UNIVERSITY OF LUSAKA

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ENVIRONMENTAL TAXATION AND SUSTAINABLE DEVELOPMENT IN ZAMBIA – A CASE OF EXCISE DUTY ON PLASTICS IN LUSAKA CITY.

A DISSERTATION SUBMITTED TO THE SCHOOL OF POSTGRADUATE STUDIES, UNIVERSITY OF LUSAKA IN PARTIAL FULFILLMENT OF THE AWARD OF THE MASTER OF SCIENCE IN PUBLIC FINANCE AND TAXATION.

BY

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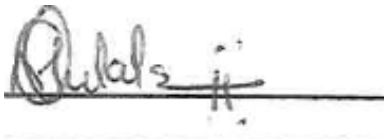
Declaration

I Chinyama Chilala, declare that this report is my original work and has not been presented for the award of a Master of Science in Public Finance and Taxation at the University of Lusaka or any other institution of higher learning for examination.



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This research report has been submitted for examination with my approval as the university supervisor.

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Signature Date

Dr. Stephen C. Mpembele, AZIBFS, MIoDZ

Dedication

This dissertation is dedicated

To Almighty God

My strength and provider.

My beloved Husband, Ntinda J.B Kashimu

You stood by me with unfailing love and dedication.

My beloved children, Asher & Aiden

You gave me every reason to go on.

My father & mother

My role models, always giving me the necessary push.

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List of Acronyms

ATAF – African Tax Administration Forum

EET – Environmental Excise Tax

EFR – Environmental Fiscal Reform

ETR – Environmental Tax Reforms

EUROSTAT – European Statistics

DD – Double Dividend

GHG – Green House Emissions

IISD – International Institute of Sustainable Development

OECD – Organization for Economic Co-operation and Development

SDGs – Sustainable Development Goals

SUPB – Single- Use Plastic Bag

TPIN – Taxpayer Identification Number

UN – United Nations

WTP – Willingness to Pay

ZRA – Zambia Revenue Authority

Abstract

Environmental taxes have emerged as one of the most important policy instruments used to address environmental challenges and promoting sustainable development worldwide. The research addresses the problem of plastic waste pollution, which poses significant environmental and health risks. This research assesses the effectiveness of Excise duty on plastic carrier bags in promoting sustainable development in Lusaka City. A mixed-methods approach was adopted by means collecting both qualitative and quantitative data through a survey and a review of secondary data. The population consisted of local consumers of plastic bags. Data collected from a representative sample of stakeholders in Lusaka city provide insights into the socio-economic and environmental impacts of this taxation policy. The data collected was analyzed using a thematic analysis for qualitative responses and Microsoft excel for quantitative data and visualization.

The findings suggest that awareness alone is insufficient to drive significant behavioural change. While knowledge of environmental taxation is relatively high, the effectiveness of the excise duty as a deterrent to plastic use remains limited. The findings suggest that either the tax rate is too low to discourage plastic usage or that there are insufficient alternatives available for consumers. Through the adoption of a multi-faceted approach, Zambia can strengthen the role of environmental taxation in reducing plastic pollution and promoting sustainable development.

CHAPTER 1: INTRODUCTION

1.1 The Background

Statistics have shown that the 21st century has seen the most rapid global economic and technological growth compared to past centuries. However, this notable growth has come at a huge environmental and economic cost. The climate crisis caused and its devastating effects can no longer be ignored. Rising GHG emissions that worsen the effects of climate change is due to over reliance on fossil fuels, cutting down of forests, certain agricultural practices that are detrimental to the environment and unsustainable solid waste management practices. The latest Intergovernmental Panel on Climate Change report finds that global temperature is already 1.1 °C above pre-industrial levels and is likely to reach or surpass the critical 1.5 °C tipping point by 2035 (UN, 2024).

Countries world over grapple with catastrophic and intensifying heat waves, flooding, droughts and wildfires that have become too frequent. The world is currently facing the largest species extinction event since the dinosaur age and the oceans were burdened with over 17 million metric tons of plastic pollution in 2021, with projections showing a potential doubling or tripling by 2040 (UN, 2024). In addition, the wealth gap between the rich and the poor has only widened despite a reduction in the poverty levels. These challenges have led Governments and multi-lateral organizations such as the United Nations (UN) and the Organization for Economic Co-operation and Development (OECD) to place the agenda of sustainable development at the center of discussions and policy design. Sustainable development is built on the theory that the current generation is able to meet its needs without hindering the future generation to meet its own needs.

The 2030 Agenda for Sustainable Development that was established in 2015 has since been adopted by member states of the United Nations including Zambia. The Agenda is meant to provide a common framework for prosperity and peace for people and the planet, now and into the future. At the center are the 17 Sustainable Development Goals (SDGs). These SDGs call for joint global action by both developing and developed countries (UN, 2024). Against the 17 SDGs are 169 targets and 232 indicators that the UN uses to guide policy, budgets and tracking of progress.

The SDGs cut across all aspects of human and planet sustainability from SDG 1 which is poverty reduction to SDG 11 and 12 which are sustainable cities and communities and responsible consumption and production respectively. The SDGs are interrelated which means that changes in one goal whether negative or positive has an effect on the outcome of the rest of the other goals (Alliance, 2024).

Amidst the impact of climate change, developing countries like Zambia are also grappling with an unprecedented rise in external debt following the Covid-19 pandemic, a situation compounded by inflation, rising interest rates, trade tensions and constrained fiscal capacity (UN, 2024). The scenario at hand has raised an urgent clarion call for governments around the world to explore various governance tools that can ensure that the much-needed revenue to inter alia fund climate action projects and service mounting debt is mobilized whilst committing to sustainable development practices and attainment of the SDGs.

