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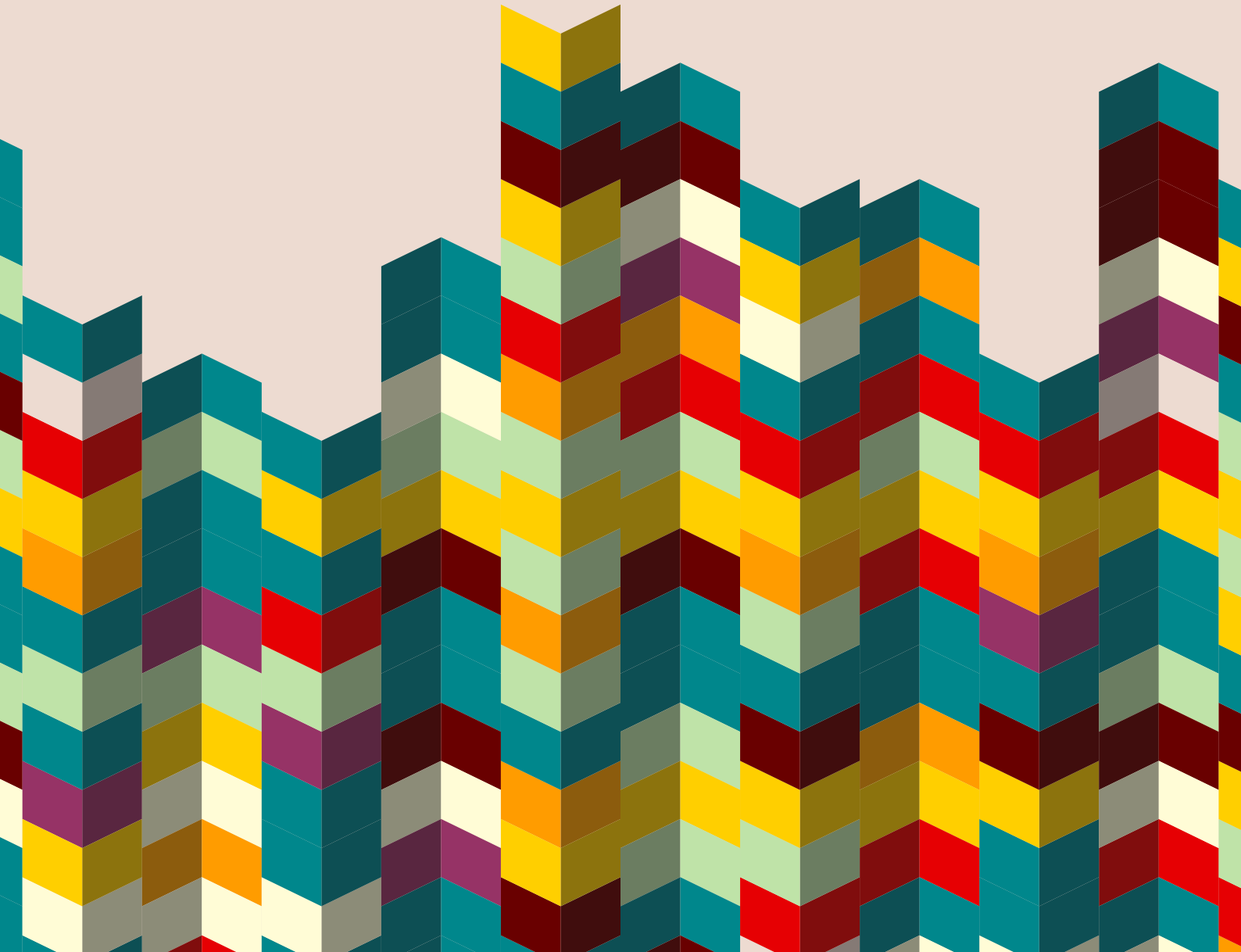
Legal environment assessment on ambient air pollution and health in

Ethiopia



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Foreword

Ethiopia has been facing environmental problems. Industrialization, urbanization, and increasing population have contributed to rising levels of air pollution, threatening public health and environmental sustainability. Addressing air pollution is a shared responsibility and crucial to achieving Sustainable Development Goals (SDGs) on health (SDG3), sustainable cities (SDG11), and climate action (SDG13). No one should be left behind, particularly given the disproportionate burden of non-communicable diseases in low-income countries, like Ethiopia.

With great pride and responsibility, the Environmental Protection Authority (EPA) of the Federal Democratic Republic of Ethiopia and United Nations Development Programme (UNDP) present this Legal Environment Assessment on Ambient Air Pollution and Health. EPA and UNDP, with funding from the European Union, conducted this assessment to analyze the strengths and weaknesses in national laws, policies, and strategies addressing air pollution and health. The information was collected through key informant interviews, document review, and stakeholder consultations, including government ministries, academia, civil society, and international organizations.

This report reflects our nation's commitment to protecting public health and addressing the challenges posed by air pollution. The report identifies gaps in policies and enforcement mechanisms, providing actionable recommendations to strengthen national air quality standards and institutional responses. It calls for stronger legal frameworks, enhanced public access to air quality data, and coordinated efforts to reduce the health impacts of pollution.

On behalf of EPA and UNDP, I extend my gratitude to all contributors for their invaluable efforts. Together, with collective resolve, we can transform the challenges of air pollution into opportunities for innovation and progress, and building a cleaner Ethiopia for future generations.

H.E Engineer Lelise Neme
Director General
Environmental Protection Authority, Federal Democratic Republic of Ethiopia

Acknowledgements

The FDRE EPA and UNDP extend their heartfelt gratitude for the invaluable contributions and support received from various institutions and individuals during the preparation of the legal environment assessment on health and air pollution.

We are immensely grateful for the technical expertise and services provided by Dr. Temesgen Ekilu, a national consultant who authored this report. His dedication and professionalism greatly contributed to the quality and comprehensiveness of the document.

We would also like to express our deep appreciation to the following institutions for their significant contributions and inputs: the Ministry of Health, the Ministry of Innovation and Technology, the Ministry of Mines, the Ministry of Transport and Logistics, the Ministry of Water and Energy, Ministry of Industry, Ethiopian Meteorology Institute, Ethiopian Public Health Institute, Addis Ababa University, Ethiopian Petroleum Supply Enterprise, the World Health Organization, and Forum for Environment.

Furthermore, UNDP staff who substantially contributed to this report through multiple reviews and edits include (in alphabetical order) Suvi Huikuri, Kidanu Hurisa, Emily Roberts, Rachael Stanton, and Girma Workie.

We extend our sincere thanks to the European Union for its financial support to the work on air pollution and health in Ethiopia.

List of abbreviations and acronyms

AAP	ambient air pollution
AAU	Addis Ababa University
ADLI	agriculture development-led industrialization
COBD	chronic obstructive pulmonary disease
CRGE	Climate-resilient Green Economy Strategy
DALYs	disability-adjusted life-years
EMI	Ethiopian Meteorology Institute
EMS	environmental management system
EPA	the Environmental Protection Authority
EPC	the Environmental Protection Council
EPE	the Environmental Policy of Ethiopia
EPHI	the Ethiopian Public Health Institute
EPSE	the Ethiopian Petroleum Supply Enterprise
ESI	the Ethiopian Standard Institute
ESIA	environmental and social impact assessment
FDRE	the Federal Democratic Republic of Ethiopia
GDP	gross domestic product
GHG	greenhouse gas
HAP	household air pollution
IDS	industrial development strategy
IISD	the International Institute for Sustainable Development
IQ	intelligence quotient
LEA	legal environment assessment
LPG	liquefied petroleum gas
MinT	the Ministry of Innovation and Technology
MoH	the Ministry of Health
MoI	the Ministry of Industry
MoM	the Ministry of Mines
MoTL	the Ministry of Transport and Logistics
MoUI	the Ministry of Urban and Infrastructure
MoWE	the Ministry of Water and Energy
NCDs	non-communicable diseases
NMT	non-motorized transport
PM	particulate matter
UNDP	the United Nations Development Programme
UNEP	the United Nations Environment Programme
UNIDO	the United Nations Industrial Development Organization
WHO	the World Health Organization

Key facts

8.1 million — Air pollution was responsible for approximately 8.1 million premature deaths in 2021.

25,000 — In Ethiopia, more than 25,000 deaths and one million disease cases were attributable to ambient air pollution in 2019.

US$2.6 billion — The economic output lost due to air pollution-related disease was US$2.6 billion (ETB 91 billion) from premature mortality alone.

US$6.94 million — Healthcare expenditures related to ambient air pollution diseases within the year were US$6.94 million (ETB 243 million).

Key recommendations

- Develop the national air quality proclamations and regulations.
- Develop environmental pollution control and solid waste management regulations, and an air quality database management system.
- Revise the Health Policy.
- Revise the Road Transportation Proclamation.
- Revising and updating the Energy Proclamation.

Executive summary

Air pollution is one of the leading causes of non-communicable diseases and premature death worldwide. It was responsible for approximately 8.1 million premature deaths in 2021, of which vast majority occurred in low- and middle-income countries from diseases such as cardiovascular and respiratory disease, and cancers.[1] In Ethiopia, more than 25,000 deaths and one million disease cases were attributable to ambient air pollution in 2019. The economic output lost due to air pollution-related disease was US$2.6 billion (ETB 91 billion) from premature mortality alone. Healthcare expenditures related to ambient air pollution-related diseases within the year were US$6.94 million (ETB 243 million).[2]

Ethiopia aims to actively address the burden of air pollution and reduce its impacts, including through legislation. This legal environment assessment (LEA) for ambient air pollution and health in Ethiopia has been developed as a part of a larger UNDP–European Commission project Advancing health and environmental sustainability through action on pollution (2020–2024), through which UNDP developed new methodologies for ambient air pollution investment cases and for LEAs for pollution and health.

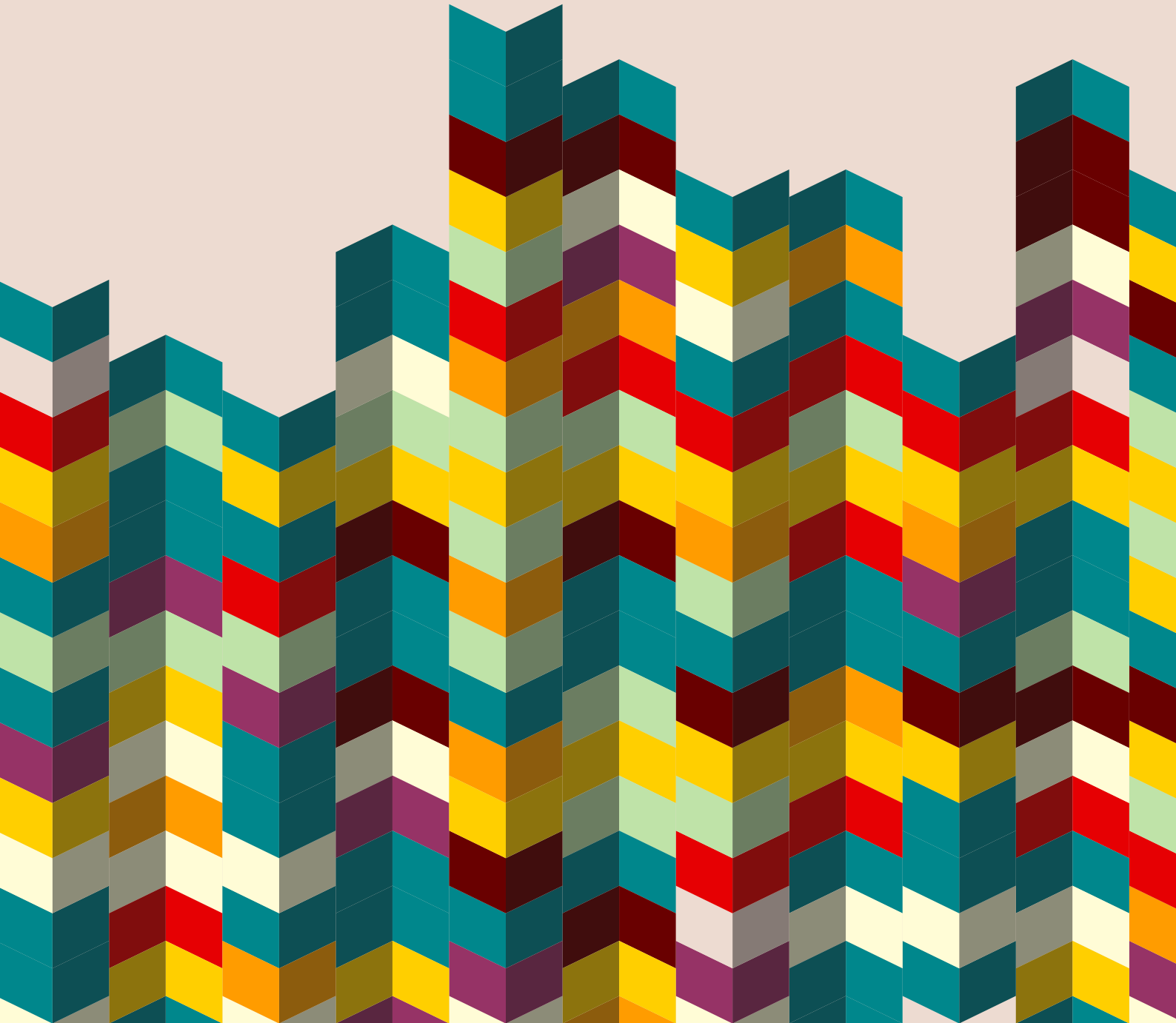
This report analyses 25 laws, policies, proclamations, regulations, standards, guidelines and strategies related to ambient air pollution and health in Ethiopia. It identifies strengths and gaps across the legal instruments and presents recommendations for the responsible institutions to better support air pollution reduction efforts in Ethiopia. Some of the key recommendations arising from this assessment include:

- developing the national air quality proclamations and regulations to protect public health and reduce adverse socio-economic impacts of ambient air pollution by revising the Environmental Policy of Ethiopia, the Environmental Impact Assessment Proclamation, the Ambient Air Quality Standard, and vehicular emissions regulations;
- developing environmental pollution control regulations, solid waste management regulations, and an air quality database management system;
- revising the Health Policy to address the burden of non-communicable diseases from air pollution;
- revising the Road Transportation Proclamation, and promoting non-motorized transport; and
- revising and updating the Energy Proclamation by incorporating explicit provisions and guidelines aimed at monitoring, controlling, and mitigating ambient air pollution resulting from energy-related activities.

