactory.

4.2. Legal and Administrative Frameworks for ESIA Implementation and Follow-Up

Ethiopia has formulated environmental policy and other environmental legal and administrative frameworks to enhance ESIA implementation and follow-up around the country. However, the study results indicate that there are gaps in some aspects of the legal framework, particularly regarding the clarification of roles and responsibilities among the federal, regional, city administration, and district levels on the ESIA follow-up. Additionally, there are no specific criteria for classifying one project into a trans-regional and a regional project. In Ethiopia, although the authority at the federal and regional level for ESIA implementation and follow-up activities is not stated explicitly, trans-regional projects (which are approved by the federal EFCCC) are administered by the Federal EFCCC, and regional projects (which are approved at the regional EFCCA) are administered by the regional EFCCA. However, proponents who received approval for their project from the federal EFCCC are often reluctant to be supervised by the regional EFCCA and vice versa. This attitude on the part of proponents often hinders effective ESIA implementation and follow-up practices.

On the other hand, this study found that the Environmental Policy of Ethiopia and many other elements of the legal and administrative framework, such as Proclamation No. 295/2002 establishing environmental protection units, EIA Proclamation No. 299/2002, environmental pollution control Proclamation No. 300/2002, and the 2003 EIA procedural guidelines have not yet been revised following their original formulation. However, they need to be modified according to the current environmental circumstances of Ethiopia and the world. Current environmental policies require an integrated approach to environmental management, as well as the need to realize the goal of sustainable development. This study also explores how successful ESIA implementation and follow-up in Ethiopia needs an additional technical legal framework, such as environmental monitoring and evaluation guidelines as well as environmental audit guidelines. It also identified that various regional EFCCAs have their own ESIA legal and administrative framework, which were adopted from the Environmental Policy of Ethiopia and other federal legal and administrative frameworks. For example, the Oromia Regional EFCCA adopted EIA Proclamation No. 176/2012 and Environmental Pollution Control Proclamation No. 177/2012. These Proclamations constitute the major working legal framework to support ESIA implementation and follow-up in the region [62,67].

This study found that the current legal and administrative frameworks such as ESIA Proclamation 299/2002, ESIA procedural guideline 1/2003, Proclamation 300/2002, the Environmental Policy of Ethiopia, and other elements of legal framework will inevitably force the proponent to carry out effective ESIA implementation and follow-up. For example, failing to implement approval conditions and other international and national environmental legal and administrative requirements may lead to a penalty for the proponent, payment of compensation, and restoration of the damaged person(s) and environment. Moreover, it may lead to the cancelation of environmental clearance certifications. However, it was found that there are no effective procedural measures in place to take clear action against proponents who failed to meet their approval conditions and other legal requirements in Ethiopia. Furthermore, it was found that some ESIA legal frameworks formulated at the federal level have not been adopted by the regional government and translated into

regional working language. This improves a challenge to local communities in terms of easily understanding the legal requirements and facilitating active public participation in the ESIA process at the local level. Therefore, periodic updates for the adequate legal and administrative framework are essential to enforcing the ESIA implementation and follow-up for development projects such as Meta Abo Brewery. In short, although the current legal and administrative frameworks required some updates, clarifications on mandates, and additional technical guidelines, they have been used as the legal background for the current implementation and follow-up of the ESIA system in the country.

4.3. Responsibility of the Proponent for the ESIA Implementation and Follow-Up

The quantitative data concerning the perception of residents towards the ESIA implementation and follow-up by proponents were collected through closed-ended questions from the selected respondents in Sebeta City. Qualitative data were also gathered through FGD from different organizations involved in the ESIA implementation and follow-up activities. First, the analyzed data concerning effective ESIA implementation and follow-up by the proponent indicated that 88.8% of respondents disagreed with the implementation of the environmental and social management plan (ESMP), and 78.8% of respondents disagreed with regular internal ESIA monitoring, evaluation, and reporting. Of the respondents, 74.7% agreed on the establishment of an environmental unit, but 71.2% disagreed on the issue of the proponent addressing the unforeseen environmental and social impacts during the ESIA implementation. These results indicate that, although the proponent established an environmental unit in the project area, ESIA implementation and follow-up have not yet been carried out. Regarding the significance of institutional capacity for effective ESIA implementation and follow-up for Meta Abo Brewery, 94.1%, 95.3%, and 90% of respondents strongly agreed on the significance of financial capacity, human resources (environmental unit establishment), and material resource capacity, respectively.