The use of environmental fiscal reforms (EFR) by governments has proven to be effective in providing good environmental governance and management practices that may play a vital role in the protection of the environment and livelihoods dependent on the environment. At the heart of EFRs are environmental taxes. Other studies have used the term green taxes interchangeably with environmental taxes and likewise, will also be used as such in this study. Other terms used are climate taxes, ecological taxes or eco taxes, all of which reflect a tax that is designed to protect the environment, climate and biodiversity (Van Kerckhoven, et al., 2015). Taxes in general are compulsory charges or fees imposed by government on the income and wealth of individuals or corporations. In the light of the limitations of command-and- control measures, market instruments such as environmental taxation have proven to be vital.

Early economic theory dictates that raising the price of common products and services by imposing a tax decreases the amount of those goods and services that are consumed. A review of early literature highlights Pigou's emphasis on the use of taxes to integrate or institutionalize negative externalities (Pigou, 1920). Economic theory dictates that Environmental taxes encourage individuals and businesses to consider environmental concerns in their operations and diminish adverse environmental effects by internalizing environmental expenses. For instance, activities that create a

strain on the environment are subjected to tax, while those that aid in preserving the environment may gain incentives (Brown, 2022).

Environmental taxes have the potential to assist in the attainment of the SDGs. Some of the objectives of environmental taxes are economic growth which fall in line with SDG 8 as well as SDGs 1,2 and 3. By taxing activities or products that contribute to high waste outputs and environmental pollution, governments can drive businesses and individuals toward more eco-friendly choices, which helps reduce urban waste generation per capita and lowers pollution levels in cities. This not only supports cleaner urban environments but also promotes better health and sustainability for urban populations.

Researchers like (Mpofu, 2022) have concluded that there is scanty literature surrounding the environmental taxes and its link to sustainable development especially in the African context. Green taxes are accompanied by a double dividend or dual objective which make them an important and crucial research item. “There is a very clear need to better understand the impacts of environmental taxation in non-OECD countries” (Jacqueline, et al., 2023). Freire-González only found two studies for South Africa and no other studies for other African countries while exploring studies that had already been done on green taxes and the double dividend hypothesis (Freire-González, 2018). Wesseh and Lin also on this basis, call for more papers that study environmental taxes in transitional economies (Wesseh & Lin, 2019). Kluza et al. state that “there is a gap in the research on the relationship between climate policy and SDGs” (Kluza, et al., 2022).

This paper therefore, sheds more light on the impact of environmental taxes on sustainable development in the Zambian context. It specifically focuses on the case of excise duty on plastics which is one of the environmental taxes administered by the Zambia Revenue Authority (ZRA). Excise duty on plastic carrier bags can significantly impact SDG 11, Target 11.6, Indicator 11.6.1 by influencing public attitudes towards the reduction of municipal solid waste generation and encouraging sustainable waste management practices.

This study examines the excise duty on plastics in Lusaka City, Zambia, as a case study to assess the effectiveness of environmental taxation in achieving sustainability

objectives. The main objective of excise duty is to reduce the consumption of plastic carrier bags, encourage recycling, and generate revenue for the government. This study answers critical questions around its practical impact, including its influence on consumer behavior and environmental outcomes.

The research will be conducted through a mixed-methods approach that will facilitate in the examination of the socio-economic and environmental implications of the excise duty on plastics, drawing on data from relevant pieces of literature and consumers in Lusaka City.

This paper will give an understanding of the concepts and definitions of environmental taxes as well as the practicality of environmental tax reforms (ETR). In addition to the practical input highlighted, this research paper largely contributes to the theoretical discourse and knowledge on environmental taxes and sustainability. By analysing the performance of this fiscal measure, the study seeks to provide insights into the potential of environmental taxation as a tool for sustainable development in Zambia. The findings will add to the ongoing discourse on environmental policy. This study provides a useful and practical viewpoint on how environmental taxes contribute to sustainable development as well as strategies to strengthen the link, and it may be used in various areas and countries.

1.2 Operational definitions

No universal definition for environmental taxes has been agreed upon. However, the OECD Glossary of Statistical Terms defines an environmental tax as a “tax imposed for environmental reasons e.g. to provide an incentive to reduce certain emissions to an optimal level or taxes on environmentally harmful products” (OECD, 2024). A different definition that is commonly used and widely accepted is adopted from Eurostat that defines an environmental tax as “A tax whose tax base is a physical unit (or a proxy of a physical unit) of something that has a proven, specific negative impact on the environment” (Eurostat, 2013). Other scholars have classified environmental taxes into two, that is environmental taxes (proper) and environmentally related taxes. The former explicitly have an environmental management goal whilst the main goal of the later is raising revenue from activities that have an impact on the environment. Most scholars and researchers will use the definition provided by Eurostat as it only considers the tax base to be the objective basis for identifying environmental taxes for

the purpose of international comparisons. This study has adopted the Eurostat definition. The Eurostat definition is very helpful as it gives guidance as to what is and what is not an environmental tax overriding any debates that are caused by definitions that classify green taxes as taxes that have an environmental purpose or whether revenues are used for environmental purposes. Eurostat has therefore classified environmental taxes into four categories which are:

- Energy taxes (including transport fuels),
- Transport taxes (on vehicles and public transport modes),
- Pollution taxes, and
- Resource taxes

According to the International Institute for Sustainable Development, the term sustainable development is defined as “development that meets the needs of the present without compromising the ability of future generations to meet their own needs” (IISD, 2024). In other words, sustainable development can be defined as progress made towards social equity, economic growth and environmental protection and can be measured through indicators such as reduced carbon emissions, reduced solid waste and improved solid waste management as well as resource efficiency.

As this study will focus on one particular environmental tax which is excise duty on plastics, the impact of this tax on sustainable development refers to the measurable changes in environmental health, economic behavior, and social equity outcomes resulting from tax policies. This includes reductions in solid waste, increased revenues for government to spend on both environmental action and social protection programs as well as increased eco-friendly practices that result in clean cities as indicators of progress towards sustainable development goals.

