

EVALUATING THE EFFECTIVENESS OF ENVIRONMENTAL TAXATION ON GREENHOUSE GAS EMISSIONS REDUCTION IN UGANDA

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DECLARATION

I, **IMMACULATE AKWAR**, do hereby declare that this research is my original work and that to the best of my knowledge and belief, it has not been previously, in its entirety or in part, been submitted to any other university for a degree or diploma. Other works cited or referred to are accordingly acknowledged.

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ABSTRACT

Environmental degradation and climate change present significant challenges to sustainable development in Uganda, with greenhouse gas (GHG) emissions increasing due to population growth, urbanisation, industrialisation and rising energy demand. In response, Uganda has adopted various policy instruments, including environmental taxation, as part of its broader climate change mitigation framework. This study examines the effectiveness of environmental taxation in reducing GHG emissions in Uganda.

The research adopts a doctrinal and non-doctrinal research approach, relying primarily on secondary data sources, including legislation, policy documents, emissions inventories, tax records and existing literature. Quantitative emissions data and qualitative policy analysis are used to assess trends in GHG emissions before and after the introduction of environmental tax measures, as well as behavioural responses by firms and households.

The research is grounded in Pigouvian tax theory, which advocates the use of fiscal instruments that is tax, on market activities generating negative externalities and, in this case, to internalise environmental externalities.

While various reports and research have been conducted on adverse effects of climate change, there is limited to no research on climate change that is attributable to GHG emissions, thus the reason for this research is to make an addition to the literate works in that regard.

My research assesses the effectiveness of environmental taxation in reducing GHG emissions in Uganda, and it looks at the current fiscal policy in relation to the

environment and how analyses how these taxes have impacted GHG emissions and climate change at large. The research also points out the challenges faced in the bid to reduce GHG emissions and suggests possible solutions.

My research looks at the various laws both domestic and international that are implemented by Uganda in its environmental obligations and at achieving climate change goals.

DEDICATION

I dedicate this dissertation to myself for the perseverance of four years of full time “adult education”, my partner Mr. Enzo Lauricella for his patience and immense support on this academic journey, my fellow classmates (LLB class of 2026 Kampala Campus) for the strong bond we were all able to build as a class from total strangers to a family, to the UCU Kampala Campus Administration whose guidance and support was nothing short on this journey, and the Almighty God who at His own time makes all things beautiful, the Alpha and Omega.

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ABBREVIATIONS AND ACRONYMS

GHG	Green House Gas
NDCs	Nationally Determined Contributions
CO ₂	Carbon Dioxide
NCCP	National Climate Change Policy
OECD	Organisation for Economic Co-operation and Development
WHO	World Health Organisation
BUR	Biennial Update Report
AFOLU	Agriculture Forestry and Other Land Use
Gg CO ₂ eq	Gigagrams of carbon dioxide equivalent
kt CO ₂ e	Kilotonnes of carbon dioxide equivalent
N ₂ O	Nitrous Oxide
CH ₄	Methane
t CO ₂ e	Tonne of carbon dioxide equivalent
CO ₂ e	Carbon dioxide equivalent
UNFCCC	United Nations Framework Convention on Climate Change
COPs	Conference of the Parties
CDM	Clean Development Mechanism
EAC	East African Community

AU	African Union
IGAD	Intergovernmental Authority on Development
COMESA	Common Market for Eastern and Southern Africa
NEMA	National Environment Management Authority
SEAs	Strategic Environmental Assessments
ESIAs	Environmental and Social Impact Assessments
MRV	Measurement Reporting and Verification
MoWE	Ministry of Water and Environment
EIN	Environmental Information Network

CHAPTER ONE

1.0. Introduction

Problems of environmental degradation and climatic change are big challenges to the world and particularly countries like Uganda bear the impact through implication on agriculture, economic growth, human health among others. In response, governments throughout the world have implemented policy mechanisms such as environmental taxation to internalise costs of the environment and drive down greenhouse gas (hereafter “GHG”) emissions. GHG emissions, released rapidly due to human activities like combustion of fossil fuel, deforestation and industrial processes, have notably transformed the world climate system. As a result, countries are making various efforts to mitigate climate change and emissions reduction infrastructure is being promoted throughout the world. Of these measures environmental taxation, also referred to as green taxation or ecological taxation has become more popular as a market-based instrument that is used to address environmental and economic objectives simultaneously in practice.

Environmental taxation is premised on the polluter pays principle, which seeks to affect the environmental costs of production and consumption. Taxing sources of environmental pollution and GHG emissions is an efficient and effective way to combat climate change, biodiversity loss and pollution. Environmental taxes can also contribute to revenue mobilisation and redistribution.¹ Thus, by imposing taxes on activities or products that cause environmental harm, governments aim to discourage pollution, promote cleaner technologies and generate revenue for

¹ <https://www.oecd.org/en/topics/policy-issues/tax-and-the-environment.html>

sustainable development initiatives. Empirical evidence from countries such as Switzerland, Sweden, Denmark, Norway, and the United Kingdom indicates that environmental taxes can significantly contribute to emission reduction when well designed and effectively enforced.

In Uganda, the effects of climate change are increasingly evident through rising temperatures, unpredictable rainfall patterns, floods and droughts that affect livelihoods and national productivity. Uganda has committed to low carbon development path under the Nationally Determined Contributions (NDCs) which were ratified in 2016 under the Paris Agreement. The government has introduced several environmental tax measures including excise duties on fuel, levies on plastic bags and import duties on old motor vehicles as part of the broader efforts to manage pollution and reduce GHG emissions.

However, the actual effectiveness of these environmental taxes in achieving meaningful reduction in GHG emissions remains uncertain. While such taxes generate revenue for government expenditure, it is unclear whether they have significantly influenced behavioural change among producers and consumers or led to measurable environmental improvements. Moreover, the low level of environmental tax awareness, weak enforcement mechanisms and limited data on emissions present more challenges to policy evaluation.

It is against this background that this study seeks to evaluate the effectiveness of environmental taxation in Uganda, focusing specifically on its role in reducing GHG emissions.

1.1. Background

The impact of climate change is one of the main obstacles that Uganda has to deal with in terms of sustainable development. The country is becoming increasingly susceptible to climate change impacts such as floods, droughts, and temperature changes, which all have a negative effect on the economy as it relies on agriculture, forestry, and the natural resources that are all vulnerable to change. Uganda, even though it produces little GHG emissions relative to other developing countries, does have an issue with rising emissions from the transport sector, power generation, and land use change. Therefore, the country is still required to carry out eco-friendly mitigation measures in the face of climate change's negative impacts and increasing activism on climate change.

In order to cope with the situation, the Government of Uganda has adopted a series of environmental policy measures, one of which is environmental taxation. These tax measures are meant to limit emissions, while at the same time, they will also stimulate the creation and usage of eco-friendly goods and services. Some of the fiscal measures that have been proposed to help in reducing emissions include taxes on fuels, charges on plastic products, and the setting of vehicle emissions standards.