1 Health Effects Institute (2024). State of Global Air. Special Report Boston, MA : Health Effects Institute. https://www.stateofglobalair.org/resources/report/state-global-air-report-2024

2 UNDP (2024). Investment case for Air Pollution Reduction in Ethiopia. Executive Summary. https://www.undp.org/ethiopia/publications/executive-summary-investment-case-air-pollution-reduction-ethiopia

1. Introduction



1. Introduction

Air pollution is among the leading avoidable causes of diseases and death globally and the world's largest environmental health risk.[3] Studies conducted by leading health organizations, such as the World Health Organization (WHO) and the Centers for Disease Control and Prevention (CDC), have consistently highlighted the detrimental impact of air pollution on morbidity and mortality rates. Exposure to pollutants such as particulate matter (PM), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), and ozone (O_3) has been linked to a myriad of health issues, including asthma, lung cancer, and cardiovascular complications.[4,5] Vulnerable populations, including children, pregnant women, the elderly, and individuals with pre-existing health conditions, are disproportionately affected by poor air quality, exacerbating health inequities within communities.[6]

Evidence suggests that ambient air quality in Ethiopia has critically worsened in recent years[7] due to urbanization, rural-urban migration, traffic congestion, and increasing industrialization in urban areas. At the same time, there is a shortage of experts and equipment to measure and monitor levels of ambient air pollution, no national air quality database, no research agenda focusing on ambient air pollution and its impacts, and lack of adequate budget to tackle these challenges.

An investment case on the burden of air pollution and health in Ethiopia, outlining the benefits of investing in selected air pollution interventions, was published by UNDP, EPA and MoH in 2024. The findings reveal that in 2019, more than 25,000 deaths in Ethiopia were attributable to ambient air pollution, with economic cost of US$2.6 billion, or 1.3 percent of Ethiopia's GDP.[8]

The purpose of this report is to conduct a legal environment assessment for ambient air pollution and health in Ethiopia, as a part of the larger UNDP-European Commission project *Advancing health and environmental sustainability through action on pollution* (2020–2024). This report assesses 25 policies, proclamations, regulations, directives, guidelines, and strategies in areas including environment, health, transportation, energy, agriculture, mining, and buildings.

3 World Health Assembly Resolution 68.8, Health and the Environment: Addressing the Health Impact of Air Pollution, preambular paragraph 3, citing Global Health Observatory data (2015). https://apps.who.int/iris/bitstream/handle/10665/253237/A68_R8-en.pdf?sequence=1&isAllowed=y.

4 World Health Organization (2020). Air pollution website. Retrieved from: https://www.who.int/health-topics/air-pollution.

5 European Environment Agency (2022). Air Quality in Europe - 2020 Report. https://www.eea.europa.eu//publications/air-quality-in-europe-2022

6 WHO (2021). Ambient (outdoor) air pollution website. https://www.who.int/news-room/fact-sheets/detail/ambient-(outdoor)-air-quality-and-health .

7 Bulto, T. W., & Werku, B. C. (2022). Air Quality and Health in Ethiopia. In Air Quality and Health. IntechOpen

8 UNDP (2024). Investment Case Study for Air Pollution Reduction in Ethiopia. United Nations Development Programme. Licence: CC BY-NC-SA 3.0 IGO.

Household air pollution, greenhouse gases, sewage, and non-toxic municipal waste are excluded from the assessment. Household air pollution was excluded to maintain focus on ambient air pollution related challenges, enabling the study to provide targeted and actionable recommendations. This decision ensures that the findings are precise and can be expanded upon in future assessments to encompass broader considerations. Greenhouse gases, sewage, and non-toxic municipal waste were excluded to align with the guidance outlined in the legal environment assessment methodology, which deliberately omit these components. This alignment not only ensures consistency with the established regulatory framework but also directs the study's emphasis towards the areas prioritized within the scope of the assessment.

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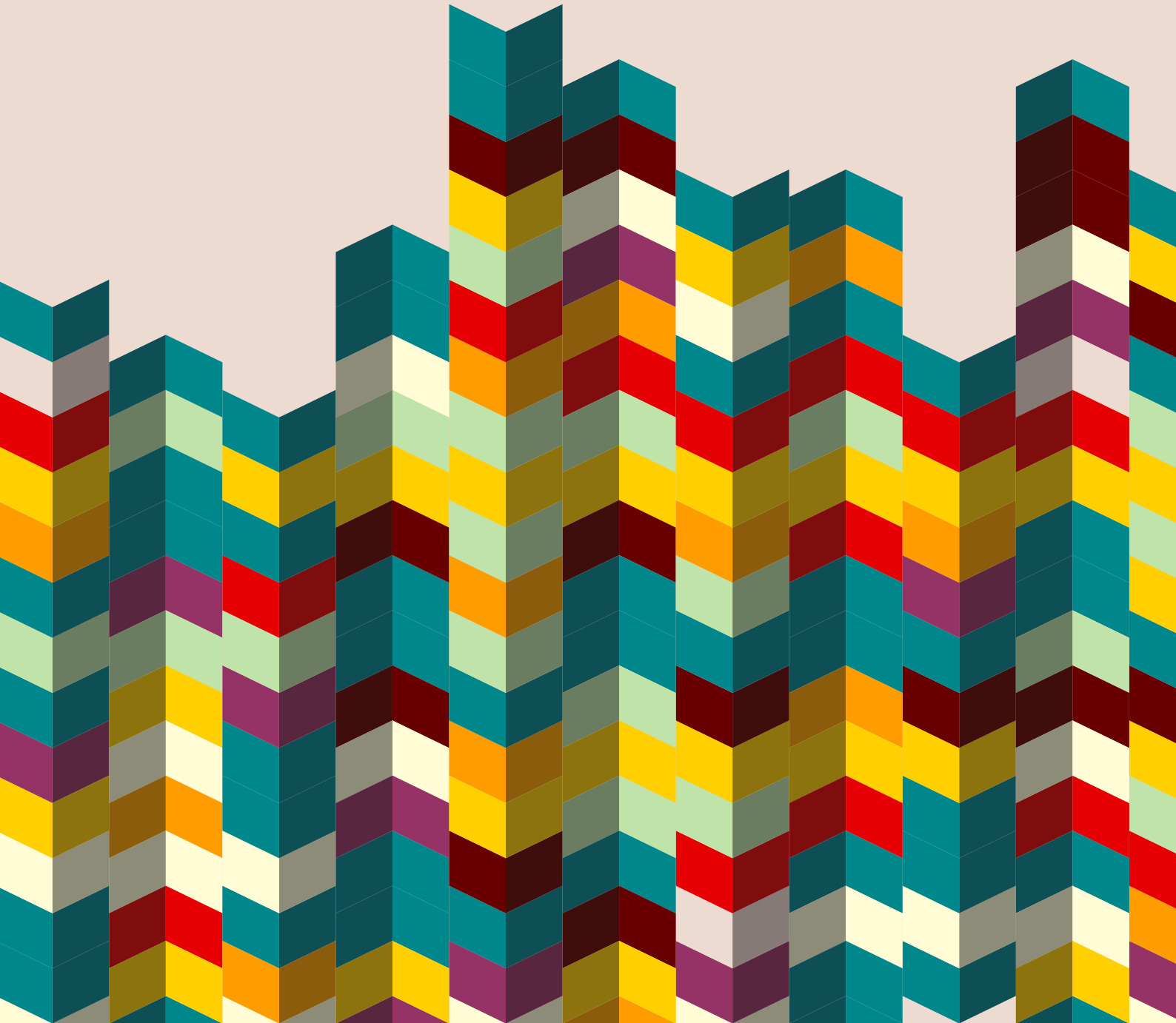
2. Background and objective assessment



2. Background and objective of the assessment

Exposure to air pollutants can aggravate and cause a number of health conditions, including chronic obstructive pulmonary disease (COPD), asthma, respiratory disease, high rates of hospitalization (a measurement of morbidity), cardiovascular diseases, cardiovascular mortality, and cancers.[9] Currently, more than 99 percent of the world's population breathes air containing dangerous levels of pollutants.[10] Around 58 percent of premature deaths related to ambient air pollution are estimated to result from ischemic heart disease and stroke, with 18 percent attributed to chronic obstructive pulmonary disease and acute lower respiratory infections each, while six percent of deaths are linked to lung cancer.[11] Air pollution exposure during pregnancy and early childhood can cause defects in children, reducing cognitive function (as measured by IQ). $PM_{2.5}$ pollution was responsible for 1.96 billion lost IQ points in African children.[12,13]

98 percent of urban populations in low- and middle-income countries (LMICs) live in areas where pollution levels exceed WHO regulations, compared to 56 percent of people living in industrialized countries.[14] Main sources of ambient air pollution in urban areas in developing countries are emissions from a large number of vehicles, widespread use of diesel-powered and obsolete vehicles, unpaved and/or poorly maintained streets, lack of emission control and modern technology in the industry, poor fuel quality, inadequate infrastructure, and open burning.[15]

In Africa, deaths attributable to communicable diseases decreased from 5.2 million in 1990 to 4.5 million in 2019. At the same time, the number of deaths from non-communicable diseases (NCDs) rose from 2.1 million to 3.8 million.[16,17] In Ethiopia, the economic output lost due to ambient air pollution-related health burden was US$2.6 billion in 2019.[18]

Ethiopia is experiencing economic growth, with the downside of a negative impact on the environment, increasing pollution and habitat destruction. Ethiopia has adopted measures to enhance environmental protection and address the challenges associated with the country's development trajectory, including air pollution and its health impacts. However, the increase in air pollution and its health impacts indicate that more needs to be done.

9 Manisalidis I., Stavropoulou E., Stavropoulos A. and Bezirtzoglou E. (2020). Environmental and Health Impacts of Air Pollution: A Review. Front. Public Health 8: 14.doi: 10.3389/fpubh.2020.00014.
10 WHO (2022). Billions of people still breathe unhealthy air: new WHO data. News release. https://www.who.int/news/item/04-04-2022-billions-of-people-still-breathe-unhealthy-air-new-who-data
11 WHO (2016). Ambient Air Quality website. https://www.who.int/news-room/fact-sheets/detail/ambient-(outdoor)-air-quality-and-health
12 UNEP (2021). Air Pollution and Development in Africa: Impacts on Health, the Economy, and Human Capital.
13 Gouda HN, Charlson F, Sorsdahl K, Ahmadzada S, Ferrari AJ, Erskine H, Leung J, Santamauro D, Lund C, Aminde LN, Mayosi BM. Burden of non-communicable diseases in sub-Saharan Africa, 1990–2017: results from the Global Burden of Disease Study 2017. The Lancet Global Health. 2019 Oct 1;7(10):e1375-87.
14 WHO (2022). Air Quality Database (Update 2016).
15 UNEP (2018). Addis-Air-Quality-Policy-and-Regulatory-Situational-Analysis. https://www.eci-africa.org/wp-content/uploads/2019/05/Addis-Air-Quality-Policy-and-Regulatory-Situational-Analysis_Final_ECI_31.12.2018rev.pdf
16 Bigna JJ, Noubiap JJ. The rising burden of non-communicable diseases in sub-Saharan Africa. The Lancet Global Health. 2019 Oct 1;7(10):e1295-6. DOI: 10.1016/S2214-109X(19)30370-5
17 WHO (2020). Regional Office for Africa. Noncommunicable Diseases. https://www.afro.who.int/health-topics/noncommunicable-diseases
18 UNEP (2021). Air Pollution and Development in Africa: Impacts on Health, the Economy, and Human Capital.

The objective of this report is to conduct a legal environment assessment (LEA) for ambient air pollution and health in Ethiopia. Beyond the review of existing legal frameworks, the LEA provides a foundation of knowledge regarding gaps and strengths in the existing evidence, trends, and key findings on how laws are implemented and enforced. More specifically, this study aims to:

- Review and analyze the strengths and weaknesses of the existing national laws, policies, proclamations, regulations, standards, guidelines, and strategies related to ambient air pollution, non-communicable disease, and environmental health.
- Provide policy recommendations and strengthen the implementation and enforcement of health and environment related laws, policies, proclamations, regulations, standards, guidelines, and strategies.