According to the analyzed data on the type of environmental pollution discharged to the environment and local communities, 97.6% of the respondents strongly agreed regarding water pollution, 77.6% agreed regarding air pollution, 62.9% strongly agreed regarding soil pollution, and 75.6% strongly disagreed regarding noise pollution. These results show that the major concerns regarding environmental pollution in local communities are water, air, and soil pollution. On the other hand, concerning the reasons for environmental pollution being released into the environment and local communities, 92.4% and 87.1% of respondents strongly agreed on the lack of proponent commitment and weak enforcement mechanism of the regulatory body, respectively. On the other hand, 61.2% of respondents disagreed on the lack of awareness of the proponent regarding the ESMP, 96.5% of respondents strongly disagreed on the weak institutional capacity of the factory, and 57.6% of respondents disagreed on the lack of the proponent's awareness of the ESIA legal framework. These results indicate that the lack of proponent commitment and weak enforcement mechanism of ESIA implementation and follow-up by regulatory bodies are the major reasons for environmental pollution rather than a lack of proponent awareness of the ESMP, the weak institutional capacity of the factory, and a lack of the proponent's awareness of ESIA legal framework. From the viewpoint of the residents, the weak implementation and follow-up of ESIA are due to the poor attitude of regulatory bodies and the proponent rather than a lack of a legislative system and awareness. Thus, it seems that experts and residents have different perceptions of weak ESIA implementation.

Furthermore, regarding the question related to public awareness of environmental and social impacts created by proponents, 69.4% of respondents strongly disagreed with the awareness of positive environmental and social impacts, and 85.3% of respondents strongly disagreed with the awareness of negative environmental and social impacts during the implementation of the project. This shows that the proponent of Meta Abo Brewery failed to raise public awareness regarding both the positive and negative environmental and social impacts during the implementation of the project.

Finally, the data analyses concerning the activities that should be carried out by the proponent to ensure effective ESIA implementation and follow-up showed that 95.9% of respondents strongly agreed on strengthening the implementation of the environmental and social management plan as an option for effective environmental and social impact assessment implementation and follow-up. Furthermore, 92.4% of respondents strongly agreed regarding strict regular internal monitoring and evaluation of the effectiveness of ESIA implementation and follow-up carried out by the proponent. Additionally, 84.1% of respondents strongly agreed with strengthening the institutional capacity for the effectiveness of ESIA implementation and follow-up. Moreover, 92.9% of respondents strongly agreed with using environmentally friendly technology for the effectiveness of ESIA implementation in the case study area.

On the other hand, the FGD results regarding the perception of residents towards the ESIA implementation and follow-up by the proponent of Meta Abo Brewery showed that the proponent has not complied with the approval conditions of the ESIA study and other requirements imposed on them regarding Meta Abo brewery. The FGD results also indicate that the weak implementation and follow-up achievements of ESIA are affected by the weak implementation of an environmental and social management plan, such as ESIA monitoring and evaluation. Additionally, both the questionnaire survey and FGD results showed that the proponent of Meta Abo Brewery has not properly carried out their responsibilities regarding the implementation and follow-up of the ESIA study. In addition to affecting the quality of the environment and public health, this can be led to a weak relationship with local communities and regulatory bodies. This may also directly or indirectly affect the sustainability and acceptability of this project in local communities.

5. Discussions and Conclusions

Unsustainable development activities can seriously affect the environment and human activities if they are not systematically managed. Therefore, the concept of environmental sustainability should be explored and confirmed, as environmentally sound development activities play a crucial role in building a diversified economy, creating jobs and wealth, providing essential services, and becoming a key engine of economic and social improvement [68]. In this regard, effective ESIA implementation and follow-up for development projects may lead to environmentally friendly development. However, ESIA implementation and follow-up in various development projects have had environmental, social, and economic impacts in Ethiopia. Hence, this study aimed to investigate the implementation and follow-up of ESIA, particularly implementation mechanism and status of ESIA monitoring and evaluation, legal and administrative framework for ESIA implementation and follow-up, and the perceptions of residents toward the ESIA implementation and follow-up by the proponent at Meta Abo Brewery in Sebeta City, Oromia Special Zone Surrounding Finfinne.

Firstly, this study found the practical implementation mechanisms of ESIA monitoring and evaluation, which are not well practiced by the proponent and regulatory bodies of Meta Abo Brewery. This study also identified the weak status of ESIA monitoring and evaluation for Meta Abo Brewery due to weak implementation of ESIA monitoring and evaluation by regulatory bodies and proponents, weak cooperation among regulatory bodies and proponents, weak institutional capacity, and weak managerial commitments. Correspondingly, the main causes of weak ESIA implementation in developing countries are unclear ESIA legislation and political constraints [15,69]. In addition, the enhancement of ESIA implementation has been also impeded by the institutional capacities, such as a lack of human, financial, and material resources in developing countries. For example, a case study in three East African countries, Kenya, Rwanda, and Tanzania, indicated that the performance of the ESIA system is affected by the contextual setup, such as the socio-economic and political conditions, since the socio-economic and political conditions in developing countries are very different from the developed countries where the concept and implementation principles of ESIA first emerged [29]. Furthermore, in addition to

the limitations in ESIA enforcement, the quality of ESIA reports is yet inferior to serve as the fundamental indicator to evaluate an efficient implementation of environmental regulations in developing countries [14].