On the other hand, there is not enough research done in this regard since the implementation and impacts of such taxes continue to be less visible especially with the continuously worsening situation due to climate change. Therefore, this study will analyse environmental taxation as a part of Uganda's comprehensive climate policy and will determine its impact on the progress towards emission reduction goals.

1.2. Statement of the problem

Environmental taxation, a policy tool with double benefits, has been widely accepted as a proper measure for the control of greenhouse gas (GHG) emissions and the abatement of the consequent global warming. In Uganda, where the problems of environmental deterioration and climatic changes are always there, it becomes even more important to know how effective such taxation is.

In the case of Uganda, GHG emissions have risen despite the imposition of environmental taxes, which makes one question the effectiveness of these fiscal policies. There are not many empirical studies that indicate the extent to which taxes have affected the emission reductions behaviours of industries and households. Also, it is still not clear how well the laws are enforced, how compliant people are, how aware they are, and if the tax rates are indeed enough to produce considerable environmental effects. The taxes may be set too low to have any influence on people's behaviour, enforcement may be inadequate, or the taxes may be poorly targeted. This research aims to fill these gaps by evaluating the extent to which environmental taxation leads to a decrease in GHG emissions in Uganda.

1.3. Objectives of the Study

1.3.1. General Objective

To evaluate the effectiveness of environmental taxation in reducing greenhouse gas emissions in Uganda.

1.3.2. Specific Objectives

The specific objectives of the study include:

- a) To assess the extent to which environmental taxes reduce GHG emissions in Uganda;
- b) To examine the structure and implementation of environmental taxes in Uganda;
- c) To evaluate trends in GHG emissions before and after the adoption of environmental taxes;
- d) To review company/firm and household behaviours towards environmental taxation;
- e) To identify the challenges and opportunities associated with environmental tax policy implementation;
- f) To provide recommendations for improving the effectiveness of environmental taxation in GHG emissions reduction in Uganda.

1.4. The Scope of the Study

The scope of this study will include key components mentioned under the objectives. It focuses on selected regions and sectors of Uganda with significant emissions. The research examines environmental taxation and GHG emission data over the past period to date, capturing long term trends and recent policy changes. The study also investigates environmental tax instruments such as excise duty, import duties, emission outcomes, and compliance level.

1.5. Hypothesis

The hypothesis of this research include that environmental taxation has not significantly reduced greenhouse gas emission in Uganda; and that environmental taxation has significantly contributed to reducing greenhouse gas emissions in Uganda.

1.6. Significance of the Study

Uganda like many developing nations faces significant environmental challenges including deforestation, air pollution, and GHG emissions from various sectors such as agriculture, transportation, and energy. Environmental taxation has the potential to address these issues by imposing costs on activities that contribute to environmental harm.

Protecting the environment is not only essential for preserving the natural world but also to protect human health. Environmental laws are designed to address various environmental concerns that can directly or indirectly impact human health, such as air pollution, water pollution and dangerous waste.

Understanding the effectiveness of these taxes is crucial for policymakers to enhance environmental strategies and achieve sustainable development goals. This research therefore, contributes to the understanding of how fiscal policies can influence environmental outcomes in developing countries.

1.7. Literature Review

The OECD defines environmental taxes as environmentally related revenues², and the characteristics of such taxes include revenue, tax base, tax rates and

² <https://www.oecd.org/en/data/indicators/environmental-tax.html>

exemptions. They are applied on the following environmental domains; energy products including vehicle fuels; motor vehicles and transport services; measured or estimated emissions to air and water; ozone depleting substances; certain nonpoint sources of water pollution such as sediments, toxic contaminants, chemicals, pathogens; waste management and noise; as well as management of water, land, soil, forests, biodiversity, wildlife and fish stocks.

Environmental taxation is a critical tool for promoting sustainable development and mitigating climate change impacts. In Uganda, GHG emissions have risen due to increased industrialisation, urbanisation, and energy demands.

Environmental taxation is grounded in the Pigouvian tax theory, which posits that taxes can correct market failures by internalising the external costs associated with environmental degradation. Pigouvian tax is a tax on market transactions that create negative externalities, or diverse side effects, for those that are not directly involved in the transaction³. This framework suggests that well designed taxes can incentivise businesses and consumers to reduce emissions and adopt cleaner mechanisms and technologies.

Currently, Uganda collects energy taxes such as excise taxes on fuels and a public lighting charge on electricity. However, there is no carbon tax or a CO₂ emissions trading system. Uganda's green taxes are based on market goods related to emissions, rather than directly taxing emissions for instance twenty percent (20%) environmental levy is charged on any person who imports a motor vehicle which is eight years old or more from the date of manufacture⁴.

³ <https://www.investopedia.com/terms/p/pigoviantax.asp>

⁴ Section 14A of The Traffic and Road Safety Act, 1998

The National Climate Change Policy (NCCP) was approved in 2015 to guide climate change activities and interventions in the country. The goal of this policy is to promote sustainable development and a green economy.

The Ministry of Water and Environment (MoWE) is responsible for policy formulation, setting standards, inspection, monitoring and technical backup.

The Africa Environmental Information Network (AfricaEIN) initiative which replaced the old EIN was developed to integrate environmental information into the development planning process by the African Ministerial Conference on Environment⁵.

Some of the challenges to Uganda's environmental policy include weakness in implementing existing laws and policies; corruption; political interference; insufficient capacity of law enforcers; and inconsistent political positions and statements on the environment.

Today, Uganda is already facing the adverse effects of climate change and despite such occurrences, the country has not yet put in place a climate change policy which may help integrate climate change in all her development programmes. Nonetheless, there exist various policy considerations that have informed the law pertaining to environmental protection. The challenges of climate change demand new solutions and interdisciplinary expertise and as demonstrated by experience to date especially from more industrialised nations in the western world, the well matched incidence of GHG emissions and tax systems offers significant opportunities for the future. It is within our knowledge that we can use taxation to influence

⁵ <https://www.grida.no/publications/185>

human habits and effect change. In the same vein, taxation can also be used to protect the environment⁶. The taxes may include the carbon tax and taxes on fossil fuels. These taxes will aim to reduce GHG emissions by discouraging the use of carbon intensive energy sources and promoting renewable energy alternatives.

Studies indicate that environmental taxes can lead to significant reductions in GHG emissions. For instance, a study by Kaggwa et al. (2020) found that the introduction of a carbon tax could potentially reduce Uganda's GHG emissions by fifteen percent (15%) within a decade, primarily through incentivising renewable energy investments⁷.

On behavioural changes, behavioural economics highlights the importance of tax structures in influencing consumer and corporate behaviour. Research by Nabudere (2021) shows that increased fuel taxes in Uganda led to a shift towards more fuel efficient vehicles and increased public transportation usage⁸.