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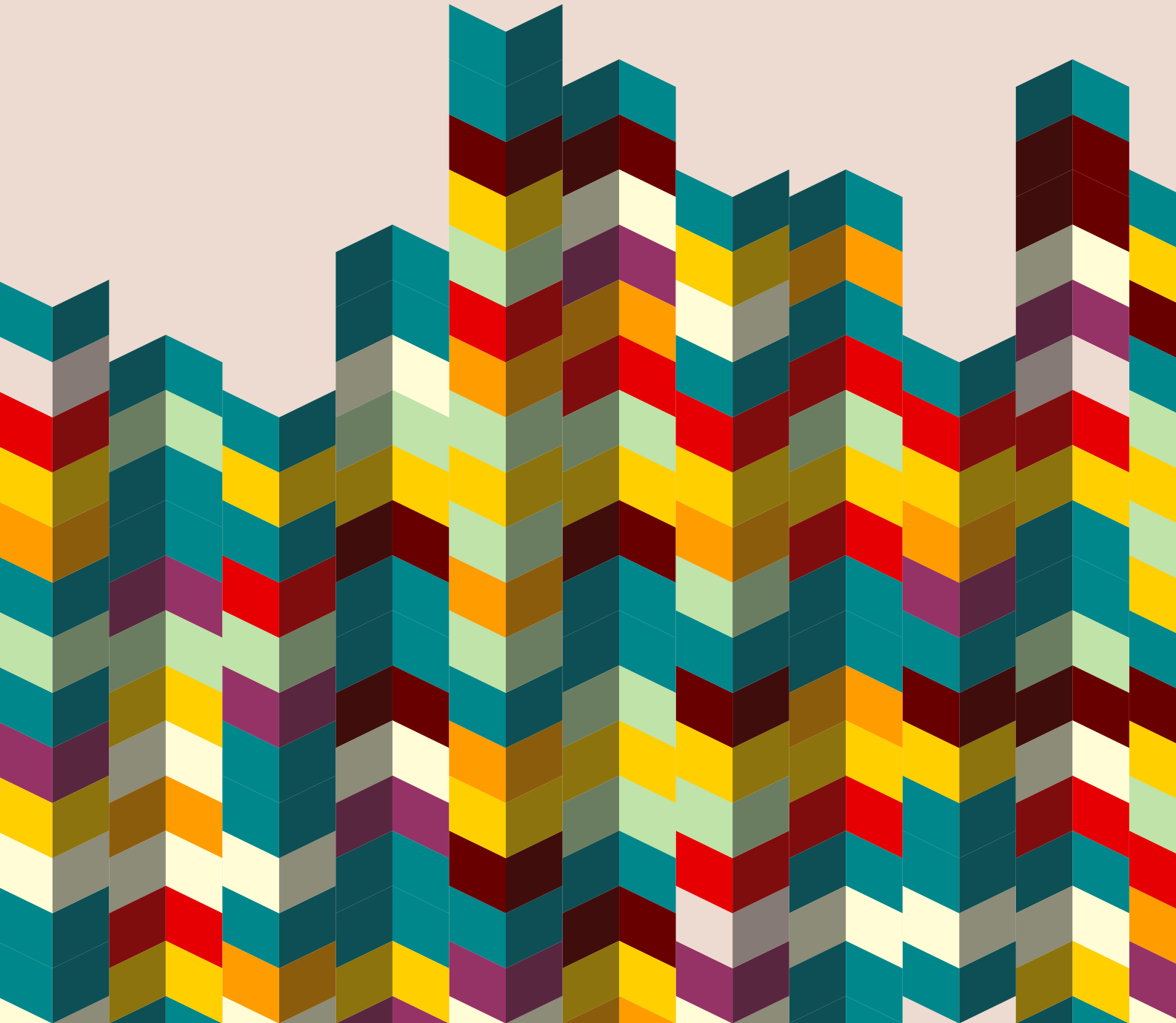
3. Methodology



3. Methodology

The report was conducted using a UNDP methodology *Legal Environment Assessment for Health and Pollution. An Operational Guide to Conducting National Regulatory and Policy Assessments for Enhancing Pollution Control and Protecting Public Health*.[19] The methodology outlines five sections describing a process for facilitating a national LEA. The stages encompass 1) planning, 2) assessment, 3) feedback and finalization, 4) dissemination, 5) implementation and impact assessment. Based on the operational guide, the following steps were taken to conduct the assessment.

3.1 Planning for the Legal Environment Assessment

The planning phase for the assessment started with consultations organized by UNDP and EPA to identify national priorities for the LEA. It was decided to focus on national laws, policies, proclamations, regulations, standards, guidelines, and strategies related to ambient air pollution, non-communicable diseases, and environmental health. A Technical Working Group (TWG) was established from representatives of EPA, MoH, MoWE, MoI, MoTL, MinT, EMI, AAU and EPHI to advise on the LEA development (Annex 1). A national LEA consultant was recruited and tasked to draft an inception report proposing which laws, policies, proclamations, regulations, standards, guidelines, and strategies related to ambient air pollution, non-communicable disease, and environmental health would be analysed. The inception report was presented to TWG for its review and feedback.

3.2 Conducting the Legal Environment Assessment

For the execution of the LEA, the consultant received an official support letter from the EPA (Annex 2), granting access to pertinent information from desk sources and key informants. Subsequently, a workshop was organized to debrief the TWG on the LEA process and their expected contribution. Each stakeholder was notified about the need to assist the national consultant in collecting the required information from their respective organizations. In conducting the LEA, informed consent forms (Annex 3) and questionnaire (Annex 4) were employed. The next sub chapters describe the LEA development process.

19 UNDP (2025). Legal Environment Assessment for Health and Pollution. An Operational Guide to Conducting National Regulatory and Policy Assessments for Enhancing Pollution Control and Protecting Public Health.

3.2.1 Desk review

A desk review was conducted to gather existing national laws, policies, proclamations, regulations, standards, guidelines, and strategies around ambient air pollution, non-communicable diseases, and environmental health. This review involved analyzing relevant literature, scientific studies, reports, and publications from reputable sources such as research articles, government reports, and assessments conducted by international organizations. As a result, the following 25 laws and policies were assessed to identify their strengths, weaknesses, gaps, and opportunities, allowing the results to improve Ethiopia's efforts in combating air pollution.

1. The Constitution of Ethiopia
2. Environmental Policy of Ethiopia
3. Environmental Organs Establishment Proclamation
4. Environmental Impact Assessment Proclamation
5. Environmental Pollution Control Proclamation
6. Solid Waste Management Proclamation
7. Prevention of Industrial Pollution Regulation
8. Health Policy of Ethiopia
9. Public Health Proclamation
10. National Hygiene and Environmental Health Strategy
11. National Transport Policy
12. Road Transport Proclamation
13. Vehicles Identification, Inspection and Registration Proclamation
14. National Energy Policy
15. Energy Proclamation
16. Urban Planning Proclamation
17. Ethiopian Building Proclamation
18. Building Regulation
19. Ethiopian Industrial Development Strategy
20. Agricultural Development Led Industrialization Strategy
21. Investment Proclamation
22. Mining Operation Proclamation
23. Vehicular Exhaust Emission Standard
24. Ambient Air Quality Standard
25. Environmental Standards for Industrial Pollution Control

3.2.2 Key informant interviews

As part of the effort to address ambient air pollution and its health impacts, a total of nine key informant interviews were conducted with representatives from the EPA, MoH, MoWE, MoI, MoTL, MinT, EMI, AAU, and EPSE (Annex 4). The interviews were conducted to gather information regarding the existing national laws, policies, proclamations, regulations, standards, guidelines, and strategies, using a questionnaire (questions provided in Annex 5).

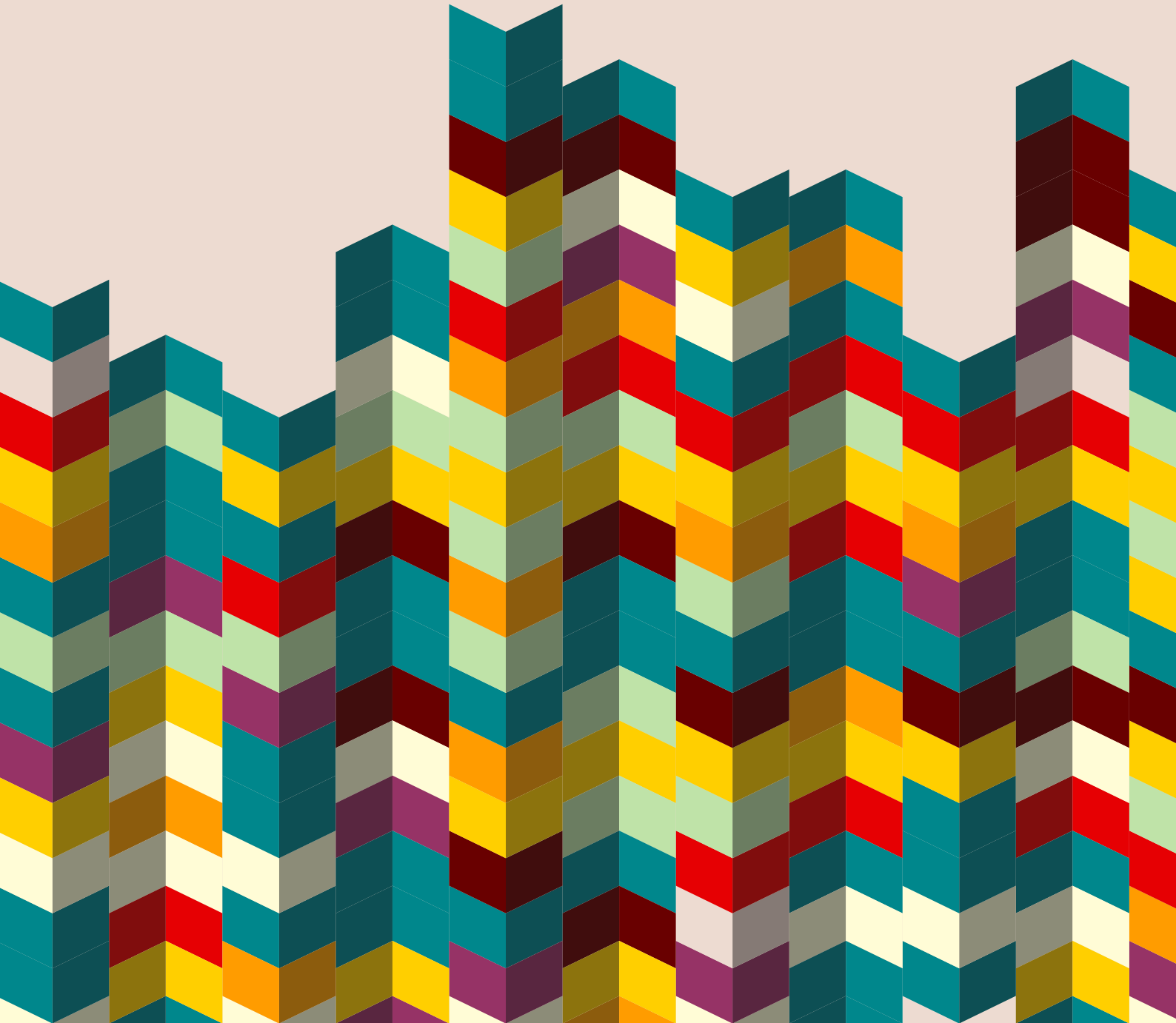
3.2.3 Stakeholder consultations

Stakeholder consultations comprising government agencies, such as the EPA, MoH, MoWE, MoI, MoTL, MinT, MoM, EMI, AAU, EPHI, Policy Study Institute and EPSE were conducted to collect feedback on the draft LEA report. Two experts from each institute participated in the consultation. Furthermore, the World Health Organization and civil society organizations participated, while representatives from the EU and UNEP were invited but did not attend. The aim of the consultations was to obtain knowledge, experience, and information from the experts. Stakeholder consultation also promoted an inclusive, participatory approach to raising awareness and promoting dialogue about ambient air pollution impacts on human health, associated human rights issues, and the purpose of the LEA. Four consultations were conducted through workshops and collaborative TWG meetings.

3.3 Finalization and dissemination

The completed LEA underwent a thorough review process, during which feedback was solicited from the government and UNDP. The final report was shared with a wide audience during a national dissemination workshop, which was attended by senior government officials, representatives from international organizations, UN agencies, and the EU, as well as India and Mongolia who conducted similar work in the framework of the EU-UNDP project. The workshop involved media and was attended by stakeholders from several sectors. The multi-sectoral action plan (MSAP) developed under the leadership of EPA coordination will actively advance the implementation of LEA recommendations, mobilize resources, and monitor the future impact of ambient air pollution on public health.

4. Findings of the Legal Environment Assessment



4. Findings of the Legal Environment Assessment

The analysis of Ethiopia's regulatory framework for ambient air pollution encompasses an assessment of legal instruments governing environmental management, public health, transportation, energy, urban development, industrialization, and standards in Ethiopia.

4.1 The Constitution of Ethiopia

The Ethiopian Constitution, established in 1994, serves as the foundation for all development-related policies, legal provisions, and their corresponding outcomes in the country. The Constitution explicitly guarantees the right of the Ethiopians to enjoy a clean and healthy environment. This is outlined in the following four articles:[20]

- **Article 43** recognizes the entitlement of citizens to enhanced living conditions, sustainable development, active participation in national development, and the right to be involved in decision-making processes concerning developmental policies and projects that impact their communities.
- **Article 44** establishes the Environmental Rights provision, which guarantees all citizens the right to a clean and healthy environment. Article 89 of the Constitution outlines the Economic Objectives, which emphasize the government's commitment to safeguard and enhance the health, welfare, and standard of living of the working population in the country. The government will strive to protect and promote the well-being and quality of life for those engaged in various occupations and industries.
- **Article 90** highlights the Social Objectives, stating that policies will strive, within the limits of available resources, to ensure that all Ethiopian citizens have access to essential services and necessities. These include public health services, education, clean water, housing, food, and social security. The aim is to provide equitable access to these fundamental aspects of well-being for all individuals in the country.
- **Article 92** outlines the Environmental Objectives, aiming for the government to guarantee that all Ethiopians reside in a clean and healthy environment. It emphasizes that the design and execution of any development programs should not cause harm or destruction to the environment. Individuals who are directly impacted by environmental policies and projects have the right to be extensively consulted and express their opinions during the planning and implementation stages. Both the government and citizens share the responsibility to safeguard the environment.