On the other hand, this study revealed that lack of effective and functional legal procedures to take corrective actions on the proponent who fail to implement the ESIA approval conditions. Moreover, this study found that the lack of legal frameworks, such as technical guidelines for ESIA monitoring and evaluation, environmental audit guidelines, a lack of updated ESIA legal and administrative frameworks, such as EIA proclamation No. 299/2002, as well as a lack of well-defined roles and responsibilities of federal and regional environmental authorities responsible for ESIA approval mandates. For instance, in The Gambia, there is no legal framework for environmental auditing, monitoring, and evaluation, as well as a lack of institutional capacity [70]. On the other hand, a case study in Uganda revealed that there is still a lack of efficient implementation of ESIA follow-up despite adequate ESIA legislation and regulatory requirements [71]. Moreover, some legal frameworks adopted at the federal level have not been adopted by the regional government and translated to regional working language for active public participation in the ESIA process. Furthermore, although the proponent of Meta Abo Brewery implemented different environmentally friendly technologies and tried to collaborate with different stakeholders to implement the environmental regulations and ESIA approval conditions, weak internal ESIA monitoring, and evaluation and lack of proponent commitment should be improved. Additionally, this study identified a weak enforcement mechanism for ESIA implementation and follow-up by the regulatory bodies.

In conclusion, although the regulatory bodies and proponents of the projects have the responsibility to carry out ESIA implementation and follow-up in development projects, the ESIA monitoring and evaluation in Meta Abo Brewery is far from good practice. Additionally, the implementation mechanism of ESIA monitoring and evaluation required further attention from the regulatory bodies and proponents. Hence, additional technical guidelines, such as ESIA monitoring and evaluation, environmental audit guidelines need to be formulated to enhance the implementation mechanisms and improve the status of ESIA monitoring and evaluation. Similarly, the current EIA proclamation should be updated to enhance the ESIA enforcement mechanisms at the project level. Moreover, the regulatory bodies are not effectively enforcing the regulatory bodies due to a lack of institutional capacity and some managerial commitments. On the other hand, the residents' perceptions on the ESIA implementation and follow-up were not positive, and there was little difference from the results of data analyses on experts' interviews. Hence, the proponent can play an important role in increasing public awareness of the positive and negative impacts of the project. Moreover, ESIA implementation and follow-up by the proponent were not achieved per the authorization conditions. In short, the brewery company can directly benefit from the effective implementation of ESIA, since the long-term aim of the ESIA system is to create an environmentally feasible, economically viable, and socially acceptable project. However, the findings of this study indicated that the ESIA system in Ethiopia was not enough to bring an environmentally friendly, economically viable, and socially acceptable project.

In general, it should be noted that the concept of ESIA was developed in western countries, which have a well-developed institutional and independent legal system. Moreover, western countries also have many years of experience with ESIA with strict environmental regulations. There are stable governments and limited levels of corruption, which are contrary to many developing countries where serious social unrest exists. Additionally, the current challenges in some Global South and most African countries are upgrading the ESIA legislation and process which fits their contextual setup, as well as practice to combat environmental pollution caused by unsustainable development, a lack of basic infrastructures, and poverty [35,72]. Therefore, it seems that there is a social-cultural bias/factor in the concept, which makes it difficult to apply it directly in developing countries like Ethiopia. Therefore, all findings of this study and its policy implications as well as further studies

may lead to better ESIA implementation and follow-up to ensure environmental, social, and economic sustainability in Ethiopia. On the other hand, in addition to the relevance of these findings to the study area, they could be applied in other developing countries, mainly in sub-Saharan African countries, which have similar challenges in implementing ESIA and related contextual factors, such as socio-economic and political situations. Additionally, it would be better to develop an alternative framework to fit with the actual socio-political conditions of developing countries. However, the fundamental concept and purpose of the ESIA implementation should be preserved as it is established in a way of pursuing universal validity.

Although the scope of this study is not enough to address general indictment on the practices in developing countries, case studies can be conducted to broaden the knowledge on these complex difficulties. For example, the recent history of Ethiopia and other African developing countries should be discussed further to understand this gap between western advanced countries and developing countries regarding the concept of ESIA implementation as a future study. Plus, to evaluate the impact of the enhanced ESIA implementation, in-depth analyses on several trajectories, i.e., what-if scenario-based assessment, should be followed. As following studies, the assessment of various alternatives regarding ESIA legal and administrative frameworks will be required.

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