Environmental taxes can generate substantial revenue which can be reinvested in sustainable projects. According to Okullo (2022), revenue from the carbon tax in Uganda could fund renewable energy projects and conservation initiatives, further enhancing emission reduction efforts⁹.

Despite the potential benefits however, challenges and limitations still remain. A study by Amuriat (2023) identified issues such as poor enforcement, lack of public

⁶ Mugalula, John, Uncovering Uganda's Environmental Taxation (November 9, 2009).

⁷ Kaggwa, R., et al. (2020). Potential Impacts of Carbon Tax on GHG Emissions in Uganda. Environmental Economics and Policy Studies.

⁸ Nabudere, R. (2021). Behavioural Changes in Response to Fuel Taxation in Uganda. Journal of Sustainable Development

⁹ Okullo, J. (2022). Revenue Generation from Carbon Tax: Opportunities for Sustainable Development in Uganda. African Journal of Public Finance.

awareness, and the informal economy's resilience to taxation¹⁰. These factors do undermine the effectiveness of environmental taxes in achieving emission reduction targets.

Comparing Uganda's approach to environmental taxation with other countries provides insights into room for potential improvements. For example, countries like South Africa, Nigeria, Sweden, Denmark, Ghana among others have successfully implemented robust environmental tax frameworks, resulting in significant emissions reductions. Lessons from these countries could inform policy adjustments in Uganda.

Some of the policy recommendations include enhancing public awareness by increasing public awareness and understanding of environmental taxes is crucial. Educational campaigns can help citizens and businesses understand the benefits of compliance and the environmental impacts of their choices.

Strengthening enforcement mechanisms by improving enforcement and compliance mechanisms can enhance the effectiveness of environmental taxation. This includes better monitoring of emissions and compliance among industries.

Diversify taxation approaches through the expansion of the scope of environmental taxes to include other polluting sectors such as agriculture and waste management could further reduce GHG emissions.

Promoting technological innovation by encouraging investments in green technologies through tax incentives can drive down emissions and foster economic growth.

¹⁰ Amuriat, L. (2023). Challenges in the Implementation of Environmental Taxes in Uganda. Uganda Journal of Environmental Policy.

Environmental taxation in Uganda thus, holds significant potential for reducing GHG emissions. Uganda neither has an explicit carbon tax, nor a CO₂ emissions trading system. However, it does collect energy taxes including excise taxes on fuels, apart from fuels used for fishing, a public lighting charge on electricity consumption¹¹. While the current framework shows promise, addressing enforcement challenges, increasing public awareness and learning from international best practices will be essential for maximising its effectiveness. Continued research and policy innovation are necessary to ensure that Uganda meets its environmental goals and contributes to global climate change mitigation efforts.

1.8. Methodology

1.8.1. Research Design

Methodology herein entails data collection of both quantitative and qualitative for instance emission statistics, tax revenues and surveys. The scope and limitation focus on Uganda with comparisons to regional neighbours, Africa and the world at large. Analysing data from the past to present and limitations which may include potential data gaps, biases and the influence of external factors such as global economic conditions.

This research is conducted using secondary data sources which includes tax records, policy documents and relevant literature. Also, the study covers various aspects of environmental fiscal compliance, including administration and enforcement mechanisms, and the impact of the fiscal compliance and finally, the study uses

¹¹ The OECD. Taxing Energy Use for Sustainable Development. Country Notes.

various analytical techniques including descriptive statistics, analytical and qualitative analysis to explore the research objectives and questions.

The study also widely relies on desk research, and the conclusion is to summarise the findings of environmental taxation on GHG emission reduction in Uganda.

CHAPTER TWO

NON-LEGAL CHAPTER

2.0. Introduction

The global community is facing immense challenges in dealing with environmental issues. Problems of pollution and ecological degradation are not only confined to national states, severe as they may be regionally and locally, but they impact on living conditions on the earth as a whole. The urgency of reducing greenhouse gases to curb climate change has been documented by the Intergovernmental Panel on Climate Change¹² and is underlined by the Stern Review¹³, which sums up the situation with the statement that “The scientific evidence is now overwhelming: climate change is a serious global threat, and it demands an urgent global response.”

The conclusions of the Stern Review give strong messages on the economic impacts: climate change could have very serious impacts on growth and development; the costs of stabilising the climate are significant but manageable; delay would be dangerous and much more costly; actions on climate change is required across all countries, and it need not cap the aspirations for growth of rich or poor countries. The situation is not hopeless however, if appropriate measures are put in action on the international level and the imposition of traditional taxes to curb emission of greenhouse gases plays a big role in the overall solutions.

The OECD and Eurostat define environmental tax or ecotax as a compulsory payment to government levied on activities with a proven negative environmental impact such as pollution, energy use, resource depletion to create economic incentives for

¹² <https://www.ipcc.ch/>

¹³ The Stern Review: The Economics of Climate Change

greener alternatives, often on tax bases such as fuel, vehicle emissions, waste and CO₂. The United Nations promotes environmental taxes like carbon taxes as tools for cost effective environmental control, often alongside the IMF to manage emissions and revenue. Environmental taxes effectuate the principle that the polluter shall pay and are increasingly being resorted to in many parts of the world including Uganda.

Some countries have imposed environmental taxes directly on the emission of pollutants for instance in Europe compared to Uganda that does not have an explicit carbon tax, or a CO₂ emissions trading system but rather collects energy taxes including excise on fuels which are in indirect in nature.

Uganda is one of the most climate vulnerable countries and faces huge climate costs annually. However, climate change also presents an opportunity for the country to usher in innovation, transformation and build a more sustainable future and resilient economy. Uganda's economy is highly dependent on climate sensitive sectors such as agriculture and fisheries.

Fiscal policy has an important role to play in climate action and adaptation in Uganda including the use of carbon taxes, green budgeting and a dedicated climate fund. Carbon taxes have been highlighted as a potential source of revenue for climate action in Uganda. In Ghana for example, at a carbon tax rate of USD 30/tonne, there is revenue potential close to 0.7% of GDP arising out of 14.7 million tonnes of carbon dioxide equivalent embedded in fossil fuels in 2018¹⁴. Integrating carbon charges on

¹⁴ <https://www.theigc.org/blogs/ideas-matter/economic-impacts-climate-change-uganda>

royalties from oil extraction in Uganda for example, is one way through which carbon taxes can be operationalised.

2.1. Non-Legal Aspects of Uganda's environmental taxation and GHG emissions reduction

These involve social dynamics, economic factors, governance and international integration all of which are crucial for effective implementation beyond the laws as discussed below:

Social and equitable considerations which includes fairness and public acceptance wherein environmental taxes like on old vehicles and appliances can disproportionately affect low income earners who are the majority of the population; behavioural change which involves moving people from biomass i.e. firewood to clean energy requires incentives, education and infrastructure and not just taxes; community involvement such as engaging local communities in afforestation or reforestation projects and benefit sharing from carbon projects is vital.