20 Constitution of the Federal Democratic Republic of Ethiopia (1994).

4.2 Environmental Policy of Ethiopia

The Council of Ministers officially approved the Environmental Policy of Ethiopia (EPE) in April 1997, drawing upon the findings and recommendations of the National Conservation Strategy of Ethiopia.[21] The EPE encompasses a conceptual framework that includes nine policy objectives, 19 guiding principles, 10 sectoral policies, and 10 cross-sectoral policies. Its overarching goal is to improve the well-being and quality of life for all Ethiopians, while promoting sustainable social and economic development. This is to be achieved through the wise management and utilization of resources and the environment as a whole, ensuring that the current generation's needs are met without compromising the ability of future generations to meet their own needs.

The EPE demonstrates several strengths, including the promotion of sectoral and cross-sectoral policies and the inclusion of provisions necessary for effective policy implementation. Within the institutional framework, the policy outlines the responsibilities and mandates of legally established coordination and management bodies, starting from the federal level and extending down to the community level. These bodies are entrusted with handling sectoral and cross-sectoral planning and implementation issues. The policy emphasizes the importance of political and popular support for the sustainable use of natural, human-made, and cultural resources, as well as effective environmental management at all levels, including the federal, regional, zonal, district (also called as “woreda” in Ethiopia), and community levels.

The EPE, however, lacks specificity in defining sectoral responsibilities, coordination mechanisms, and monitoring frameworks. It overlooks ambient air pollution as a significant national concern and lacks provisions for emission standards, monitoring, and enforcement strategies. Additionally, it lacks a structured data management system, funding mechanisms, and clear stakeholder engagement strategies. Cross-border environmental cooperation and detailed monitoring and evaluation plans are also absent. EPA is tasked with developing and submitting the policy for approval, but the EPE lacks detailed guidance on implementation and oversight in this regard.

4.3 Environmental Organs Establishment Proclamation

The Environmental Organs Establishment Proclamation, No. 295/2002, was approved in 2002. This Proclamation repeals the Proclamation for the establishment of the EPA (Proclamation No. 9/95) and re-establish the EPA as an autonomous public institution accountable to the Prime Minister (Article 3 (2)) and provides a thorough explanation of the EPA's power and responsibilities. The Proclamation specifies the mandatory requirement for the establishment of environmental units and agencies on a sectoral and regional level that enables institutions the coordination of environmental activities, elimination of duplication of efforts, and enhancement of disseminating environmental information (Articles 14 and 15). The Proclamation also establishes the Environmental Protection Council (EPC) to supervise EPA’s activities and outline the activities of sectoral agencies and environmental units

21 Environmental Policy of Ethiopia; Addis Ababa, Ethiopia (1997).

concerning environmental management (Article 7(1) and Article 9). Additionally, it ensures that environmental issues are coordinated with sectoral ministries and agencies. According to Proclamation No. 295/2002 (Article 6 (9)), EPA is responsible for developing or initiating and coordinating the development of policies, strategies, regulations, and programs to execute international environmental agreements to which Ethiopia is a party. Under part 2, sub-Article 6, section 8 of the Proclamation, the authority has the mandate to participate in the negotiation of international environmental agreements that will result in government ratification.[22]

The Proclamation, however, lacks specificity in identifying the environmental compartments (such as air, water, and soil) for which standards should be established. A lack of specificity in identifying environmental compartments for which standards should be established can lead to ineffective environmental protection, regulatory confusion, increased health risks, and potential economic and legal issues. It is crucial for such proclamations to clearly define the standards for air, water, soil, and other relevant compartments to ensure comprehensive and effective environmental protection. Furthermore, it does not adequately highlight the significance of developing capacity and expertise within environmental organs to effectively tackle ambient air pollution. Insufficient technical knowledge and resources can hamper the organs' ability to formulate and execute appropriate strategies and measures for managing ambient air pollution.

4.4 Environmental Impact Assessment Proclamation

The Environmental Impact Assessment (EIA) Proclamation (Proclamation No. 299/2002) was issued following the provisions of Ethiopian environmental policy.[23] Fortunately, when Ethiopia signed the Treaty on Biodiversity in 1994, it took the first step toward committing to employing EIA. The Proclamation describes any planned development project that is anticipated to have a detrimental effect on the environment must undergo an EIA (Article 4(2)). The Proclamation further states that no person shall initiate the project as requiring EIA without first going through the procedure of an environmental impact assessment and receiving approval from the responsible environmental authority (Article 3(1)). Accordingly, project proponents are required to conduct an EIA, submit the results to the relevant environmental authority, and adhere to the terms and conditions of the EIA authorization granted to them when implementing the project.[24]

The Proclamation outlines that the environmental authorities responsible must grant authorization for project implementation before licensing institutions, such as the Ethiopian Investment Commission, can issue investment permits or operational licenses for those projects (Article 3 (3)). Furthermore, the Proclamation mandates that these licensing institutions suspend or revoke permits or licenses if the corresponding environmental authority suspends

22 Federal Democratic Republic of Ethiopia Environmental Protection Organs Establishment Proclamation No. 295/2002; Addis Ababa, Ethiopia (2002).
23 Federal Democratic Republic of Ethiopia Environmental Impact Assessment Proclamation No. 299/2002; Addis Ababa, Ethiopia (2002).
24 International Institute for Sustainable Development (2016). Environmental Impact Assessment Training Manual. Winnipeg, Manitoba Canada.

or revokes the authorization (Article 12 (3)). These provisions play a crucial role in ensuring that project operators adhere to the EIA requirement and maintain compliance.

The EIA Proclamation outlines the responsibilities and duties of specific stakeholders involved in the process, including the project proponent, consulting firms, and licensing agency (Article 7 (1-4). Furthermore, in line with the Federal EIA Proclamation, various regional states like Oromia National Regional State (EIA Proclamation No. 176/2012)[25] and Amhara National Regional State (EIA Proclamation No. 181/2011)[26] have developed and implemented their own EIA regulations.

The weaknesses of the Proclamation include its lack of focus on air quality impacts of projects, as well as clear procedures for EIA implementation, leading to weak enforcement. This contributes to high air pollution emissions in industries like iron, steel, cement, textile, and leather. There is no provision for post-EIA project monitoring or mitigation planning. Community participation before project initiation isn't emphasized, causing tensions. Lastly, the EIA approval process lacks necessary cost-benefit analysis, neglecting critical societal and environmental considerations.

4.5 Environmental Pollution Control Proclamation

The Environmental Pollution Control Proclamation (No. 300/2002) primarily aims to ensure the right of citizens to a healthy environment and to impose obligations to protect the environment (Article 3 (1-4)). The Proclamation addresses the management of hazardous waste and municipal waste, establishes environmental quality standards for air, water, and soil; and establishes the monitoring of water, air, and soil pollution (Article 6 (1)). The Proclamation stated the EPA to formulate ambient air quality standards and to set the emission limits for both stationary and mobile air pollution sources (Article 6 (1b)). Furthermore, the Proclamation serves as a foundation for the development of relevant environmental standards applicable in Ethiopia (Article 6), while also imposing criminal penalties for violations of these standards (Article 13).[27]

Gaps in this framework include the absence of a comprehensive national and regional strategy to guide institutions and agencies in aligning practical programs with existing policies and effectively implementing the Environmental Pollution Control Proclamation. Additionally, there are deficiencies in the monitoring and enforcement of air quality standards formulated by the Proclamation. Moreover, there is a lack of specific regulations for implementation, leading to ambiguity in enforcement processes.

25 Proclamation No.176/2012.
26 Amhara National Regional State (EIA Proclamation No. 181/2011).
27 Federal Democratic Republic of Ethiopia Environmental Pollution Control Proclamation No 300/2002; Addis Ababa, Ethiopia (2002).

4.6 Solid Waste Management Proclamation

The Solid Waste Management Proclamation (No. 513/2007) is the first national proclamation that governs the management of solid waste. Its main aim is to mitigate the adverse impacts of solid waste across all levels of society while simultaneously creating economic and social benefits by harnessing the potential value of solid waste (Article 3).

A notable strength of this Proclamation lies in its comprehensive coverage of various aspects related to solid waste management. It primarily focuses on delineating the overall responsibilities of urban administration, establishing plans for solid waste management, regulating the interregional movement of solid waste, and providing guidelines for handling household solid waste (Article 11 (1-4)). Furthermore, it addresses key areas such as waste collection and storage, transportation, recycling, incineration, disposal, and the auditing of solid waste disposal sites (Article 12 (1&2)). Additionally, the Proclamation recognizes the significance of community involvement in actively contributing towards achieving the goals set forth in the proclamation (Article 5(1)).[28] The Proclamation also acknowledges the inclusion of measures for ensuring compliance with solid waste management regulations through enforcement and penalties (Article 17). It specifies that violations such as illegal waste dumping, improper waste management practices, and failure to meet licensing requirements may result in fines, imprisonment, or a combination of both as punitive actions (Article 17 (3)).

Gaps in the Proclamation include the absence of clear prohibitions or restrictions on open waste burning, leading to continued air polluting practices without robust enforcement. Additionally, there's a lack of prioritization for public awareness campaigns and educational initiatives on the harmful effects of open burning and alternative waste management methods. Engagement with relevant stakeholders and enforcement mechanisms may also be insufficient, along with inadequate attention to Extended Producer Responsibility (EPR) for product lifecycle management.

4.7 Prevention of Industrial Pollution Regulation

The Prevention of Industrial Pollution Regulation (No 159/2008) was established in 2008 as a subsidiary regulation to Proclamation No 300/2002 (FDRE, 2002), which was enacted six years earlier and serves as its parent proclamation.[29] The Regulation places general obligations on specific factories. These obligations include minimizing the generation of pollutants to meet relevant environmental standards or lower and ensuring their proper disposal in an environmentally sound manner (Article 4(1)). The factories are also required to handle equipment, inputs, and products in a way that prevents harm to the environment and human health (Article 4(2)). Furthermore, if a potential pollutant, input, or product is released into the environment, the responsible agency must be immediately notified (Article 4 (4)).

28 Federal Democratic Republic of Ethiopia Solid Waste Management Proclamation No 513/2007; Addis Ababa, Ethiopia (2007).
29 Federal Democratic Republic of Ethiopia Prevention of Industrial Pollution council of Ministers Regulation No. 159/2008; Addis Ababa, Ethiopia (2008).

The Regulation covers several aspects, such as the necessity of having an emergency response system (Article 8), conducting internal monitoring of environmental safety (Article 9 (1)), establishing a system to receive public complaints (Article 10 (1)), providing information on pollution management (Article 11 (1)), and submitting an annual report to the competent environmental organization (Article 11 (2)). This report should detail how the factory is complying with the provisions of the regulation.

However, the Regulation lacks clarity on monitoring and reporting, making it difficult to assess pollution levels, ensure compliance, and evaluate prevention measures. It also overlooks the significance of public participation and awareness, which can foster responsibility and collective action against pollution. Moreover, it inadequately addresses technical capacity and resource needs, such as funding, training, and personnel, which can hinder effective implementation and enforcement.

4.8 Health Policy of Ethiopia

In 1993, the Health Policy of Ethiopia was formulated with an emphasis on increasing access to a basic package of quality primary health care services to all segments of the population.[30] The strength of the Policy from an environmental perspective is the promotion of environmental health and occupational health and safety. These include self-care in health and assurance of a safe environment (Article 4 (1)), encouraging the awareness and development of health-promoting lifestyles and attention to personal hygiene and a healthy environment (Article 4 (2)), and preventing environmental pollution with hazardous chemical wastes (Article 5 (3)). The occurrence of communicable diseases resulting from the lack of adequate sanitary facilities is recognized as a major issue in the policy (Article 10 (6)). One of the strategies for solving this problem is the provision of safe and adequate water and appropriate technology for domestic waste disposal for both urban and rural communities (Article 3 (3 and 4)).

The Health Policy lacks recognition of non-communicable diseases linked to ambient air pollution as a public health concern and fails to specify measures or strategies to address the health impacts of ambient air pollution. There are no provisions for monitoring and evaluating ambient air pollution levels for the use of the public health community, nor does it address implementing regulatory measures for controlling and mitigating pollution due to health impacts. While the Policy emphasizes studying health issues related to industrial and agricultural practices, it overlooks addressing ambient air pollution directly. Although it acknowledges the importance of inter-institutional collaboration for promoting environmental and occupational health, there's a notable absence of actionable steps toward achieving this collaboration.