1.3 Statement of the research problem

The climate crisis cannot be over emphasized. The latest Intergovernmental Panel on Climate Change report finds that global temperature is already 1.1 °C above pre-industrial levels and is likely to reach or surpass the critical 1.5 °C tipping point by 2035 (UN, 2024). Catastrophic and intensifying heat waves, droughts, flooding and wildfires have become far too frequent. Rising sea levels are threatening hundreds of millions of people in coastal communities. In addition, the world is currently facing the largest

species extinction event since the dinosaur age and the oceans were burdened with over 17 million metric tons of plastic pollution in 2021, with projections showing a potential doubling or tripling by 2040 (UN, 2024).

For central governments, environmental taxes have proven to be a valuable economic instrument since they promote long-term sustainability for the economy and society. Although the term has a broad connotation, green taxes often refers to taxes that are primarily intended to reduce the negative effects on the environment caused by human activity. By internalizing environmental costs, environmental taxes encourage people and companies to minimize negative environmental effects and take environmental concerns into account when operating. Environmentally harmful activities, for example, are taxed, and environmentally beneficial ones can receive incentives (Brown, 2022).

Therefore, assessing how environmental taxes can impact sustainable development and to update the standards for applying financial and economic levers of influence to increase their effectiveness is of utmost importance. This research investigates the effectiveness of excise duty on plastic carrier bags in addressing the problem of plastic waste pollution in Zambia, particularly Lusaka city, which poses significant environmental and health risks. Plastic pollution is a growing environmental concern in Zambia. By assessing how taxation influences plastic use, the study contributes to efforts aimed at reducing environmental degradation.

1.4 Research Objectives

The main research objective is to assess the effectiveness of excise duty on plastic carrier bags in promoting sustainable development in Lusaka City.

The specific research objectives are:

I. To assess the level of public awareness, perceptions of environmental taxation, and behaviors related to plastic usage and disposal.
II. To determine the trends in revenue collection of excise duty on plastics; and
III. To propose strategies that enhance environmental sustainability through environmental taxes.ll

1.5 Research questions

The research questions are:

I. What is the level of public awareness, perceptions of environmental taxation, and behaviors related to plastic usage and disposal?
II. What are the trends in revenue collection of excise duty on plastics? and
III. What possible and practical strategies can be recommended to enhance environmental sustainability and attainment of SDGs through environmental taxes?

1.6 The Scope of the study

The study investigates the administration of excise duty on plastics in Lusaka City which is the capital city the Republic of Zambia. The study explores the introduction, structure, and enforcement of excise duty on plastics as well as how this form of taxation affects the consumption, production, and disposal of plastic products in Lusaka.

The study also examines sustainable development indicators such as waste reduction, pollution control and economic incentives for recycling and sustainable alternatives, in the context of how these are influenced by Excise duty on plastic carrier bags. The study has adopted a mixed methods approach, the quantitative approach looks at data over time such as trends in tax revenue collections whilst the qualitative part of the research utilizes a cross- sectional approach to conduct the survey. Key stakeholders engaged in this study is the Zambia Revenue Authority as they are the institution mandated to administer taxes as well as Lusaka residents who consume plastics. The study assesses the perspectives of these stakeholders to gauge awareness, acceptance, and perceived impact of the excise duty on plastics. A close examination of relevant legislation, statistical data, and available reports was key in this research.

1.7 The significance of the study

By investigating the effect of the plastic excise duty, this study can help to assess how well environmental taxes reduce plastic waste and pollution in Lusaka. The results of the study will reveal economic effects such as shifts in consumer behavior and changes in business operations. Understanding the efficacy of this environmental policy falls in line with sustainable economic planning and can help establish and

maintain a balance between environmental protection and economic growth, benefiting both businesses, consumers and the community at large.

This research adds to the body of knowledge on Zambia's commitment to the UN SDGs including but not limited to SDG 11 (Sustainable Cities and Communities), SDG 12 (Responsible Consumption and Production), and SDG 13 (Climate Action). The study assesses the efficacy of green taxes on these goals and offers strategies to further enhance the effectiveness of these taxes in order to achieve national and global sustainability targets.

This research contributes to the academic field by narrowing the knowledge gap on environmental taxes and their potential as an instrument that governments can use to achieve their SDGs. It adds to existing literature on environmental policies in developing countries, offering a case study that other researchers can use as a reference for comparative studies.

The findings may guide policymakers in refining tax structures or enforcement mechanisms to enhance environmental outcomes and align with sustainable development goals.

1.8 The organization of the report

To provide an organized way of reporting the findings of this study, the report is made up of table of contents, lists of tables, figures and acronyms respectively as well as an abstract that summarizes the purpose, methods, key findings, and conclusions of the study. The study is also made up seven chapters, references and appendices.

Chapter one gives an extensive introduction by providing the background, problem statement, research objectives and questions and the significance and scope of the study.

Chapter two provides a comprehensive literature review on the topic. It gives a theoretical background that covers theories related to environmental taxes and sustainable development as well as empirical studies that summarize existing research on environmental taxes, their impacts and similar cases in other countries. The chapter also provides a conceptual framework as well as highlight knowledge gaps in current literature.

Chapter three covers the methodology used in the study. The chapter gives insight on what research design, data collection, sampling techniques and data analysis tools will be used in the study. The chapter also covers any constraints that might affect the study's results.

Chapter four presents the data as well analysis. In this chapter the results in relation to the research questions and objectives are analyzed.

Chapter five discusses and interprets the results that were analyzed in the previous chapter. The chapter discusses the implications of excise duty on plastics in Lusaka based on the evidence found.