Economic and financial factors wherein a major tension is whether green levies are primarily for revenue or genuine environmental impact; carbon markets also need clear rules to prevent profiteering and ensure genuine emission reductions are valued.

Governance and Institutional capacity whereby, effective climate action needs strong coordination between Finance, Environment, Energy and other ministries and private sectors. Also, beyond the laws robust systems for monitoring emissions, verifying credits and ensuring compliance and enforcement are essential. Therefore,

sustained political commitment is needed for long term environmental policies despite the revenue pressures.

International Alignment and Integration whereby the integration of Uganda into global carbon markets is to be voluntary and compliant, requiring alignment with international standards and managing ownership of carbon rights. Also, accessing of international climate finance and new technologies like clean cooking relies strongly on national frameworks.

2.2. Case Study findings on effectiveness of environmental taxation on GHG emissions reduction

Environmental taxation has had limited observable influence on greenhouse gas emissions trends. Uganda has applied fuel excise duties, vehicle related taxes and environmental levies that indirectly target carbon intensive activities. However, these measures have primarily been motivated by revenue generation rather than explicit climate mitigation objectives. For instance, it is reported that vehicle related air pollution is a major challenge in Kampala, where the annual average ambient fine particulate matter (PM_{2.5}) pollution exceeds WHO guidelines by at least 8 times¹⁵. Uganda currently enforces a fifteen-year age limit on imported light duty vehicles and no age limit on imported heavy duty vehicles. The extent to which the national environment air quality standards, that are currently enforced on emission limits on all vehicle imports both used and new is uncertain.

Annual emissions figures are often used to compare countries' contribution to climate change. On 14th June 2021, Uganda made a brief presentation on its first

¹⁵ <https://trueinitiative.org/wp-content/uploads/2025/07/evaluation-of-real-world-vehicle-emissions-in-kampala-uganda.pdf>

biennial update report (BUR) on Framework Convention on Climate Change and highlighted that its total GHG emissions in 2015 were around 90,000 Gg CO₂ eq, a 69.8 percent increase since 2005¹⁶. As of 2022, Uganda's fossil carbon dioxide (CO₂) emissions were approximately 7.54 million tonnes with total GHG emissions approximately 39,280 kt CO₂ equivalent¹⁷. But CO₂ is not the only GHG. Others including methane and nitrous oxide have also had a significant impact on Uganda's climate change.

The Agriculture, Forestry and Other Land Use (AFOLU) sector are the primary contributors to climate change. Methane (CH₄) is a strong GHG mainly produced through agricultural activities e.g. livestock and farming, in addition to leakages from oil and gas production. Nitrous Oxide (N₂O) is a strong GHG that is mainly produced from agricultural activities e.g. from use of synthetic and organic fertilizers to grow crops.

Energy intensity is also a big contributing factor to GHG emissions in Uganda, since energy is such a large contributor to CO₂. Thus, reducing energy consumption can inevitably help to reduce the emissions. However, some energy consumption is essential to human wellbeing and rising living standards.

The quantitative analysis of the national emissions data shows that GHG emissions have continued to rise alongside economic growth, population increase and urbanisation. Also, households and persons within Uganda often perceive environmental taxes as general fiscal burdens rather than environmental instruments. As a result, behavioural responses remain weak, particularly in

¹⁶ https://unfccc.int/sites/default/files/resource/FSVR1_UGA.pdf

¹⁷ 2020, World Bank Data.

transport and manufacturing sectors where demand for fuel is relatively inelastic in the short term.

Kampala, Uganda's capital city represents a significant concentration of GHG emissions due to rapid urbanisation, industrialisation, vehicle growth, and traffic congestion. Transport emissions for instance constitute one of the fastest growing sources of GHG emissions in urban Uganda. Analysis of fuel consumption and vehicle registration data indicates that increases in fuel excise duties and environmental taxes on old vehicles have neither led to sustained reduction in fuel use nor purchase of old vehicles in Kampala. Although Uganda largely imports vehicles from countries that maintain advanced emissions standards such as Japan, the UK and China, air pollution remains rife in Kampala. Most vehicles exceed what are known as Euro 4 emissions standards. For instance, Nitrogen Oxides emissions from gasoline passenger cars under eight years were 5.5 times higher than Euro 4 limits, these vehicles also had higher levels of Nitrogen Oxide emissions than their diesel counterparts, and minibus taxis used for passenger transportation in the city exhibited some of the most staggering findings. The average vehicle age is 25 years old, and the Nitrogen Oxide emissions were more than nine times higher than the Euro 4 limits¹⁸.

It goes to show that while fuel prices increase and import duty imposed on 15 year age limit on imported light duty vehicles, vehicle ownership and use continue to rise. The lack of reliable public transport systems and limited adoption of low emission vehicles further constrain the effectiveness of environmental taxation. The evidence suggests that environmental taxation alone has been insufficient to achieve

¹⁸ <https://www.unep.org/technical-highlight/kampala-faces-severe-vehicle-pollution-crisis-reveals-first-study-its-kind>

meaningful reductions in urban GHG emissions. Instead, taxation must be complemented by investment in public transport, non-motorised transport infrastructure and cleaner vehicle technologies.

Industrialisation in Uganda has caused a significant increase in GHG emissions with industrial energy consumption identified as a major driver of this trend both in the short and long run. It is noted that industrial activities consume a great amount of energy and contributes to carbon dioxide and other GHG emissions via increased industrial activities that lead to degradation of the environment. As Uganda pursues industrialisation under its national development strategies, concerns have emerged regarding the environmental sustainability of industrial growth with booming activities particularly from manufacturing, cement production, agro-processing, steel and energy intensive small, medium and large sized enterprises.

Industrialisation along with energy consumption and urbanisation, is significantly driving up CO₂ emissions. In Kampala for instance, industrial processes are estimated to contribute 29,929 t CO₂e, with an additional 18,965 t CO₂e from industrial energy use¹⁹. The increased uncontrolled industrialisation has led to large scale use of fossil fuels, with the energy sector responsible for a vast proportion of the CO₂ and GHG emissions. In industry, emissions come primarily from burning fossil fuels to produce heat for industrial processes such as making paper, steel, cement etc. The vast majority of CO₂ and GHG emissions in the energy sector come from the burning of fossils such as coal, oil and natural gas for power generation or to fuel vehicles and machines²⁰

¹⁹ https://mirror.unhabitat.org/downloads/docs/12220_1_595178.pdf

²⁰ <https://www.iea.org/countries/uganda/emissions#what-are-the-main-sources-of-co2-emissions-in-uganda>

Studies indicate that emissions from manufacturing sector particularly in industrial parks like Namanve, contribute heavily to the accumulation of GHG emissions. Construction related industrial growth for instance steel and cement, has been highlighted as a major source of embodied emissions. Upstream oil and gas activities in the Albertine Graben including gas flaring, are causing air pollution and releasing CO₂, methane, and sulphur dioxide. Industrial emissions have thus, caused significant negative impacts on environmental quality including soil, air and water pollution, destruction of vegetation and increased health risks.