30 Ethiopian Health Policy; Addis Ababa, Ethiopia (1993).

4.9 Public Health Proclamation

The Public Health Proclamation (No. 200/2000), developed in 2000, aims to safeguard public health and foster a healthy environment for both present and future generations. Among its key provisions, the Proclamation prohibits the discharge of untreated liquid waste into water bodies (Article 11), prohibits improper disposal of solid and liquid waste to prevent environmental pollution and mandates proper handling and disposal of waste from hospitals (Article 12). It also states institutions to maintain clean and accessible toilet facilities, regulates bathing places for cleanliness and safety (Article 13), and prohibits unauthorized burial or burning of human remains to mitigate public health risks and environmental hazards (Article 15).[31]

However, the Proclamation lacks provisions specifically addressing ambient air pollution and the diverse management strategies required for various pollution sources, such as industrial activities, vehicles, energy generation, and land-use changes. Also, non-communicable diseases caused by ambient air pollution are not addressed within the Proclamation.

4.10 National Hygiene and Environmental Health Strategy

The National Hygiene and Environmental Health Strategy, originally formulated and executed between 2016 and 2020, was updated in April 2022 to cover the period from 2021 to 2025. The 2016 Strategy had several gaps, notably a lack of focus on ambient air pollution and an absence of clear action plans to control various pollution sources, including power generation, wastewater treatment, vehicle emissions, construction activities, open waste burning, and healthcare waste management. The updated Strategy (2021-2025) addressed these gaps, particularly the absence of ambient air pollution and its health impacts.[32] During its implementation, the Strategy has showcased several robust approaches to tackle concerns associated with environmental pollution, such as air pollution, specifically addressing particulate matter exposure, and recognized ambient air pollution as a growing challenge in terms of hygiene and environmental health. It also emphasizes the importance of addressing health impacts from biomass burning.[33]

4.11 National Transport Policy

The National Transport Policy, developed in 2020 with reference to Ethiopia's Climate Resilient Green Economy Strategy (CRGE) and the Paris Agreement, outlines principles, implementation tools, and approaches for guiding transportation management and planning in Ethiopia. It serves as a framework for decision-making related to investments, infrastructure construction, and service provision in the transportation sector. Addressing environmental concerns, the Policy promotes renewable energy use, environmentally friendly transportation practices, and climate-resilient infrastructure. It acknowledges the adverse impact of transportation on

31 Federal Democratic Republic of Ethiopia Public Health Proclamation No. 200/2000; Addis Ababa, Ethiopia (2000).
32 Ministry of Health Ethiopia (2022). National WASH and Environmental Health Strategy (2021-2025). Addis Ababa, Ethiopia.
33 The Federal Democratic Republic of Ethiopia Ministry of Health (2016). National Hygiene and Environmental Health Strategy. Addis Ababa, Ethiopia.

the natural environment, particularly carbon emissions from various transportation activities. The Policy recommends measures to mitigate environmental degradation, including forest rehabilitation, strengthening environmental impact assessments, and establishing transport standards aligned with climate resilience strategies. Additionally, it encourages the adoption of renewable energy in transport services, regulates vehicle lifespan, and supports private sector involvement in the automotive industry.[34] A key weakness of the Policy is that it fails to consider the quality of diesel oil or the regulation of vehicular emission levels, crucial factors impacting air quality and leading to negative health impacts. Instead, its focus remains predominantly on reducing greenhouse gas emissions.

4.12 Road Transport Proclamation

The Road Transport Proclamation (No. 1274/2022) was developed in 2022 to enforce and monitor road transportation effectively at the local level while ensuring that the sector utilizes essential technologies to enhance reliability and accessibility. This Proclamation applies to all transportation services, as well as road infrastructures, that operate on roads connecting two or more regions, roads that link Ethiopia with neighboring countries all vehicles utilizing Ethiopian roads, and all drivers and other road users (Article 3). It mandates these constituents to adhere to and implement decisions concerning vehicle age limits for imported, locally manufactured, assembled, or semi-assembled motor vehicles, as well as vehicles already in use (Article 5 (17)). In Article 4 (3), the Proclamation acknowledges the importance of environmental protection by emphasizing that the road transport service should be free from environmental pollution and promote an environment-friendly approach. Additionally, Article 5 (28) of the Proclamation outlines the responsibilities of the Ministry of Transport and Logistics, which includes identifying, implementing, and monitoring measures, in collaboration with relevant organizations, to mitigate the impact of road transport service on the environment and the climate.[35] Gaps identified within the Proclamation include provisions concerning the fuel quality of diesel vehicles, annual emissions testing for vehicles, and enforcement measures. Additionally, it does not specify vehicle emission standards.

4.13 Vehicles Identification, Inspection and Registration Proclamation

In 2010, the Vehicle Identification, Inspection, and Registration Proclamation (No. 681/2010) was issued with the objective of establishing a standardized and internationally accepted framework for vehicle registration and annual inspection procedures in Ethiopia. According to this Proclamation, it is mandatory for any vehicle to undergo inspection and display an annual inspection sticker before being allowed to operate on Ethiopian roads (Article 25). In addition to the roadworthiness inspection requirement, the Proclamation also specifies that the annual inspection process must evaluate the vehicle's adherence to environmental pollution protection standards as per the appropriate law (Article 29 (1d)).[36] Despite the Proclamation

34 Federal Democratic Republic of Ethiopia National Transport Policy (2020).
35 Federal Democratic Republic of Ethiopia Road Transport Proclamation No. 1274/2022; Addis Ababa, Ethiopia (2022).
36 Federal Democratic Republic of Ethiopia Vehicles Identification, Inspection and Registration Proclamation No. 681/2010; Addis Ababa, Ethiopia (2010).

acknowledging that the inspection considers environmental protection standards, there is currently no enforcement or implementation of air quality standards in the inspection process.

4.14 Vehicular Exhaust Emission Standards

In 2022, Ethiopian Standard Agency, in collaboration with EPA, introduced vehicular exhaust emission standards for new diesel, gasoline, and LPG vehicles, setting limits for CO, PM, NOX and hydrocarbon emissions. Notably, these Standards do not address emissions from existing diesel vehicles and lack requirements for PM, SO2, and NOx emissions for both new and existing vehicles. Challenges in emission testing include equipment accuracy, especially for non-catalyst tests, and the inclusion of pre-1960 vehicles. Testing with catalysts faces further hurdles due to historical fuel use, high sulfur levels, and limited catalytic converter replacements. Ethiopia imports fuel with varying sulfur content, contributing to SO2 emissions and PM2.5 productions, impacting catalyst efficiency. Reducing sulfur will promptly cut emissions from catalyst-equipped vehicles. Implementing the exhaust emission standard without reducing diesel fuel sulfur content from 500 ppm to 50 ppm poses challenges, as sulfur is the primary pollutant behind PM2.5 emissions. Fuel quality is crucial for establishing emission standards.

The Ethiopian Government aims to discourage old vehicle use through higher taxes, with excise rates rising to 500 percent. The Government is also promoting electric vehicles with tax exemptions. However, the lack of power infrastructure for charging stations is a significant hurdle, requiring investment. Resistance to electric vehicles persists due to lack of awareness in electric vehicle accessibility and benefits, and concerns over battery costs. Authorities have not issued guidelines for electric vehicle use as of 2024. In Addis Ababa, public transport dominates, with buses operated by two companies (Anbessa and Sheger). However, conventional buses struggle to meet demand, leading to renting older, polluting buses. Mini and midi buses, serving over 1,500,000 daily trips, also run on outdated diesel fleets. Addis Ababa has some non-motorized transport infrastructure like bike lanes and sidewalks, but these are often poorly maintained, with uneven surfaces or obstructions. Motor tricycles misuse bike lanes, making bicycling dangerous.

Mass transportation systems in regional and zonal towns encounter feasibility challenges. These include the lack of sulfur reduction in diesel fuel, posing hurdles for emission standards, and inadequate power infrastructure which hinders electric vehicle adoption. Moreover, the absence of guidelines for electric vehicle usage exacerbates the situation.. Additionally, the feasibility of implementing mass transportation in regional towns remains uncertain.

4.15 National Energy Policy

The National Energy Policy of Ethiopia, initially developed in 1994 and revised in 2015, aims to ensure the availability, accessibility, affordability, safety, and reliability of energy services to support the country's socio-economic development and urbanization. It emphasizes improving energy security and reliability, increasing access to modern energy, promoting cleaner energy technologies, strengthening energy sector governance, and ensuring environmental and social sustainability (Article 3 (1-6)). The Policy focuses on controlling and mitigating environmental pollution from energy production, transportation, supply, and utilization, in addition to integrating environmental sustainability objectives, conducting Environmental and Social Impact Assessments (ESIAs), and introducing environmental audits for both new and existing projects (Article 6 (4)). It promotes environmentally friendly energy technologies and services, sets minimum performance standards and national targets for reducing energy-related emissions, and addresses household air pollution and fuel transportation as key health concerns (Article 4 (3-7)). Additionally, the Policy encourages energy technology innovation and formulates policy instruments to address various challenges across the energy supply and demand process (Article 6 (2)).[37]

The Policy also exhibits significant gaps, including the promotion of coal for industrial use despite the need to transition away from harmful biomass fuels. It overlooks addressing ambient air pollution from transportation and fails to consider household fuel types like firewood and animal dung, both significant pollution contributors. Additionally, it lacks provisions for partnerships and monitoring, which would be critical for effective implementation of the Policy.

4.16 National Energy Proclamation

The National Energy Proclamation (No. 810/2013) was revised to ensure its compatibility with the existing energy regulations at both the national and regional levels. The revision introduced a new law that encompasses regulations related to electricity, energy efficiency, and conservation (Article 6 (3)). The revised Proclamation specifically addresses environmental protection requirements in two key articles. Article 6 (1-3) stipulates that individuals intending to generate, transmit, or distribute electricity for non-commercial purposes must notify the Ministry of Water and Energy in advance. They are also required to provide documentation demonstrating compliance with environmental protection and safety conditions. Article 10 (1-3) mandates that all license holders must conduct their activities in accordance with the provisions of the Proclamation. Additionally, they must adhere to relevant environmental protection laws and safety regulations.[38] Despite regulations concerning electricity, energy efficiency, and conservation, there is a notable absence of measures or provisions directly targeting ambient air pollution control. This omission results in a lack of comprehensive guidelines for monitoring and minimizing the negative effects of pollution stemming from energy-related activities, including energy generation and consumption.

37 National Energy Policy of Ethiopia (1994).
38 Federal Democratic Republic of Ethiopia Energy Proclamation No. 810/2013, Addis Ababa, Ethiopia (2013).

Additionally, the Proclamation overlooks measures to gradually phase out non-renewable energy sources and biomass utilization.

4.17 Urban Planning Proclamation

The Urban Planning Proclamation (No. 574/2008) establishes a legal framework aimed at promoting well-planned and developed urban centers. It regulates and facilitates development activities in urban areas (Article 4 (1)), contributing to the economic growth of the country (Article 4 (2)). The Proclamation addresses the structure and development plans at the local level. These plans, which encompass various environmental concerns, outline the growth patterns and directions of urban centers (Article 40 (2)), specify the primary land use categories, including residential development, and guide the organization of essential physical and social infrastructure (Article 53 (1 and 2)). These plans also identify areas for urban redevelopment and consider environmental aspects, such as industrial zoning (Article 9 (2g)). The local development plan incorporates provisions for environmental protection, such as zoning regulations for different land use types like residential and industrial areas. It also establishes standards for building height and density, determines the layout of essential infrastructure and road networks, and encourages the creation of green spaces, open areas, water bodies, and shared amenities (Article 11 (3a to 3g)). However, the Proclamation lacks specific provisions addressing ambient air pollution sources related to construction activities and urban development. While including general statements on environmental impact assessment, the Proclamation does not explicitly address ambient air pollution control in the structural or development plans.

4.18 Ethiopian Building Proclamation

The Ethiopian Building Proclamation (No.624/2009) was formulated in 2009 to establish the minimum national requirements for constructing, modifying, or altering buildings to safeguard public health and safety. The Proclamation also addresses environmental concerns, particularly sewage disposal (Article 38 (1)). It prohibits the discharge of sewage from sanitary fixtures into receiving bodies of water such as constructed watercourses, rivers, streams, streets, or sewers, to control objectionable discharge (Article 39 (1)).[39] The Proclamation however lacks provisions that acknowledge the risks of ambient air pollution stemming from construction and demolition activities, specifically regarding precautionary measures during construction (Article 31) and site operation (Article 32). It also fails to address open burning of construction waste, which is a prevalent practice contributing to air pollution emissions in Ethiopia.

39 Federal Democratic Republic of Ethiopia Ethiopian Building Proclamation No. 624/2009; Addis Ababa, Ethiopia (2008).

4.19 Building Regulation

In 2011, the Council of Ministers developed Building Regulation (No.243/2011), aimed at environmental protection against pollution. Among its provisions, Article 36 (1-3) outlines sewage disposal design requirements, while Article 37 (1) focuses on preventing the mixing of toilet waste sewage with flood lines. Article 38 (1-3), known as Industrial Effluent Management, prohibits the release of industrial effluent or solid waste into sewage systems, rivers, or solid waste areas. It mandates environment impact assessments for industries and factories to prevent pollution and requires the construction of sewage disposal or treatment systems, with responsibility lying with industry owners. Monitoring and testing of effluent are delegated to the EPA or relevant regulatory bodies. Solid waste disposal mandates accessible storage areas and various disposal methods for toxic waste generated by manufacturing buildings (Article 39 (2)). Article 40 (1 and 2) specifies proper floodwater discharge into designated channels meeting floodwater ditch requirements.[40]

The Regulation primarily addresses sewage disposal, objectionable discharge, and industrial effluent management but lacks explicit measures for controlling and mitigating ambient air pollution, especially during construction and demolition activities. Additionally, it overlooks addressing ambient air pollution from diesel generators which are commonly used during frequent power outages.