Chapter six is the conclusion. The chapter briefly summarizes the main points and how they address the research objectives.

Chapter seven is recommendations. In this chapter, the paper provides recommendations to policy makers and key stakeholders based on the findings. This chapter highlights areas that require further study.

1.9 Limitations

The researcher was faced with time constraints in completion of this research study. Another limiting factor was that after thorough research, no statistics on amount of consumption of plastics carrier bags over the years was discovered by the researcher. Also, the Central Statistics Agency of Zambia is yet to upload data that helps track achievements towards Sustainable development goals. Making it difficult to analyze the change in consumption levels of plastic carrier bags after the implementation of excise duty on plastic carrier bags. To counter-act this limitation, the researcher used proxy indicators and qualitative data to narrow the gaps in direct plastic consumption statistics.

CHAPTER 2: LITERATURE REVIEW

2.0 Introduction

This chapter explores various literature on Environmental tax reforms (“ETRs”) and environmental taxes. It presents a comprehensive review of previous studies conducted. It highlights several important areas that give clear meaning of environmental taxation as a policy tool, what it is about, and also the impact it has Globally, in Africa and in particular, Zambia.

2.1 Environmental taxation in Zambia

In Zambia, proper environmental taxes that are meant to tackle environmental issues are rare and have been inconsistent. For the most part, most of the tax instruments are environmentally related taxes that focus exclusively on general revenue generation. There is a legal framework in place for EFR which is the polluter pays principle and it is enforced under the provisions of the Environmental Management Act of 2011. However, only a few green taxation measures have been implemented to enforce it.

In Zambia, the taxes directly related to environmental taxes are tax on carbon emission which is notably the first green tax that was administered as early as 2010 and excise duty on pollutants such as plastic bags. Additionally, administered taxes such as Customs Duty, Excise Duty, and VAT offer relief as prescribed in the statutes and other legislation for energy- saving related appliances, machinery and equipment. Environmentally beneficial or net zero goods and services (such as solar panels) are zero-rated (ZRA, 2023).This study focuses on assessing the impact of excise duty on plastic bags on sustainable development in Zambia.

Zambia has a Motor Vehicle Surtax on vehicles older than 5 years on importation at a flat rate of ZMW 2,000 which is added to import duty. This tax is meant to tackle the challenge that most African countries face which is the importation of second-hand cars with high carbon emissions. Nonetheless, this tax has met a lot of criticism as it is perceived to be an avenue of revenue generation for the government rather than an instrument to disincentivise the importation of older vehicles. Researchers have argued that the ZMW 2,000 tax rate does not appear to be sufficiently high to disincentivize the import of second-hand vehicles. It is therefore difficult to assess the

environmental effectiveness of this tax. Similar trends have been observed in other countries when such taxes on vehicle age were introduced, e.g. Uganda (Forster & Nakyambadde, 2021). In Zambia, a 5% excise duty on coal was introduced in 2022 as was an ad quantum tax of ZMW 40/ tonne on cement which is also presumed to be a revenue raising measure and is levied on environmentally related tax base (PWC, 2021).

In Zambia, the environmental tax that has been designed to tackle the negative effects of consumption of plastic bags is excise duty on plastics. The Domestic taxes Division of the Zambia Revenue Authority administers Local Excise as an indirect tax. Indirect taxes are consumption-based taxes. The primary Law relating to Importations and Local Excise sits in the Customs and Excise Act, Chapter 322 of the Laws of Zambia. Secondary legislation comprises of General Regulations made by the Minister through Statutory Instruments, the Customs and Excise Tariff Guide and the General Administrative Rules drawn by the Commissioner-General through Gazette Notices (ZRA, 2023). Excise duty on plastic carrier bags was first introduced in Zambia as part of the 2018 budget overview of tax changes. Over the years the tax rate has moved from as low as 10% to 30% per kg of the value of the plastic bags sold as of 2024. Any person (individual or body corporate) that is in the business of manufacturing plastic carrier bags is liable to Excise Duty. This means that Excise Duty on plastic carrier bags is therefore an indirect tax in that while it is charged to the final consumer the accounting and payment is done by the taxpayers registered for Excise Duty who are the industrial manufactures and importers of plastics.(ZRA, 2023).

In Zambia, the taxing point for Excise duty is essentially the time at which the law provides for the excise liability to be paid or accounted for on the excisable goods or services. In accordance with the Customs and Excise Act, Cap 322 of the laws of Zambia, Excise Duty on goods and services liable to Excise Duty is imposed at the time of:

- Importation;
- Production by the manufacturer;
- Sale or disposal by the manufacturer;
- Use or consumption by the manufacturer or consumer.

Therefore, the tax point for excise duty on plastic carrier bags is upon sale or disposal by the manufacture. The incidence of the tax liability falls on the final consumer i.e. the one who purchases the plastic carrier bags.

2.2 Empirical review

2.2.1 Case Studies of Taxes and levies on plastics

In recent years, there has been an increase globally in public awareness of the impact on plastic waste on the environment which has led to the implementation of policies that encourage reduced plastic consumption and increased waste prevention measures. One of the market-based instruments that has been applied is taxes as they carry properties of incentivizing desired behavior and deterring undesired behavior. It must be noted however that, because the life cycle of plastics is complex, there is need for multiple policy instruments to address all the environmental externalities emerging in all stages of the life- cycle.

Taxes on plastic material, certain types of plastics polymer or certain uses of plastics (e.g. single-use packaging) can help in the reduction of the consumption of plastic materials. By applying taxes to single-use plastic (SUP) items, the price of such items increases, and therefore decreases the demand thereby resulting in substitutions (OECD, 2020). Well-designed taxes should lead to the use of more durable and/or more sustainable alternatives. Examples of alternatives could include recyclable, compostable or conversely more durable plastics or better still non- plastic alternatives.