Uganda currently does not operate an explicit and direct carbon or GHG emissions tax targeting industrial emissions. Instead, environmental taxation affecting industrial activities is implemented through indirect fiscal instruments which include excise tax on fossils used in industrial production, import duties and taxes on carbon intensive machinery and equipment, environmental levies and licensing fees imposed by regulatory agencies, waste management and pollution related charges imposed by local authorities. These function as revenue raising mechanisms with environmental objectives playing a secondary role and therefore, the absence of emissions based taxation limits the precision with which taxes target actual industrial GHG emissions.

2.3. Analysing the level of GHG emissions in Uganda

Uganda's total GHG emissions have generally exhibited an upward trend over the past years, reflecting industrialisation, population growth, economic expansion, urbanisation and increased energy consumption. While Uganda remains a low emitter in global terms, national emissions have increased in absolute terms rather than declined. Evidence from the national emissions inventories indicate that the

total GHG emissions (CO₂e) have risen steadily over and over again, short-term declines in emissions are typically associated with economic shocks or energy supply constraints rather than sustained policy driven reduction²¹. These findings indicate that environmental and fiscal measures implemented to date have not been sufficient to reverse overall emissions growth.

The energy and transport sectors are among the fastest growing sources of emissions in Uganda. Increased vehicle ownership, reliance on fossil fuels, and limited mass transit infrastructure contribute to rising emissions. Despite fuel excise duties and related taxes, fuel consumption has continued to increase, indicating weak demand responsiveness to price signals. The transport related emissions have increased in tandem with vehicle fleet growth. Fuel taxation has led to temporary reduction in consumption, but these effects are not sustainable for medium to long term GHG emissions reduction. Emissions growth in these sectors, therefore, outweigh any reductions achieved through efficiency improvements.

In the industrial sector, industrial emissions have increased due to expansion in manufacturing, construction, agro-processing and other industrial activities. While some companies and firms have adopted energy efficient technologies, these changes have not been widespread enough to produce significant emissions reductions at the sectoral level.

In AFOLU, agriculture and land use change remain major contributors to Uganda's overall GHG emissions. Emissions from deforestation, biomass burning and livestock

²¹https://discovery.ucl.ac.uk/id/eprint/10139939/1/1Grubb_Countries%20with%20sustained%20greenhouse%20gas%20emissions%20reductions%20an%20analysis%20of%20trends%20and%20progress%20by%20-sector.pdf

production continue to rise largely unaffected by environmental taxation, as these sectors are weakly integrated into fiscal environmental policy frameworks.

Urban emissions dynamics in urban areas particularly Kampala and other rapidly growing municipalities exhibit concentrated emissions growth due to transport congestion, industrial clustering, energy demand and over population. For instance, despite higher fuel prices resulting from taxation; vehicle use remains high due to limited public transport alternatives; urban planning constraints intensify congestion related emissions. This urban dynamic significantly undermines emissions reduction efforts.

2.4. Factors that lead to non-reduction of GHG emissions in Uganda

Despite increasing awareness of climate change and introduction of environmental and fiscal policy measures, Uganda has not achieved sustainable reductions in GHG emissions. Instead, emissions have continued to rise, and this is attributed to the factors discussed below.

Weak and indirect environmental taxation framework with the absence of a direct, emissions based environmental tax such as a carbon tax. Existing environmental taxes are largely indirect and embedded in fuel excise duties, import tariffs and administrative fees. These taxes are not explicitly linked to the volume of emissions generated and therefore fail to create a strong incentive for emitters to reduce pollution. Additionally, environmental taxes in Uganda are often designed primarily for revenue mobilisation rather than climate mitigation. As a result, tax rates are set at levels too low to meaningfully influence behaviour or drive technological change.

Low price elasticity of demand for fossil fuels such as coal, bitumen, tar etc. The demand for fossil fuels in Uganda, particularly in the transport and industrial sectors is relatively inelastic. Households and companies depend heavily on petrol and diesel due to limited alternatives. Consequently, increases in fuel prices resulting from taxation do not lead to proportional reductions in consumption, thereby limiting the effectiveness of price based environmental instruments.

Rapid population growth and urbanisation wherein Uganda's high population growth rate and rapid urbanisation significantly offset any emissions reductions achieved through policy measures. Urban centres especially Kampala experience growing transport demand, increased construction activity, and rising energy consumption. These demographic and economic dynamics contribute to increased emissions and undermine the potential impact of environmental taxation and regulatory measures.

Limited availability of low carbon alternatives whereby the effectiveness of environmental taxation depends on the availability of viable substitutes. In Uganda, low carbon alternatives such as reliable public transport, electric vehicles, renewable industrial energy systems, and clean cooking technologies remain limited or unaffordable for most users. Without accessible alternatives, economic agents have no choice but to continue using carbon intensive options.

Weak enforcement and monitoring capacity whereby effective emissions reduction requires strong institutions capable of monitoring, reporting, and enforcing environmental policies. In Uganda's case, limited technical capacity, inadequate emissions data, and also fragmented institutional responsibilities hinder effective implementation. Weak monitoring systems make it difficult to measure emissions accurately, enforce compliance and evaluate the impact of environmental taxes.

Dominance of the informal sector wherein a significant proportion of Uganda's economic activities occur in the informal sector which largely falls outside the reach of formal taxation and environmental regulations. Informal industrial operations, transport services, and waste management activities contribute to emissions but remain largely unregulated, weakening the overall effectiveness of environmental policies.

Competing development priorities whereby Uganda's development agenda prioritises economic growth, industrialisation, employment creation and poverty reduction. Environmental considerations often take a secondary role, particularly where climate policies are perceived as constraining growth or increasing the cost of living. These national economic dynamic limits the scope and ambition of emissions reduction measures.

2.5. Conclusion

The analysis above demonstrates that Uganda has not yet achieved significant GHG emissions reduction. While some sectors show minor efficiency improvements, total emissions continue to rise due to structural, economic, and demographic drivers. Environmental taxation as currently designed and implemented has played a limited role in reducing emissions and has not produced the scale of behavioural or technological change required for substantial mitigation. These findings underscore the need for stronger and more targeted fiscal instruments combined with contemporary regulatory and investment based policies to achieve meaningful GHG emissions reduction in Uganda.