4.20 Ethiopian Industrial Development Strategy

The Industrial Development Strategy (IDS) was formulated in 2002 with a primary emphasis on the manufacturing sector while also considering other sub-sectors within the broader industrial landscape. However, the IDS lacks clear specifications regarding its timeline, goals, designated implementing institutions, and mechanisms for monitoring and evaluation. The Ethiopian Industrial Development Strategic Plan (2013-2025) was introduced in 2013 with the aim of driving structural change in the economy through industrial growth.[41] The Industry Sector Development Plan envisions the establishment of a highly diversified, globally competitive, and environmentally friendly manufacturing sector in Africa, capable of significantly enhancing the quality of life for the Ethiopian population by 2025. While the Strategic Plan encompasses five objectives, none of them explicitly address the implementation of an environmental management system (EMS) during the industrial development process. An EMS is crucial for industries to effectively minimize their environmental impact and enhance health and safety for both employees and the community. Additionally, an EMS ensures that industry operations remain compliant with environmental legislation and regulations. It encompasses various tools such as life cycle assessment, cleaner production, and environmental impact assessment, all of which play a vital role in controlling air pollution. The IDS emphasizes the importance of cooperation and assistance among various ministries, government agencies, NGOs, and the private sector.

40 Federal Democratic Republic of Ethiopia Council of Ministers Building Regulation No243. /2011; Addis Ababa, Ethiopia (2011).
41 Ethiopian Industrial Development Strategic Plan (2013-2025), Federal Democratic Republic of Ethiopia Ministry of Industry (2013).

The Strategy lacks comprehensive environmental management policies, regulations, and guidelines. Although the Industrial Zone Development Program is part of the IDS, it does not require environmental and social impact assessments to mitigate health risks throughout project phases. Moreover, measures addressing adverse effects on urban and rural livelihoods due to industrial expansion are missing. While acknowledging the EPA's role in mitigating environmental damage, the IDS does not specifically address concerns such as ambient air pollution, wastewater discharge, solid waste disposal, or industrial emissions. It also neglects efficient resource utilization and environmental sustainability by failing to include pollution control measures, emission-reducing technologies, and cleaner production practices in industrial processes.

4.21 Agricultural Development Led Industrialization Strategy

The Agricultural Development Led Industrialization Strategy, introduced in 1992, focuses on utilizing agricultural development as a driving force for industrialization. It aims to transform the agricultural sector by increasing productivity, improving rural livelihoods, and stimulating economic growth through value addition and agro-industrial development. The Strategy recognizes the importance of agriculture as a key sector for poverty reduction and overall economic development in Ethiopia. The Strategy places emphasis on several key components, including agricultural modernization, rural infrastructure development, market access for farmers, and the promotion of agro-processing and value addition. It aims to enhance agricultural productivity through the adoption of improved technologies, access to quality inputs, and the development of irrigation systems. By promoting agro-industrial activities, the Strategy aims to create employment opportunities, increase incomes, and boost exports. Furthermore, the Strategy also recognizes the importance of sustainable natural resource management and environmental conservation. It seeks to ensure that agricultural practices are environmentally sustainable and resilient to climate change, with a focus on soil and water conservation, biodiversity preservation, and climate-smart agriculture.

While the Strategy prioritizes agricultural development and rural industrialization, it lacks clear guidelines or actions to mitigate the potential impact of agricultural activities on ambient air quality. Activities like crop residue burning, agrochemical use, and livestock emissions can emit pollutants, yet the Strategy fails to comprehensively address these sources of ambient air pollution or propose strategies to minimize their impact.

4.22 Investment Proclamation

The Investment Proclamation (No. 1180/2020) was established in April 2020 with the aim of enhancing the quality of life for the citizens through sustainable economic and social development (Article 5). The Proclamation emphasizes the importance of sustainable development, as highlighted in Article 54 (2), which mandates that investors must comply with the country's laws during their investment activities while also giving due consideration to environmental protection.[42] Furthermore, the Proclamation includes a provision that necessitates the conduct of an EIA for any project before granting an investment permit. Alternatively, it specifies the requirement for coordination and consultation with the EPA regarding EIA obligations. The Proclamation's inclusion of an environmental impact assessment (EIA) is a positive move toward evaluating environmental impacts, yet it might not fully cover concerns about ambient air pollution. EIAs usually concentrate on broader environmental factors and may lack detailed guidelines or standards for controlling ambient air pollution. Additionally, though the Proclamation promotes environmental compliance, it lacks provisions for clear, enforceable mechanisms for monitoring and enforcing measures to control ambient air pollution.

4.23 Mining Operation Proclamation

The Mining Operation Proclamation (No. 678/2010), amended in 2020, aims to assert government control over mineral resources, ensure secure tenure for investors, promote socio-economic growth, and facilitate sustainable mineral resource development in Ethiopia. It applies to all mining activities within the country. The licensing authority grants exploration, large scale mining, and small-scale mining licenses, contingent upon environmental impact assessment (EIA) approval and mitigation plans (Article 60 (1)). License holders must adhere to environmental laws, and the Authority ensures mining operations consider environmental concerns and benefit local communities. The Authority can suspend mineral rights if licensee activities pose threats to communities or the environment (Article 44 (1))[43]. While the Proclamation grants authority to the Licensing Authority to prioritize environmental concerns and community benefits in mining zones, it lacks specific directives or enforcement mechanisms for monitoring and controlling air pollutants.

42 Federal Democratic Republic of Ethiopia Investment Proclamation No 769/2012; Addis Ababa, Ethiopia (2012).
43 Federal Democratic Republic of Ethiopia Mining Operations (Amendment) Proclamation No .1213/2020; Addis Ababa, Ethiopia (2020).

4.24 Ambient Air Quality Standards of Ethiopia

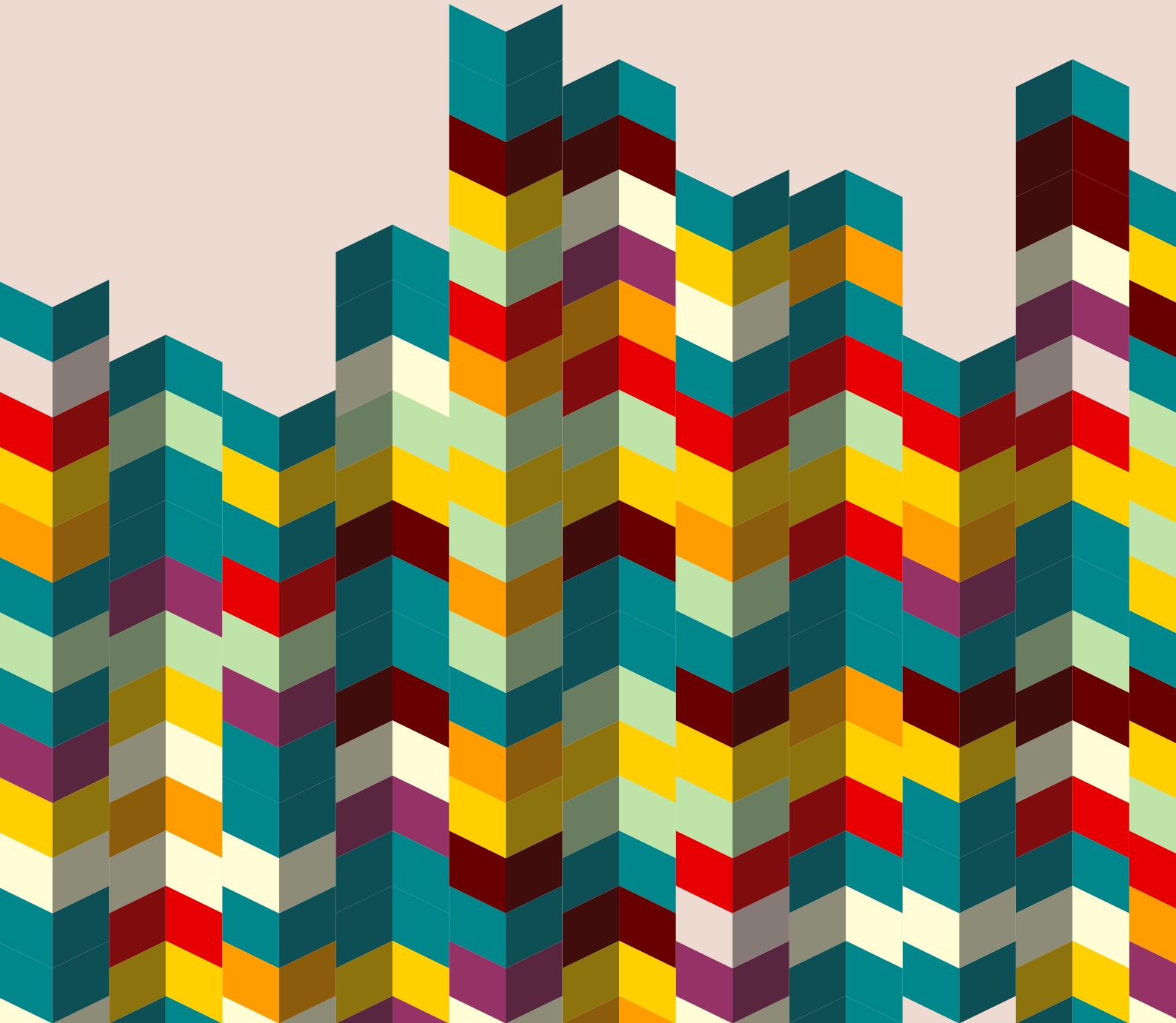
The Ambient Air Quality Standards, established in 2003 through collaboration between the EPA and UNIDO, are designed to protect public health by setting recommended limits for atmospheric pollutants in Ethiopia. These Standards play a crucial role in facilitating the implementation of air quality monitoring and reporting systems and guiding stakeholders in air pollution control measures in the country. They prioritize public health by providing recommended limits for atmospheric pollutants and assist government agencies, industries, and other stakeholders in implementing air pollution control measures through monitoring and reporting systems. However, challenges persist in their enforcement due to limited resources, technical capacity, and air quality monitoring mechanisms. The absence of comprehensive and updated air quality data hampers accurate assessment and monitoring.

4.25 Environmental Standards for Industrial Pollution Control

The EPA developed the Environmental Standards for Industrial Pollution Control in 2011 to prevent industrial pollution by establishing essential guidelines.[44] These Standards are crucial for setting pollution limits to maintain a sustainable environment. Organized into four parts, they offer guidance on interpreting the standards, specify sector-specific standards, outline general standards for industrial effluents, and address emissions and noise levels. Their key advantage lies in providing clear and specific guidelines for industries to adhere to, defining acceptable emission levels and measures for pollution control. This structured approach helps industries minimize their environmental impact and ensure compliance with pollution control measures. However, a notable drawback arises from insufficiencies in monitoring and enforcement efforts. The effectiveness of environmental standards hinges on robust monitoring systems and regulatory enforcement. Despite the presence of laws and standards, insufficient enforcement and monitoring have enabled environmental pollution to continue, adversely affecting human health.

44 Ethiopian Environmental Protection Authority (2011). Environmental Standards for Industrial Pollution Control in Ethiopia.

5. Key themes emerging from key informant interviews and stakeholder consultations



5. Key themes emerging from key informant interviews and stakeholder consultations

The findings of the nine key informant interviews and four stakeholder consultations are grouped according to key themes that emerged from the discussions.

5.1 Air quality monitoring, reporting, and use of data

Informants stated that the existing air quality measuring and monitoring facilities installed in different parts of the country are not sufficient. Insufficient monitoring stations and equipment lead to limited coverage for air quality data collection which pose challenges in obtaining accurate and comprehensive information about air quality in various locations. In addition, the monitoring results are not regularly and frequently delivered to responsible authorities and communities. This hampers effective decision-making and public awareness surrounding ambient air pollution. Inconsistency and inaccessibility of the report formatting can also make it difficult for stakeholders to understand and effectively utilize the information and data provided. These drawbacks in air quality monitoring and reporting undermine the institutional capacity to address ambient air pollution comprehensively and public participation in meaningful ways.

Furthermore, discussions identified the lack of public awareness and behavioral change as a significant drawback about the sources and impacts of ambient air pollution. Stakeholders highlighted the need for comprehensive awareness campaigns targeting both urban and rural areas. These campaigns should educate the public about the sources and impacts of ambient air pollution, promote sustainable practices, and encourage behavioral changes to reduce pollution levels. Disseminating information through various channels, including media, schools, and community outreach programs, can effectively engage and empower individuals to take proactive measures.

In addition, it was emphasized that there is a lack of comprehensive measures in place to ensure continuous improvement in achieving better air quality outcomes. The absence of structured monitoring and evaluation frameworks prevents from identifying areas that require improvement and assessing the effectiveness of implemented measures.

5.2 Law enforcement, compliance and revision

Discussions stated the presence of substantial challenges in ensuring enforcement and compliance of laws and regulations regarding ambient air pollution control. This is mainly due to inadequate resource allocation and low level of commitment for enforcement. Consequently, there is limited capacity to hold industries, organizations, and individuals accountable for their actions. As a result, there is a noticeable absence of deterrence, allowing non-compliance to persist within Ethiopia's jurisdiction. In addition, the existing compliance monitoring and assessment strategies as well as mechanisms for industries, organizations, and individuals

are flawed and inadequate. They fail to offer comprehensive emission monitoring coverage, thereby impeding their ability to accurately evaluate compliance levels. This deficiency in robust monitoring poses challenges in taking appropriate actions against violators and implementing effective measures to mitigate ambient air pollution. Solutions discussed include the need for stronger regulations, improved enforcement mechanisms, and better coordination among different levels of government and stakeholders. The complexity of addressing ambient air pollution sources from multiple sectors, such as transportation, industry, and agriculture, was also highlighted. Stakeholders emphasize the importance of enhanced enforcement mechanisms, such as robust monitoring systems, penalties for violators, and regular inspections. Strong enforcement acts as a deterrent and ensures compliance with emission standards, industrial regulations, and vehicle emissions control measures.