Globally, countries around the world have implemented taxes on single-use plastics. In 2002, Ireland implemented a 0.15 EUR plastic bag fee. Bags made entirely or partially of plastic that are sold at any retail location are subject to the tax, which is imposed on customers. A survey was conducted by the Department of Environment, Heritage and Local Government to learn people attitudes towards the environment as well as ascertain the maximum willingness to pay for a plastic bag (Convery, et al., 2007). The results of the survey revealed that the average consumer's willingness to pay for plastic bags was approximately EUR 0.024. The Irish government established the fee at this level. The price signal was therefore set at EUR 0.15, which is more than six times the average maximum willingness to pay. Immediately, the use of plastic bags was reduced by 90% as a result. When the use of single-use plastic carrier bags

began to rise once more in 2006, the fee was raised from EUR 0.15 to EUR 0.22 per bag. The Irish tax on single-use plastic carrier bags has been particularly successful at reducing bag consumption partly thanks to the important accompanying information campaign which explains policy objectives and tax revenue destinations. This has paved the way for widespread awareness and buy-in in Ireland (OECD, 2020).

In the United Kingdom, Wales was the first country to impose a required charge on all carrier bags, regardless of their material in October 2011. The fee imposed was meant to reduce the amount of carrier bags beyond what had been accomplished through a voluntary agreement with shops. The fee is applicable to single-use bags that aren't meant to be reused and are composed entirely or mostly of plastic, paper, and plant-based starch. The fee has been effective in reducing the use of carrier bags, which is predicted to have decreased by 71% between 2011 and 2014 (OECD, 2020).

A mandatory charge on plastic carrier bags was implemented in Scotland in 2014. The fee was set at GBP 0.05 for brand-new, single-use bags made of plastic, paper, and specific plant-based materials that are delivered at the point of sale. Zero Waste Scotland calculated that the charge helped reduce the usage of carrier bags by almost 80% across the seven major retail chains, which translates to at least 650 million fewer bags in its first year of implementation. (OECD, 2020).

In Africa, taxes on plastics have been introduced in various countries with varying degrees of success. These taxes have various tax points such as the point of imports, or as an input to manufacturing, or on plastic products such as PET bottles and plastic bags. In many African countries, there has been no significant behavioral change or negative distribution impacts as the taxes are too low. Plastic taxes and levies that have proven to be successful have tax rate high enough to bring about a behavioral response and have earmarked revenues to increase recycling rates and reduce plastic waste. In the case of plastic bags, a mix of policies such as legislation to promote reusable bags or buy back old plastic bags for recycling, or an outright ban on imports, has been shown to be more effective than a tax alone as in Rwanda, which introduced an outright ban on plastic bag imports in 2008 (ATAF, 2024).

A significant product category contributing to plastic pollution is single-use plastic (SUP), which is managed throughout its lifecycle using a variety of strategies. Africa has adopted the most single-use plastic bag (SUPB) policies by region alone in the

world, but the plastic problem still exists, raising questions about the efficacy of policy design. The earliest packaging policies were adopted in 2001 and 2004 in Mali and Benin respectively, with the most recent policies adopted in 2018 in DRC and Mali (Isaac & Misuzu, 2023).

In Ghana, an Environmental Excise Tax (EET) of 10% was first levied on imports of virgin plastic materials, but not on finished plastic products. However, Since the EET did not initially target produced plastic goods, cheaper plastic imports, particularly single-use plastic bags rose in large numbers. Due to the EET, the domestic manufacturing sector that used virgin plastics was unable to compete with imports of plastic that were less expensive. Subsequently, in 2013 under Act 863 of the Laws of Ghana, plastics and plastic products were made subject to the EET. This Act also specified that at least 50% of the revenues would be channeled to the Plastics Waste Recycling Fund to support the plastic industry to transition to recycling. However, this Fund still does not exist as of 2023 and revenues have flowed into the general budget (Jacqueline, et al., 2023). Overall, no or very few positive environmental effects have been attributed to the tax. This is at least partially because of a poor tax design in terms of failure to ensure broad coverage of the tax and the introduction of an ad valorem tax rate of 10% of the ex-factory price, which fails to reflect the environmental damage of plastics, but is related solely to their price. It is unclear whether the tax will be reformed but the tax has recently been under review by the Ministry for Environment, Science, Technology and Innovation (MESTI, 2020). These examples show how plastic-specific taxes or bans can lead to measurable waste reductions and highlight potential outcomes for Zambia.

Research shows that the success of environmental taxes like plastic bag taxes largely depends on public awareness and willingness to comply. In a case study on South Africa’s plastic bag levy, researchers found that at first, consumer compliance was high but declined over time due to low charge rate, weak enforcement and limited public awareness campaigns (Dikgang & Visser, 2010). This underscores the need for effective communication and strong enforcement mechanisms to sustain behavior change. Unlike South Africa, plastic bag consumption in Botswana fell sharply and remained significantly low eighteen months after charging for them began. It suggests that South Africa’s attempt to use taxes to regulate plastic bag consumption failed because the initial price that was too low. Moreover, to be effective, changes in the

price should be large, obvious increases and not small increments. The partial success of the plastic levy in Botswana was due to the constant high prices of the plastic bags. For Zambia, examining consumer attitudes toward plastic excise duties and compliance issues could offer insight into how well such taxes could work in Lusaka City, potentially helping the government design policies that encourage long-term behavioral shifts.

Environmental taxes can directly assist in achieving various SDGs, particularly SDG 11 (Sustainable Cities and Communities), SDG 12 (Responsible Consumption and Production) and SDG 13 (Climate Action). Empirical studies have shown that environmental taxation can contribute to the achievement of these goals by reducing waste, promoting sustainable production methods, and generating revenue for environmental projects. For instance, studies from the European Union have shown that environmental taxes such as plastic taxes have helped member countries reduce their waste outputs and support sustainable production practices (Parente, 2023). In the context of Zambia, aligning the excise duty on plastics with SDG targets could support Lusaka City's goals for waste management and environmental sustainability.