The non reduction of GHG emissions in Uganda is the result of a complex interaction of weak environmental taxation, structural economic characteristics, institutional

limitations and development pressures. Environmental taxes as currently designed have failed to generate strong behavioural or technological responses due to low tax rates, limited enforcement, lack of alternative and overriding growth dynamics. Addressing these factors requires a comprehensive policy approach that combines well designed environmental taxation with regulatory reforms, investment in low carbon alternatives, strengthened institutions and targeted support for vulnerable sectors and populations.

CHAPTER THREE

LEGAL REGIME GOVERNING GHG EMISSIONS

3.0. Introduction

Uganda's legal regime governing GHG emissions is embedded within broader environmental and natural resources law framework rather than in a single, comprehensive climate change statute exclusively regulating emissions. The regulation of GHG emissions is therefore indirect, fragmented and largely sector based relying on constitutional principles, environmental and other parliamentary Acts, subsidiary regulations and Uganda's international climate change obligations. This chapter analyses the existing legal framework governing GHG emissions in Uganda and evaluates its scope, effectiveness and limitations.

3.1. International Legal Regime

Uganda is a party to key international climate agreements which shape its domestic legal obligations as below;

United Nations Framework Convention on Climate Change (UNFCCC). It is the main international treaty guiding global action on climate change, with the core objective of stabilising GHG concentrations in the atmosphere at the level that prevents dangerous human interference with the climate system. While allowing sustainable development. Parties to this treaty are mandated to submit national reports on emissions and climate actions. Annual meetings called Conference of the Parties (COPs) negotiate further commitments. The treaty supports climate finance, technology transfer and capacity building especially for developing countries like

Uganda. The UNFCCC therefore requires Uganda to develop national inventories of GHG emissions and mitigation strategies.

Kyoto Protocol. A major international agreement under the UNFCCC that set binding GHG emissions reduction targets for industrialised countries, operationalising the UNFCCC by setting goals for member states like reducing emissions by an average of 5% below 1990 levels during its first commitment period (2008-2012) and a second commitment period (2013-2020), extended these obligations though with fewer participating countries. For developing countries like Uganda, the Protocol was important mainly through the CDM (Clean Development Mechanism) which supports projects in renewable energy, energy efficiency and waste management.

Paris Agreement. It is a global climate change agreement under the UNFCCC designed to involve countries in tackling climate change, with the goal of limiting global warming temperature rise to well below two (2) and preferably 1.5 degrees Celsius above pre-industrial levels. Under this agreement, every country submits its own climate actions plan known as the Nationally Determined Contributions (NDCs) which must be updated every five years. The treaty thus, commits Uganda to pursue mitigation efforts under its NDCs, focusing on low emissions development pathways.

These agreements are implemented domestically through policy and framework legislation rather than direct enforcement emission limits.

3.2. Regional Legal Regime

Uganda is a key member of several major regional bodies, most notably the EAC for economic integration, the AU for continental unity, and the IGAD focusing on the Horn of Africa's stability alongside broader memberships in the COMESA among

others. These memberships allow Uganda to engage in regional integration, foster trade, address security challenges and participate in global governance.

These regional organisations are crucial for coordinating climate action across borders, supporting adaptation and mitigation, sharing knowledge and building capacity for climate resilient development, tackling issues from food security to climate induced migration, often through joint programs and policy frameworks.

COMESA for instance, developed the Regional Climate Change Resilience Framework which was informed by the increasing vulnerability of regional countries to climate change and other disasters such as flooding, landslides, droughts, cyclones, disease epidemics, heat waves among others for example the region experienced devastating cyclones Idai and Kenneth that affected Malawi, Zimbabwe and Mozambique causing more than 1,000 deaths, infrastructure and property damage running into billions of dollars.

The EAC Climate Change Policy has been developed to address adverse impacts of climate change in the region and harness any potential opportunities posed by climate change with the principle of sustainable development. The overall objective of the EAC Climate Change Policy is to guide the Partner States and other stakeholders on the preparation and implementation of collective measures to address climate change in the region, while assuring sustainable social and economic development.

3.3. Domestic Perspectives

Uganda's domestic perspective on its GHG legal regime balances climate vulnerability with low carbon development, focusing on adaptation and integration of international commitments (Paris Agreement) into national law notably via the

2021 National Climate Change Act and the recent 2025 Carbon Market Regulations, creating frameworks for emissions trading, green finance and sector specific mitigation such as AFOLU, Energy to guide investment and build a resilient sustainable economy.

3.3.1. The Constitution

The 1995 Constitution of the Republic of Uganda (as amended) provides the foundational legal basis for environmental protection and climate related governance. Key provisions include:

National Objectives and Directive Principles of State Policy - Objectives XIII and XXVII which require the State to protect natural resources and ensure sustainable development. These principles guide legislative and policy interpretation.

Article 39 guarantees every Ugandan the right to a clean and healthy environment. This right forms the constitutional basis for regulating activities that contribute to environmental harm, including GHG emissions.

Article 245 mandates Parliament to enact laws for the protection and preservation of the environment from abuse, pollution and degradation. This provision empowers the State of Uganda to regulate emissions and adopt climate related legislation.

While the Constitution does not explicitly mention climate change or GHG emissions, its environmental rights and duties framework provides a strong normative foundation for emissions regulations.

3.3.2. Statutory Framework

The statutory framework of GHG emissions in Uganda is primarily anchored in the National Climate Change Act, 2021 which provides the comprehensive legal mandate

for climate action and reporting. This is supported by the National Environment Act, 2019 and newly enacted regulations that operationalise carbon markets and emissions reduction.

National Environment Act, 2019 is the principal statute governing environmental management in Uganda and represents the most important legal instrument relevant to GHG emissions. This Act repealed and replaced previous laws to provide for sustainable environmental management, including pollution control and waste management. Key provisions relevant to emissions include:

Establishment of the National Environment Management Authority (NEMA) with powers to regulate pollution and environmental degradation; introduction of strategic environmental assessments (SEAs) and environmental and social impact assessments (ESIAs) for projects likely to have significant environmental impacts, including emissions intensive activities; recognition of climate change mitigation and adaptation as core environmental management objectives; legal basis for issuing regulations on air quality, pollution control and climate related measures.

Although this Act does not impose explicit and direct emissions caps or carbon pricing mechanisms, it creates a regulatory framework through which emissions can be controlled.

National Climate Change Act, 2021 is Uganda's primary climate-specific legislation and marks a significant development in the legal regulation of GHG emissions. It is the cornerstone legislation that gives force of law to international agreements like the Paris Agreement, the Kyoto Protocol and the UNFCCC. It mandates the creation of a framework strategy on climate change, national and district climate action

plans, and establishes a measurement, reporting and verification (MRV) system. Key features include:

Establishment of a national climate change governance framework including institutional coordination mechanisms; legal obligation for the State to pursue low GHG emission development pathways; integration of climate change considerations into national and sectoral planning; provision of for the development of climate change regulations, strategies and action plans; enabling framework for participation in carbon markets and climate finance mechanisms.