Several informants noted the absence of systematic processes for collecting and incorporating feedback to improve existing legal framework. This limitation hampers institutional ability to address the shortcomings and enhance the effectiveness of regulations in response to the evolving challenges on ambient air pollution.

5.3 Stakeholder engagement around air pollution and health

Discussants stated low level and irregular engagement of stakeholders in public consultations, workshops, and industry-specific forums focusing on air pollution. Responsible institutions do not actively take stakeholder input into account for regulatory developments, do not effectively gather feedback on compliance issues, nor collaborate on awareness campaigns. Consequently, the lack of engagement has created gaps between the regulatory bodies and community needs and expectations. As a result, existing approaches may not be practical, effective, or aligned with the expectations of the community, impeding a given institution's ability to adequately address ambient air pollution as a public health risk.

5.4 Collaboration and knowledge sharing between key stakholders

Stakeholders recognized the importance of addressing ambient air pollution through a multi-faceted approach. Several informants stated that there is a lack of effective collaboration between government agencies, research institutions, civil societies, and international organizations when it comes to addressing ambient air pollution in Ethiopia. The absence of meaningful partnerships and coordination results in fragmented efforts and a missed opportunity to capitalize on collective expertise and resources. This limited collaboration hampers the responsible institution's capability to develop comprehensive and impactful strategies to tackle the issue of ambient air pollution. In addition, informants indicated that there are no initiatives or platforms established for facilitating knowledge and best practices exchange among institutions for addressing ambient air pollution. This hampers the institution's opportunity and ability to learn from successful approaches implemented in other places and share their own experiences and insights. As a result, the lack of knowledge sharing stifles innovation, impedes progress, and limits capacity to achieve significant advancements in

addressing ambient air pollution. Proposed solutions would include the need for collaboration among various institutions involved in combating air pollution. Government agencies, environmental organizations, public health institutions, transportation authorities, and urban planning bodies should work together to develop integrated strategies and policies. Improved coordination would help to align efforts, share resources, and implement holistic solutions.

Stakeholders also emphasize the importance of fostering collaboration and partnerships among government bodies, NGOs, research institutions, private industries, and international organizations. Such collaborations facilitate knowledge sharing, technology transfer, and joint initiatives to develop innovative solutions, conduct research, and implement effective interventions.

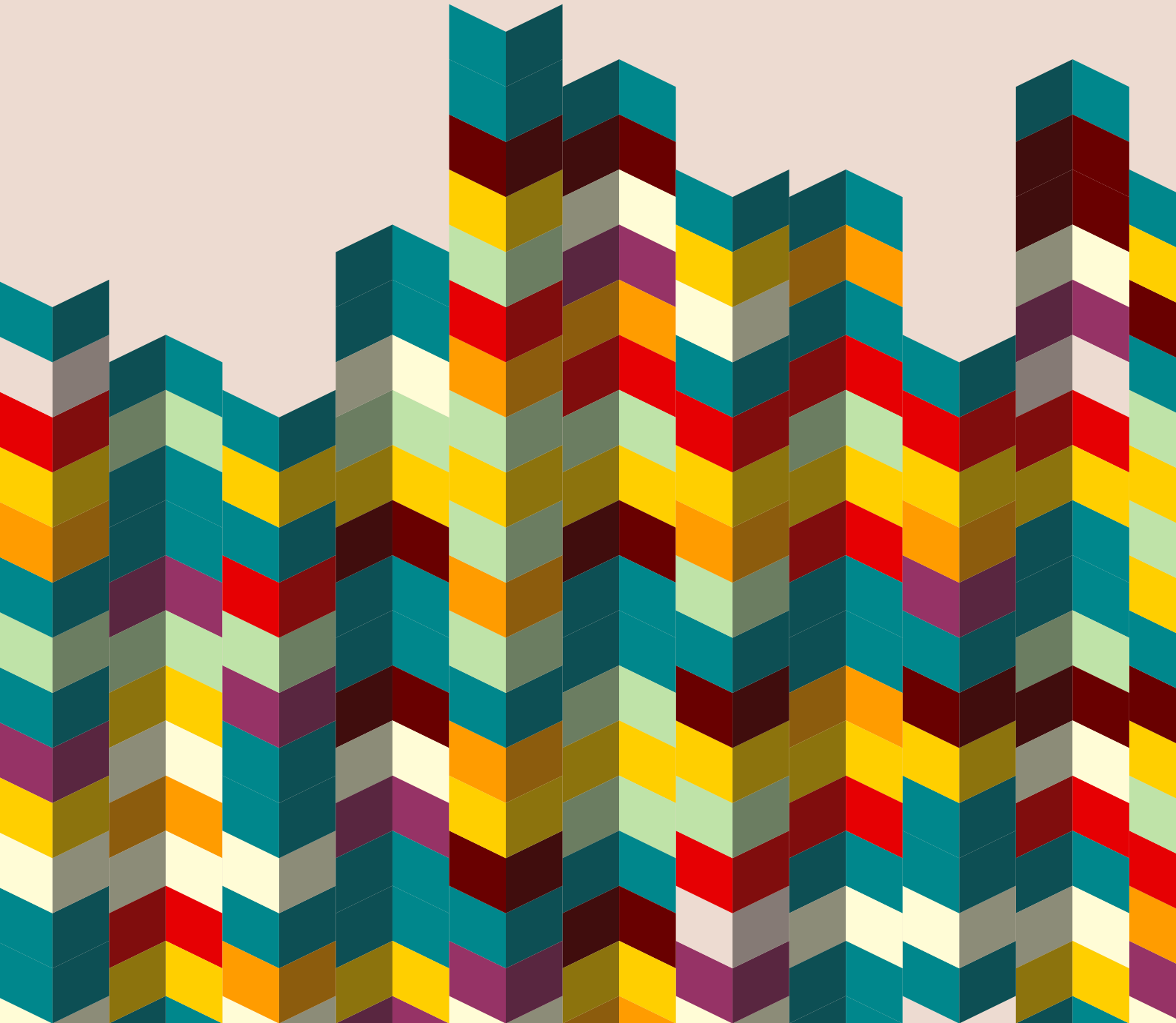
5.5 Thematic areas requiring attention

Certain thematic areas also emerged from the discussions. Stakeholders stressed the significance of efficient and sustainable mass transportation systems. Investing in public transportation infrastructure, promoting the use of clean energy sources, and improving accessibility can reduce reliance on personal vehicles and subsequently decrease emissions.

In addition, stakeholders stressed the need to prioritize the health impacts of ambient air pollution, particularly on vulnerable communities. Understanding the specific health risks faced by different demographics, such as children, the elderly, and individuals with pre-existing respiratory conditions, is essential. Targeted interventions, healthcare support, and public health campaigns can help mitigate the disproportionate impact of air pollution on vulnerable populations.

The need for continuous research and innovation to develop effective solutions for ambient air pollution was also stressed. This includes investing in scientific studies, technological advancements, and monitoring systems to identify emerging sources of pollution and inform evidence-based policymaking.

6. Recommendations



6. Recommendations

The Ethiopian Constitution is the cornerstone for development policies and legal provisions in Ethiopia. It expressly ensures the right of Ethiopian citizens to a clean and healthy environment through specific articles that outline their entitlement to environmental well-being and protection. As demonstrated in this report, several key laws, policies, strategies around ambient air pollution and health in Ethiopia require revision in order to better support the realization of this right.

Recommendations derived from this LEA are grouped according to two categories according to the lead agency. Each recommendation identifies lead and participating agencies responsible for the implementation of the recommendation.

6.1 Recommended activities to be led by EPA

- EPA, in collaboration with MoH, EMI, MoTL, EPSE, MoI, AAU, and civil society, should update the Environmental Policy of Ethiopia to address emission standards, monitoring protocols, and enforcement strategies to reduce ambient air pollution through the implementation of the "polluter-pays principle."
- EPA, in collaboration with ESI, should conduct a comprehensive vehicular emission assessment and update the existing standards to support air pollution reduction. This involves incorporating emission levels specifically designed for gasoline and diesel vehicles that are already in use.
- EPA and MoTL, in collaboration with ESI and EPSE and other stakeholders, should revise the Road Transportation Proclamation, incorporating explicit provisions regarding fuel quality for diesel vehicles, annual vehicle emissions inspections, and enforcement mechanisms.
- EPA and MOH, in collaboration with EPHI, EMI, MoTL, MoI, AAU, and civil society, should revise and update the Ethiopian Health Policy to address non-communicable diseases and air pollution measures or strategies to protect public health.
- EPA, in collaboration with MoH, EMI, MoTL, EPSE, MoI, AAU, and civil society, should develop environmental pollution control regulations, including air quality standards, to implement the Environmental Pollution Control Proclamation.
- EPA, in collaboration with stakeholders, should develop solid waste management regulations, including restrictions on open burning, and prioritize public awareness campaigns to implement the Solid Waste Management Proclamation.
- EPA should develop national air quality proclamations and regulations to protect public health and reduce adverse socio-economic impacts of air pollution.

- EPA, in collaboration with MoH, EMI, MoUI, MoTL, EPSE, MoI, AAU, and civil society, should update the Environmental Impact Assessment Proclamation to engage community participation before project initiation for the cost-benefit of societal and environmental needs and priorities.
- EPA, in collaboration with MoH, EMI, MoTL, EPSE, and MoI, should organize seminars, workshops, and conferences on ambient air pollution and best air pollution reduction mechanisms to key stakeholders, to support policy changes related to air pollution across sectors.
- EPA should engage public institutions, universities, and civil society in further research related to ambient air pollution and its health impacts in Ethiopia.
- EPA and EMI, in collaboration with partners, should establish and maintain air quality monitoring stations to improve data collection and sharing, and the development of a centralized air quality database and network.
- EPA, EMI, and MoH should collaborate to develop a retrievable, reliable, and frequently updatable ambient air quality database management system with links to health data.
- EPA, MOH, MoTL, and EMI, in collaboration with EPSE, MoI, AAU, civil society, and national broadcasts, should increase public awareness about air quality and health through effective communication, dissemination of information, and advocacy activities.

6.2 Recommended activities to be led by other entities

- MoUI, in collaboration with EPA and other stakeholders, should revise and update Urban Planning Proclamation, Building Proclamation, and regulation to address ambient air pollution from energy sources, construction and demolition sites.
- MoWE should revise and update the Energy Proclamation by incorporating explicit provisions and guidelines aimed at monitoring, controlling, and mitigating ambient air pollution resulting from energy-related activities.
- ESI, in collaboration with MoH and EPA, should jointly revise, and update the national ambient air quality standards for particulate matter (PM), sulfur dioxide (SO2), and nitrogen oxide (NOx).
- MoTL should develop guidelines regarding the use of electric vehicles, with clarity on incentives and support mechanisms for electric vehicle owners.
- MoTL, in collaboration with EMI, EPA, MoUI, MoI, and Ethiopian Electric Power Authority, should prioritize investment in power infrastructure for electric vehicles across all Ethiopian cities.
- MoTL, in collaboration with MoUI and other stakeholders, should promote the utilization of non-motorized transport modes by constructing bike lanes and promoting walking in Addis Ababa and other cities across the country.

7. Annexes

7. Annexes

Annex 1. Technical working group of EU Health Project as of April 2024

S.N.	Name of assigned FP	Institution	Position	Email address	Phone address
1	**Lemesa Hirpe**	Ethiopian Environmental Protection Authority	Head of Environmental Pollution Monitoring and Study Desk	lemesahw@gmail.com	0944303758
2	**Mulubrhan Tariku**	Ethiopian Environmental Protection Authority	Senior Air Pollution monitoring and control Expert	mulubrhantariku@yahoo.com	0910089338
3	**Wondiwosen Tadesse**	Ethiopian Environmental Protection Authority	Head of Environmental Laws and Standard Desk	twonde@gmail.com	0945253922
4	**Kidanu Hurisa**	Ethiopian Environmental Protection Authority/UNDP	Technical Officer-Health and environment (Project Manager	Kidanu.hurisa@undp.org/ kidhor@gmail.com	0922981258
5	**Addisu Worku**	MoH-NCD	NCD Unit Team Leader	Addisuelam07@gmail.com	0931679133
6	**Hana Basaznew**	Ministry Industry	Senior Expert	Haniclimate86@gmail.com	0909679761
7	**Fikru Alemu**	Ministry of Innovation and Technology	Senior Expert	abemfan@gmail.com	0926281611/ 0913591498
8	**Wondwosen Tilahun**	Ministry of Transport and Logistics	Climate Change Expert	Wondwosentilahun134@gmail.com	0979546697
9	**Tarekegn Abera**	National Metrology Agency	Lead executive Officer	tatarish59@gmail.com	0937227858
10	**Teketel Adefres**	Ministry of Water and Energy	Senior Environmentalist	kebedeteketel@gmail.com	0912241698
11	**Dawit Siraw**	Addis Ababa, University SPH (Geo HUB)	Project Manager	dawitsiraw33@yahoo.com	0924662066
12	**Dr. Andualem**	Addis Ababa University College of Natural and Computational Science	Associate Professor	andumk21@gmail.com	0960146732
13	**Daniel Abera**	Ethiopian Public Health Institute	Senior Environmental Expert	daniel.aberad@gmail.com	0911790446

Annex 2. Support Letter from EPA to Collect Information through a Questionnaire

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Federal Democratic Republic of Ethiopia Environmental Protection Authority

ቁጥር/Ref.No _____

ቀን/Date _____

To Ministry of Health

Addis Ababa

Subject: **Request for Questionnaire Response**

We are going to conduct an assessment at the national level under the title of "Legal Environmental Assessment." The assessment is handled by the Federal Environmental Protection Authority in collaboration with UNDP through funding from the European Union. The assessment questionnaire will be distributed and collected by Dr. Temsegen Ekilu, a national consultant.