After reviewing various pieces of literature, there is still a significant gap in research. Scholars are yet to, especially in the African and Zambian context, demonstrate the actual impact of green taxes such as plastic bag taxes on the attainment of environmental sustainability and the SDGs. "There is a gap in the research on the relationship between climate policy and SDGs" (Kluza, et al., 2022). The researchers also contend that although there has been substantial discussion of the SDGs in the literature, not many studies have examined how the SDGs are interdependent and affect each other's achievement. There is a dearth on studies that focus on environmental taxation, climate policy development and the achievement of the SDGs. This research sought to address these research voids by focusing on green taxes in particular excise duty on plastic carrier bags in Zambia.

2.3 Critique of the Literature Review

The literature review provides a concrete foundation for understanding the role of environmental taxation in achieving sustainable development, with a specific focus on taxes and charges on plastics. The review could incorporate more recent studies, include localized research, and critically engage with the methodologies and

limitations of the sources cited to further enrich and improve the review. Addressing these areas would strengthen the relevance and depth of the literature review as well as provide a more refined view of how environmental taxes could function within the specific context of Lusaka City, Zambia.

The review also covers the primary arguments supporting environmental taxation however, it has some notable gaps. For instance, there is limited discussion on the potential negative impacts as well as economic burdens that plastic excise duties might impose on low-income households, which is crucial for the Zambian context. The table below shows a summary of selected studies on environmental taxation.

Studies (Authors)	Country	Methodology	Findings
(Brown, 2022)	Nigeria	Survey Research Design	The study found that environmental taxes encourage energy conservation and the adoption of renewable energy sources; Also, environmental taxation might create cash for governments, allowing for the reduction of other taxes or the implementation of environmental initiatives.
(Dikgang & Visser, 2010)	Botswana	Interviews	The introduction of the plastic bag levy led to a significant decline in the consumption of plastic bags per 1,000 Botswana pulas of shopping. The partial success of the Botswana levy was due to the constantly high prices of the bags
(Dikgang & Visser, 2012)	South Africa	Interviews	The overall fall in the consumption of plastic bags per real R1000 of shopping is approximately 44%, with the high-income retailer and the low-income retailer experiencing 57% and 50% reductions respectively. However, predictions are that the increase in carrier-bag consumption will continue over time, despite the price increases.
(Ellawule, 2021)	Nigeria	Review of legislation	Nigeria could benefit from the implementation of environmental taxes and achieve the double dividend hypothesis. Researchers recommended the imposition of carbon taxes on carbon emissions.
(Garba, 2017)	Nigeria	Survey Research Design	Air pollution is harmful to the health and well-being of citizens, and environmental taxes might help alleviate environmental-polluting activities if the polluter is made to pay.
(Isaac & Misuzu, 2023)	Africa	gap analysis applied in waste policy studies	The use of different policy mix instruments to manage plastic within its lifecycle was identified in African countries.
(Omodero, et al., 2022)	Nigeria	Regression analysis (2010 to 2020 data)	To promote clean water and air (SDG6) and sustainable energy use (SDG 7), environmental taxes are key. The taxes include gas exploration tax, gas flaring penalties and petroleum tax.
(Shahzad, 2020)	Various Countries	Literature Survey	Most of the empirical studies reported that the energy usage for economic activities significantly affects the pollutant emissions. However, the role of environmental taxes is still ambiguous and demands a more in-depth investigation
(Tonderayi, 2012)	Zimbabwe	Literature review	Carbon taxes are not delivering their objectives of environmental protection and preservation possibly due to financial, human, and technical challenges. In Zimbabwe, the carbon tax has lost its deterrence effect. The fact that it is added into the fuel cost makes it hidden and not felt by motorists. There are no clear scientific computations to back up the emission estimates or the charge. The taxes are more of a revenue-generating tool than environmental protection measure.
Muhamad	Various Countries	Thematic Analysis	The analysis indicates that people are more supportive when they (i) are well informed about a policy's effectiveness and the policy content, particularly the use of revenue, (ii) have high trust in the government, (iii) have a positive attitude toward protecting the environment, (iv) perceive the policy is fair in terms of costs distribution and social sharing, and (v) are concerned about the climate change issue.

Table 1. Selected studies on environmental taxes. Source: Own compilation

2.4 Theoretical Framework

2.4.0 Introduction

This chapter explores the guiding theories of environmental taxes. Environmental taxation is grounded in economic and environmental theories that explain how fiscal policies can influence behavior and promote sustainability. This study is guided by the environmental taxation theory, Double Dividend theory and sustainable development theory. These theories provided a foundation for analyzing the effectiveness of excise duty on plastic carrier bags and its contribution to sustainable development in Zambia.

2.4.1 Environmental taxation theory

There is no consensus among researchers on the definition of environmental taxes also known as green taxes. This speaks to the facts that these taxes are new and the unfamiliarity and controversy surrounding the concept. The term green taxes describe environmental taxes levied with the objective of protecting the natural environment (Mpofu, 2022). Definition that is broadly used is from Eurostat that defines an environmental tax as “A tax whose tax base is a physical unit (or a proxy of a physical unit) of something that has a proven, specific negative impact on the environment” (Eurostat, 2013). Other scholars have classified environmental taxes into two, that is environmental taxes (proper) and environmentally related taxes. The former explicitly have an environmental management goal whilst the main goal of the latter is raising revenue from activities that have an impact on the environment. Most scholars and researchers will use the definition provided by Eurostat as it only considers the tax base to be the objective basis for identifying environmental taxes for the purpose of international comparisons. This study has adopted the Eurostat definition. The Eurostat definition is very helpful as it gives guidance as to what is and what is not an environmental tax overriding any debates that are caused by definitions that classify green taxes as taxes that have an environmental purpose or whether revenues are used for environmental purposes.