This Act largely adopts a framework approach and does not set binding emissions reduction targets, sectoral caps or explicit and direct carbon taxes, limiting its enforceability in practice.

3.3.3. Subsidiary Legislation and Regulations

Uganda's legal framework for managing GHG emissions has recently been expanded through new subsidiary legislation focused on operationalising carbon markets and setting emissions standards. The foundation is the National Climate Change Act, 2021 which mandates the measurement, reporting and verification (MRV) of emissions. Key subsidiary legislation and regulations that indirectly govern GHG emission include:

National Environment (Air Quality Standards) Regulations, 2024. These regulations aim to control air pollution by setting permissible limits for certain pollutants. While primarily focused on local air pollutants rather than GHGs, they indirectly influence emission sources such as industrial facilities and motor vehicles. These regulations set legal limits on the release of air pollutants, which indirectly impacts GHG management such as prohibiting the release of dust, smoke, fumes or

smog that exceeds set standards, particularly during construction, mining and quarrying activities.

National Climate Change (Climate Change Mechanisms) Regulations, 2025. These regulations are the primary framework for managing GHG emissions through managing carbon markets. They operationalise the 2021 Climate Change Act by detailing rules for carbon project approval, verification, credit issuance, and trading aiming to attract climate finance, boost sustainable development and ensure compliance with the Paris Agreement.

Environmental Impact Assessment Regulations (EIA). These mandate studies before significant development projects to identify and mitigate potential negative environmental effects, ensuring environmental protection, public participation and sustainable decision making by requiring assessments for projects in scheduled activities e.g. large infrastructure, construction, mining. These rules define procedures for developers, specify review processes and often include provisions for strategic assessments, public hearings and appeals.

The Energy Efficiency and Conservative Bill, 2024 (proposed) aims to create a legal framework for efficient energy use, curb waste and promote sustainable practices by setting minimum performance standards for appliances, mandating energy audits, and integrating clean energy in transport and cooking sectors. It has however faced debate in parliament over scope, affordability and existing laws.

3.3.4. Institutional Framework

Uganda regulates GHG emissions through a multi-institutional framework combining environmental regulation, climate policy, fiscal instruments, and sectoral specific agencies.

The Ministry of Water and Environment is the lead climate change authority with the primary mandate of national climate change policy leadership, UNFCCC focal point, and coordinates Uganda's NDCs, GHG inventories and climate reporting.

National Environment Management Authority (NEMA) is the principal agency in Uganda for regulating, monitoring, supervising and coordinating all environmental activities. The core functions of this agency include environmental regulation and enforcement authority, administration of Environmental Impact Assessments, setting and enforcement of emissions standards for industrial activities, monitoring pollution and environmental compliance.

Ministry of Energy and Mineral Development regulates energy production and consumption, promotes renewable energy and energy efficiency, oversees emissions intensive sectors that is oil, gas, electricity.

Ministry of Works and Transport regulates transport sector emissions, vehicle standards, fuel efficiency, transport policy.

Ministry of Agriculture, Animal Industry and Fisheries addresses agricultural GHGs such as methane, nitrous oxide. This ministry also spearheads climate smart agriculture initiative programs.

Ministry of Finance Planning and Economic Development integrates climate policy into national budgeting, leads in the climate finance mobilisation, designs environmental taxes and fiscal incentives.

Uganda Revenue Authority is a government revenue collection agency and administers environmental levies, fuel taxes, excise duties with environmental impact and the potential implementing agency for carbon taxation if adopted.

Uganda thus regulates GHG emissions through a coordinated institutional framework led by the Ministry of Water and Environment, enforced by NEMA and supported by sector ministries and fiscal authorities all of which are grounded in the National Climate Change Act, 2021 in alignment with UNFCCC and Paris Agreement.

3.4. Conclusion

Uganda's legal regime governing GHG emissions is characterised by a fragmented but evolving framework rooted in constitutional environmental management legislation, and international climate commitments. Although recent developments particularly the Climate Change Act, 2021 strengthen the legal basis for emissions governance, the absence of explicit, direct and binding emissions limits and enforceable fiscal instruments significantly constrains effectiveness. Strengthening the legal regime will require the adoption of regulations that are emissions based, integration of environmental taxation into climate law and enhanced institutional capacity to ensure compliance and enforcement.

CHAPTER FOUR

SUMMARY OF FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

4.0. Introduction

This chapter presents a combination of the key finding arising from the study on the effectiveness of environmental taxation in reducing GHG emissions in Uganda. It draws together insights from the non-legal, legal, policy and empirical analysis conducted in the preceding chapters. The chapter further provides conclusions based on the findings and proposes recommendations aimed at strengthening the role of environmental taxation as a climate mitigation tool in Uganda especially in the reduction of GHG emissions. The recommendations are informed by the study's analysis, identified gaps, and international best practices, while remaining sensitive to Uganda's development context.

4.1. Summary of Findings

The study establishes that environmental taxation in Uganda has had limited effectiveness in achieving measurable reductions in GHG emissions. Although Uganda has introduced several fiscal instruments with environmental relevance such as excise duties on fuel, environmental levies on old motor vehicles, and taxes on carbon-intensive goods these measures have not resulted in sustained or significant declines in national or sectoral emissions. Instead, Uganda's total GHG emissions have continued to rise over time, driven by population growth, urbanisation, industrialisation, and increased energy consumption.

One key finding is that Uganda lacks a direct, emissions based environmental tax, such as a carbon tax or explicit GHG emissions levy. Existing environmental taxes are

largely indirect and embedded within general revenue instruments, particularly fuel excise duties and import tariffs. As a result, these taxes are weakly linked to actual emissions levels and do not provide a strong price signal to discourage pollution or incentivise low carbon technologies. The study finds that environmental objectives often play a secondary role to revenue mobilisation, with tax rates set too low to influence behaviour meaningfully.

The research further reveals that behavioural responses to environmental taxation remain weak, particularly in the transport and industrial sectors. Demand for fossil fuels in Uganda is relatively price inelastic due to limited alternatives such as efficient public transport, electric vehicles, or affordable renewable energy solutions. Consequently, increases in fuel prices resulting from taxation have not led to proportional reductions in fuel consumption or vehicle use, especially in urban areas such as Kampala where transport emissions continue to grow rapidly.

The study also finds that urban emissions, especially from transport and industry, are a major and growing source of GHG emissions. Kampala exhibits high levels of air pollution and emissions due to an ageing vehicle fleet, traffic congestion, limited emissions enforcement, and rapid industrial clustering. Environmental taxes on vehicle imports and fuel have not reversed these trends, largely because of enforcement gaps, limited emissions standards compliance, and the absence of complementary infrastructure investments.