Therefore, we kindly request your assistance in completing the questionnaire, which will serve as the primary data source for our assessment.

Thank you in advance for your time and consideration.

Sincerely

CC

Dr. Temesgen Ekilu
Environmental Sector
Environmental Protection Authority
Addis Ababa

☎ +251-(0)11-170-4060
+251-(0)11-170-4039
+251-(0)11-170-4158
+251-(0)11-170-4145
✉ 12760
Website www.epa.gov.et
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Addis Ababa, Ethiopia

Annex 3. Informed Consent Form

Name of the Organization: Ethiopian Environmental Protection Authority

Title of the Assessment: Legal Environment Assessment

Purpose of the Assessment: The purpose is to conduct a legal environment assessment for air pollution and health in Ethiopia.

Assessment Procedures
We are inviting you to take part in this assessment. If you accept, you will be asked to fill out the questionnaire. This assessment takes place over three months in total. During that time, we will visit you two times: once for distribution and once for collecting the questionnaire. You may answer the questionnaire yourself. If you do not wish to answer some of the questions included in the questionnaire, you may skip them and move on to the next. The information recorded is confidential: your name is not included in the forms. Only a number will identify you, and no one else except the investigators with access the information.

Risks
You do not have to answer any questions if you feel the question(s) are too personal or if talking about them makes you uncomfortable. You do not have to give us any reason for not responding to any question.

Benefits
There will be no direct benefit to you, but your participation is likely to help us find out more about how to reduce pollution by revisiting laws, policies, and regulations.

Confidentiality
Your responses to this questionnaire will be anonymous. Please do not write any identifying information on the questionnaire. Every effort will be made by the investigators to preserve your confidentiality.

Contact Information
If you have questions at any time about this assessment, or you experience adverse effects as a result of participating in this assessment, you may contact the investigator by email.

Voluntary Participation
Your participation in this assessment is voluntary. It is up to you to decide whether or not to take part in this assessment. If you decide to take part in this assessment, you will be asked to sign a consent form. After you sign the consent form, you are still free to withdraw at any time and without giving a reason. Withdrawing from this assessment will not affect the relationship you have, if any, with the investigators. If you withdraw from the assessment before data collection is completed, your data will be returned to you or destroyed.

Consent

I have read and understand the provided information and have had the opportunity to ask questions. I understand that my participation is voluntary and that I am free to withdraw at any time, without giving a reason and without cost. I understand that I will be given a copy of this consent form. I voluntarily agree to take part in this assessment.

Participant's signature _____ Date _____

Investigator's signature _____ Date _____

Annex 4. Questionnaire

Your participation is entirely voluntary, and all information collected in this assessment will be kept strictly confidential. The information gathered will only be used for the legal environment assessment at the national level. You have the right to refuse to answer any questions/items or to avoid participating at any time for any reason. If you have any queries regarding the questions, do contact me via e-mail. Thank you for giving your valuable time to complete the following questionnaire.

1. Does the Ethiopian Constitution explicitly recognize environmental pollution as the main issue? What articles focus on environmental pollution?
2. Are environmental issues, particularly air pollution, a high priority for the government of Ethiopia? What issues are considered more important than the environment?
3. Does your organization have effective and efficient coordination with other institutions to tackle air pollution and its impact on human health? If yes, from which institution, and what kind of coordination?
4. Are there overlapping and confusing mandates and jurisdictions among different agencies for preventing air pollution? If yes, would you mention the name of the organization and overlapping mandates?
5. Which policy, proclamations, and regulations clearly state air pollution and control measures?
6. Does the current policy resolve the challenges and priorities of air pollution? If not, what is the reason for failing to tackle challenges?
7. Do the environmental/health policy, proclamations, and regulations have key objectives, and desired outcomes against air pollution?
8. Did your organization's environmental/health policy and proclamations deal with air pollution and its human health impact?
9. Does your organization have the implementation of the proclamations and regulations on air pollution issues? If not, what are the challenges for the implementation process?
10. Does your organization have legal and policy frameworks for controlling air pollution and protecting human health? If yes, mention the legal frameworks for controlling pollution.

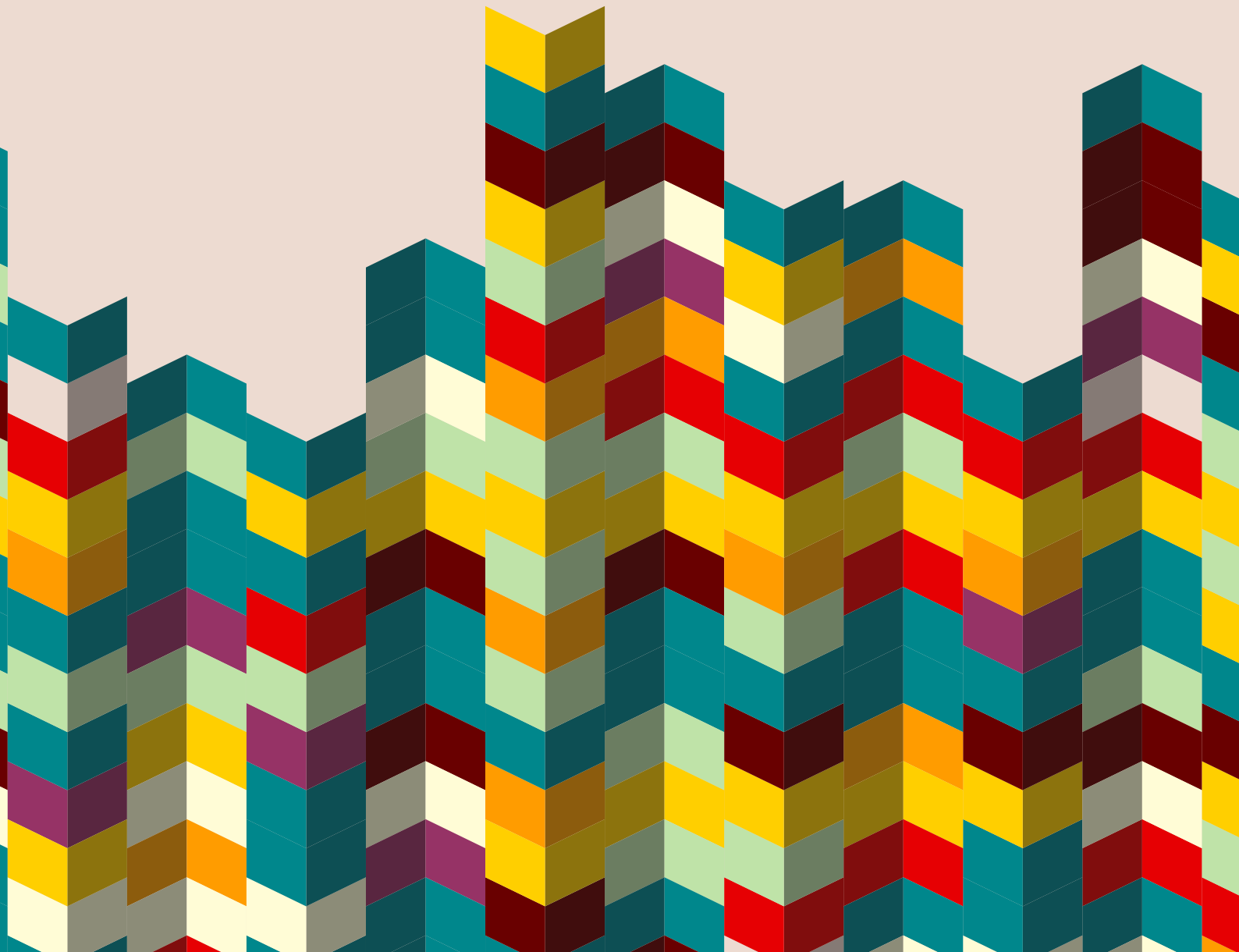
11. Does your organization have disaggregated regulations for air pollution? If not, why is disaggregating regulations a challenge?
12. Are the current policies (environmental, health, water, energy, transport, and agriculture) reviewed, updated, and aligned with air pollution control?
13. Does your organization have access to justice and law enforcement for industries and action according to the regulation? If not, what are the main reasons for weak law of enforcement?
14. Does your organization deliver training to raise awareness among lawmakers, law enforcers, healthcare providers, industrial promoters, and/or communities about air pollution and health impacts? If yes, would you mention the types of training delivered?
15. Does your organization have adequate human, technical and financial resources to tackle air pollution?
16. Does your organization have systems for air pollution information collection, data management, and use? Why do you collect the data? For what purposes do you use it? What challenges do you face in the collection and analysis of the air quality data? What are the gaps?
17. Does your organization have data on national health and economic impacts from various pollution challenges to facilitate the prioritization of particular issues? Why do you collect the data and for what purposes do you use it and what challenges do you face in the collection and analysis of the data? And what are the gaps?
18. Are there air quality monitoring stations, laboratories, research and training centers at the national level? If yes, would you mention the name and the place where the stations and centers are found?
19. Is environmental pollution, particularly air pollution, a priority research agenda at your organization and national level? If yes, please mention the main research thematic areas and describe the method of dissemination of the research findings.
20. Does your organization appropriate environmental and social impact assessment, environmental and social auditing, environmental and social management plan, and institutional report review mechanisms related to air pollution? If no, what are the main challenges in preparation and reviewing documents by the industrial promoters, consultants, and regulatory bodies?
21. Does your organization have a monitoring and evaluation schedule for the implementation of environmental and social impact assessment, environmental and social auditing, and environmental and social management plan? If not, please explain why.
22. Do you have recommendations for strengthening the legal and policy framework on air pollution?

Annex 5. List of the organizations participated in the key informative interview for Legal Environment Assessment

1. FDRE Environmental Protection Authority
2. Ministry of Health
3. Ministry of Water and Energy
4. Ministry of Industry
5. Ministry of Transport and Logistics
6. Ministry of Innovation and Technology
7. Ethiopian Meteorology Institute
8. Addis Ababa University College of Natural and Computational Science
9. Ethiopian Petroleum Supply Enterprise

Annex 6. Key Informant Interview (KII) Data Collection Guide for different Institutions

Your participation is entirely voluntary, and all information collected in this assessment will be kept strictly confidential. The information gathered will only be used for the legal environment assessment at the national level. You have the right to refuse to answer any questions/items or to avoid participating at any time for any reason. If you have any queries regarding the questions, do contact me via e-mail. Thank you for giving your valuable time to complete the following questionnaire.

1. Does the Ethiopian Constitution explicitly recognize environmental pollution as the main issue? What articles focus on environmental pollution?
2. Are environmental issues, particularly air pollution, a high priority for the government of Ethiopia? What issues are considered more important than the environment?
3. Does your organization have effective and efficient coordination with other institutions to tackle air pollution and its impact on human health? If yes, from which institution, and what kind of coordination?
4. Are there overlapping and confusing mandates and jurisdictions among different agencies for preventing air pollution? If yes, would you mention the name of the organization and overlapping mandates?
5. Which policy, proclamations, and regulations clearly state air pollution and control measures?
6. Does the current policy resolve the challenges and priorities of air pollution? If not, what is the reason for failing to tackle challenges?
7. Do the environmental/health policy, proclamations, and regulations have key objectives, and desired outcomes against air pollution?
8. Did your organization's environmental/health policy and proclamations deal with air pollution and its human health impact?
9. Does your organization have the implementation of the proclamations and regulations on air pollution issues? If not, what are the challenges for the implementation process?

10. Does your organization have legal and policy frameworks for controlling air pollution and protecting human health? If yes, mention the legal frameworks for controlling pollution.
11. Does your organization have disaggregated regulations for air pollution? If not, why is disaggregating regulations a challenge?
12. Are the current policies (environmental, health, water, energy, transport, and agriculture) reviewed, updated, and aligned with air pollution control?
13. Does your organization have access to justice and law enforcement for industries and action according to the regulation? If not, what are the main reasons for weak law of enforcement?
14. Does your organization deliver training to raise awareness among lawmakers, law enforcers, healthcare providers, industrial promoters, and/or communities about air pollution and health impacts? If yes, would you mention the types of training delivered?
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16. Does your organization have systems for air pollution information collection, data management, and use? Why do you collect the data? For what purposes do you use it? What challenges do you face in the collection and analysis of the air quality data? What are the gaps?
17. Does your organization have data on national health and economic impacts from various pollution challenges to facilitate the prioritization of particular issues? Why do you collect the data and for what purposes do you use it and what challenges do you face in the collection and analysis of the data? And what are the gaps?
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21. Does your organization have a monitoring and evaluation schedule for the implementation of environmental and social impact assessment, environmental and social auditing, and environmental and social management plan? If not, please explain why.
22. Do you have recommendations for strengthening the legal and policy framework on air pollution?