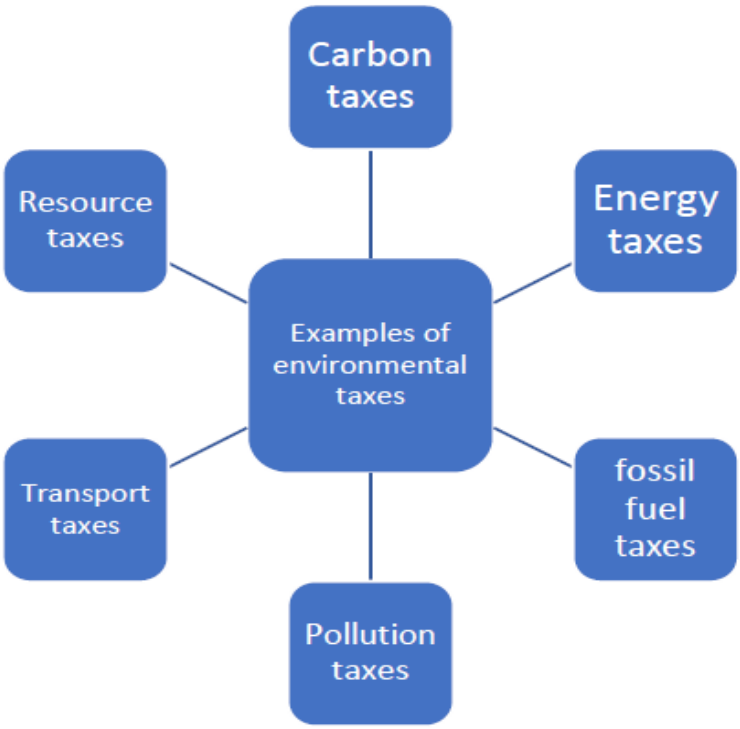
Based on various discussions of climate change issues as well as environmental protection, there are four principles of environmental taxes. The four principles are:

- The polluter pays principle that advocates for internalization of the cost of pollution;

- The principle of prevention that advocates for the protection of the environment;
- The precautionary principle that is founded on the desire to protect the environment from potential risks or harm; and
- The principle of common but differentiated responsibilities that is based on countries having a shared responsibility for protecting the environment against degradation and pollution although with differentiated engagement levels.

The System of Environmental Economic Accounting (SEEA) classifies environmental taxes into four subsets which are energy taxes, transport taxes, pollution taxes and resource taxes.

Figure 1. Types of environmental taxes



source: (Mpofu, 2022)

Environmental taxes are taxes levied to internalize the externalities that cause harm to the environment. The goal is to encourage environmentally conscious choices and actions by discouraging certain environmentally detrimental behaviours and actions by individuals and businesses. Environmental levies are set up so that the price of the unfavourable effects or prices are adjusted to reflect adverse economic effects in order to promote environmentally responsible manufacturing and consumption choices.

Transportation taxes, environmental taxes, carbon taxes, energy taxes, and taxes on natural resources are some of these levies (Villar-Rubio & Morales, 2016).

The role of environmental taxes is ambiguous and demands more in-depth investigation (A.C., 1932). To clearly understand the concept environmental taxes and the role on sustainable development, this study will be built on two main concepts which is the concept of Pigouvian taxes and the concept of the Double Dividend Theory.

From a theoretical stand point, public sector solutions to environmental externalities such as pollution fall into two broad categories that is market-based solutions and direct regulation. Market-based solutions to environmental externalities take three forms i.e. (i) fines and taxes, (ii) subsidies for pollution abatement, and (iii) marketable permits (A.C., 1932). In this study, our main focus will be on market-based solutions particularly taxes and fines on pollutants. Market-based solutions attempt to influence incentives to ensure economically efficient outcomes (Joseph S, 2015). Environmental taxes are a type of market- based solutions where taxes should be levied in proportion to the amount of pollution emitted.

The concept of externalities is straightforward. An externality occurs when the production and consumption of a thing causes harm to something or someone other than the buyer or seller (Brown, 2022). This is a market failure since both the buyer and the seller's decision fail to account for the external cost. Whenever there is an externality, there is basically a difference between the social cost and the private cost, and between the social benefit and private benefit. A properly calculated tax presents the individual or firm with the true social costs and benefits of its actions. Taxes like this that are meant to make marginal private costs equal marginal social costs, and marginal private benefits equal to marginal social benefits are called corrective taxes, or sometimes Pigouvian taxes, after A. C. Pigou, a great English economist of the first half of the twentieth century (Joseph S, 2015). For example, Greenhouse gases lead to global warming, and are generated by the burning of fossil fuels. A carbon tax would "correct" this externality.

Researchers on this topic debate as to whether charges for polluting products should be applied, like Pigouvian producer taxes which are behavior-related charges (such as recycling deposits) or simply as consumer charges on the user. Basic

microeconomics tells us that in a frictionless market the point of application is irrelevant because the incidence of the tax will be determined by the elasticity of demand and supply. (Convery, et al., 2007) had a contradicting view in that they argued that the Irish tax that was implemented in March 2002 was less a Pigouvian tax than a simple product tax, explicitly aimed at changing consumers' behavior. The same can be said of the current charges in Zambia.