In the industrial sector, the findings indicate that industrial emissions have increased alongside economic growth, particularly in manufacturing, construction, cement production, steel, agro-processing, and energy-intensive industries. Uganda does not operate a direct emissions tax on industrial GHG emissions; instead, it relies on

indirect taxes on fossil fuels, machinery, and environmental licensing fees. These instruments function primarily as administrative or revenue tools rather than targeted climate mitigation measures, limiting their effectiveness in driving cleaner production.

The study further establishes that agriculture, forestry and other land use (AFOLU) remain the largest contributors to Uganda's overall GHG emissions, particularly methane and nitrous oxide emissions. These sectors are largely outside the scope of environmental taxation, and emissions from deforestation, biomass use, and livestock production continue to rise with minimal fiscal intervention.

Institutional and governance challenges are also identified as a major constraint. The study finds weak enforcement, limited emissions data, fragmented institutional coordination, and inadequate monitoring and reporting systems. Although Uganda has made progress through the enactment of the National Climate Change Act, 2021 and the Climate Change Mechanisms Regulations, 2025, enforcement capacity remains limited and emissions monitoring systems are still developing.

Finally, the research also finds that broader development pressures and competing policy priorities such as poverty reduction, employment creation and industrialisation often outweigh environmental considerations. Environmental taxes are sometimes perceived by the public as general fiscal burdens rather than climate instruments, undermining public acceptance and compliance.

4.2. Recommendations

Based on the findings of the study, the following recommendations are proposed to enhance the effectiveness of environmental taxation in reducing GHG emissions in Uganda.

Uganda should introduce a direct, emissions based environmental tax, such as a carbon tax or sector specific GHG emissions levy. Such a tax would create a clearer link between pollution levels and fiscal liability, strengthen the polluter pays principle, and provide stronger incentives for emission reduction. The design of the tax should be gradual, predictable and aligned with Uganda's economic capacity to avoid undue social and economic disruption.

There is also a need to strengthen the integration of environmental taxation within the climate change legal framework. Environmental taxes should be explicitly linked to the National Climate Change Act and Uganda's Nationally Determined Contributions (NDCs), ensuring that fiscal instruments are clearly aligned with mitigation objectives rather than functioning solely as revenue tools.

The government should enhance enforcement, monitoring and institutional capacity. This includes strengthening emissions measurement, reporting and verification (MRV) systems, improving coordination among key institutions such as NEMA, the Ministry of Water and Environment, the Ministry of Finance and Uganda Revenue Authority, and investing in technical capacity for emissions monitoring and compliance enforcement.

Environmental taxation should be complemented by investment in low carbon alternatives. Taxes alone are insufficient where viable substitutes are unavailable. Government investment in reliable public transport systems, renewable energy infrastructure, clean cooking technologies, and incentives for electric and low-emission vehicles is essential to enable behavioural change.

The scope of environmental taxation should be expanded to cover currently under taxed sectors, particularly agriculture, waste management and land use activities. Carefully designed fiscal incentives and disincentives targeting deforestation, biomass use, livestock emissions and waste burning could significantly reduce emissions in the AFOLU sector while supporting climate smart practices.

The government should increase public awareness and transparency regarding environmental taxes. Clear communication on the purpose of environmental taxation, how revenues are used, and the environmental benefits achieved would improve public acceptance and compliance. Earmarking part of environmental tax revenues for climate adaptation, green infrastructure and community projects could further enhance legitimacy.

Uganda should leverage international cooperation and climate finance mechanisms, including carbon markets established under the Climate Change Mechanisms Regulations, 2025. Aligning environmental taxation with international best practices and accessing climate finance can support technological transfer, capacity building and sustainable development.

4.3. Conclusion

This study concludes that while environmental taxation in Uganda holds significant potential as a tool for reducing GHG emissions, its current design and implementation have not delivered meaningful or sustained emission reductions. Environmental taxes in Uganda remain largely indirect, weakly enforced, and insufficiently aligned with climate mitigation objectives. As a result, emissions continue to rise across key sectors, particularly transport, industry and agriculture.

The findings above underscore that environmental taxation alone cannot address Uganda's emissions challenge. A comprehensive and integrated policy approach is required. A policy approach that combines well designed emissions based taxes with strong legal frameworks, effective institutions, public investment in low carbon alternatives, and social considerations. By reforming its environmental taxation framework and aligning fiscal policy more closely with climate objectives, Uganda can strengthen its contribution to global climate mitigation while pursuing sustainable and inclusive development.

REFERENCES

(In chronological order)

<https://www.oecd.org/en/topics/policy-issues/tax-and-the-environment.html>

<https://www.oecd.org/en/data/indicators/environmental-tax.html>

<https://www.investopedia.com/terms/p/pigoviantax.asp>

Section 14A of The Traffic and Road Safety Act, 1998

<https://www.grida.no/publications/185>

Mugalula, John, Uncovering Uganda's Environmental Taxation (November 9, 2009).

Kaggwa, R., et al. (2020). Potential Impacts of Carbon Tax on GHG Emissions in Uganda. Environmental Economics and Policy Studies.

Nabudere, R. (2021). Behavioural Changes in Response to Fuel Taxation in Uganda. Journal of Sustainable Development

Okullo, J. (2022). Revenue Generation from Carbon Tax: Opportunities for Sustainable Development in Uganda. African Journal of Public Finance.

Amuriat, L. (2023). Challenges in the Implementation of Environmental Taxes in Uganda. Uganda Journal of Environmental Policy.

The OECD. Taxing Energy Use for Sustainable Development. Country Notes.

<https://www.ipcc.ch/>

The Stern Review: The Economics of Climate Change

<https://www.theigc.org/blogs/ideas-matter/economic-impacts-climate-change-uganda>

<https://trueinitiative.org/wp-content/uploads/2025/07/evaluation-of-real-world-vehicle-emissions-in-kampala-uganda.pdf>

https://unfccc.int/sites/default/files/resource/FSVR1_UGA.pdf

2020, World Bank Data.

<https://www.unep.org/technical-highlight/kampala-faces-severe-vehicle-pollution-crisis-reveals-first-study-its-kind>

https://mirror.unhabitat.org/downloads/docs/12220_1_595178.pdf

<https://www.iea.org/countries/uganda/emissions#what-are-the-main-sources-of-co2-emissions-in-uganda>

https://discovery.ucl.ac.uk/id/eprint/10139939/1/1Grubb_Countries%20with%20sustained%20greenhouse%20gas%20emissions%20reductions%20an%20analysis%20of%20trends%20and%20progress%20by%20sector.pdf

United Nations Framework Convention on Climate Change

Kyoto Protocol

Paris Agreement

The 1995 Constitution of the Republic of Uganda (as amended)

National Environment Act, 2019

National Climate Change Act, 2021

National Environment (Air Quality Standards) Regulations, 2024

National Climate Change (Climate Change Mechanisms) Regulations, 2025

Environmental Impact Assessment Regulations

The Energy Efficiency and Conservative Bill, 2024 (proposed)