Dikgang and Visser in their study also point that the tax which also included the retailers' charges for plastic bag that was introduced in July 2007 in Botswana is not Pigouvian because it was not intended to identify the marginal external costs and determine the optimum level of the tax. The direct tax (on pollutants) was intended to correct the litter problem caused by plastic bags by explicitly changing consumers' behavior. The economic principle behind the tax was that an increase in the price of plastic bags (all things being equal) would curb demand for the bags. Taxes on plastic carrier bags have been successful in reducing demand in some parts of the world notably in Ireland and Denmark (Dikgang & Visser, 2010). Like Dikgang and Visser, this study aims to assess whether the introduction of levies has the same effect in Zambia with regard to demand levels.

According to economic theory, the price at which the marginal social cost and the marginal social benefit are equal should be considered to be the optimum tax rate. However, the cost of plastic waste and other environmental and social expenses that are not covered by the price that retailers pay for plastic bags are not well understood. Therefore, theoretical approaches cannot be used to set the tax rate. In light of this drawback, it is more beneficial to assess the primary objectives of a plastic carrier bag tax and to set the tax rate at a level where these objectives are most likely to be achieved. If we comprehend the elasticity of demand for plastic bags, this is feasible (Nolan-ITU, 2002).

2.4.2 Double Dividend Theory

This study is also built on the discussions that surround the Double Dividend (DD) Theory. Some researchers have argued that there is a double dividend from imposing environmental taxes. Not only does it discourage pollution, but it also raises revenue, so the government has to rely less on distorting taxes (Joseph S, 2015). Green taxes also contribute to environmental protection (ATAF, 2021). By imposing green or

environmental taxes and using the collected funds to lower the tax rates for other existing tax heads, the double dividend (DD) hypothesis suggests that there is a chance to improve both the economic and environmental conditions (Freire-González, 2018).

Whilst green taxes have proven to be cost-efficient than most regulations or soft instruments in achieving environmental objectives (Jacqueline, et al., 2023), they also have the potential to result in a double benefit as they have the capacity to raise revenue for governments that can assist to combat the effect of other distortionary taxes such as labor taxes. whilst combating the negative effects of climate change (Mpofu, 2022). This is known as the Double Dividend theory or Hypothesis that will be used as a metric to test the impact of excise duty on plastics in this study.

The DD is said to manifest in two ways: first, by reducing the adverse environmental effects of using the product or service; second, by generating additional revenue from less distortionary taxes that can be used for public expenditure as well as lowering market externalities and the percentage consumption of specific goods. This is known as the Double Dividend effect or theory. Academics, decision-makers, governments, environmental organizations, and activities have all paid more attention to this DD hypothesis or effect. The achievement of the DD is subject to variance and many interpretations (De Mooij, 2000). The development, computation, and determination of the wider-ranging impacts of green taxes and the complexity associated with modern day society and economic systems constitute the primary difficulty. After reviewing various literature, it was concluded that while the environmental dividend was more likely to be realized, the economic dividend remained elusive and was an "ambiguous question that needs further research" (Freire-González, 2018).

A research by Goulder splits the Double Dividend into two forms i.e. the strong and weak Double Dividend (Goulder, 1995). The strong DD relates to the welfare gains that result from the imposition of environmental taxes and the application of those taxes' proceeds to reduce the distorting effects of other taxes, regardless of whether the environment is better off or not. The weaker Double Dividend presupposes that “recycling environmental tax revenues through lowering distortionary taxes leads to cost savings relative to the case where revenues are returned via lump-sum transfers” (Freire-González, 2018).

A debate arises on the existence of the Double Dividend theory. For example, Wesseh and Lin argue that green taxes could effectively influence customers to reduce the consumption of pollutants as well as stimulate investment in pollution-reducing measures by companies (Wesseh & Lin, 2019). This points to the realization of the environmental dividend as environmental quality improves. On the other hand, however, some scholars argue that when environmental taxes increase, economic variables such household incomes, employment generation and economic growth are negatively affected. These scholars therefore, dismiss the theory of the second dividend which is the economic or non-environmental dividend. Two opposing effects emerge as a result of environmental taxes, on one hand, cleaner sources of energy is stimulated while on the other hand, total household consumption levels and incomes are reduced (Slunge & Sterner, 2012). This points to the affirmation of the environmental dividend and not the economic dividend. De Mooij states that “whereas the second dividend may be in doubt, the first dividend (i.e., cleaner environment) remains a powerful reason for the introduction of pollution taxes” (De Mooij, 2000).

Various literature therefore points to the fact that there is no general consensus on the existence of the DD; some question the existence of the weak dividend in the face of multiple distortions, while some affirm its validity (Bohm, 1997). Bovenburg and Goulder (Bovenberg & Goulder, 2002) also add on by saying green taxes may result in an employment dividend, which is a third dividend in addition to the normally discussed two: the environmental quality and the economic efficiency. Some economists, like Babiker, Metcalf, and Reilly, deny the premise that there may be an employment dividend and that there is a likely decrease in distortionary taxation. They only accept one dividend, which is the decrease in actions and behaviors that harm the environment (Babiker, et al., 2003).

This research is guided by this theory that informs the motives for the implementation of environmental taxes and the envisaged outcomes of these taxes. These rationalizations and possible consequences hinge on behavior modification, improved manufacturing processes and increased tax collections (the revenues are anticipated to decrease in the long run as the expected behavior change benefits are reaped).

2.4.3 Sustainable Development Theory

The International Institute for Sustainable Development defines sustainable development as “Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs.” Sustainability over the recent years has gained momentum and is the anchor for today’s leading global framework for international cooperation the 2030 Agenda for Sustainable Development and its Sustainable Development Goals (SDGs) (IISD, 2024). Assuring environmental preservation serves as the foundation for sustainable development, which also promotes economic growth and the enhancement of social welfare for present and future generations. Sustainable is therefore anchored on three pillars that must be factored always in decision making to achieve a balance in all social, economic and environment development aspects that are inclusive, sustainable, and responsible (Purvis, et al., 2019). The three cornerstones of sustainable development are shown in Figure 2.

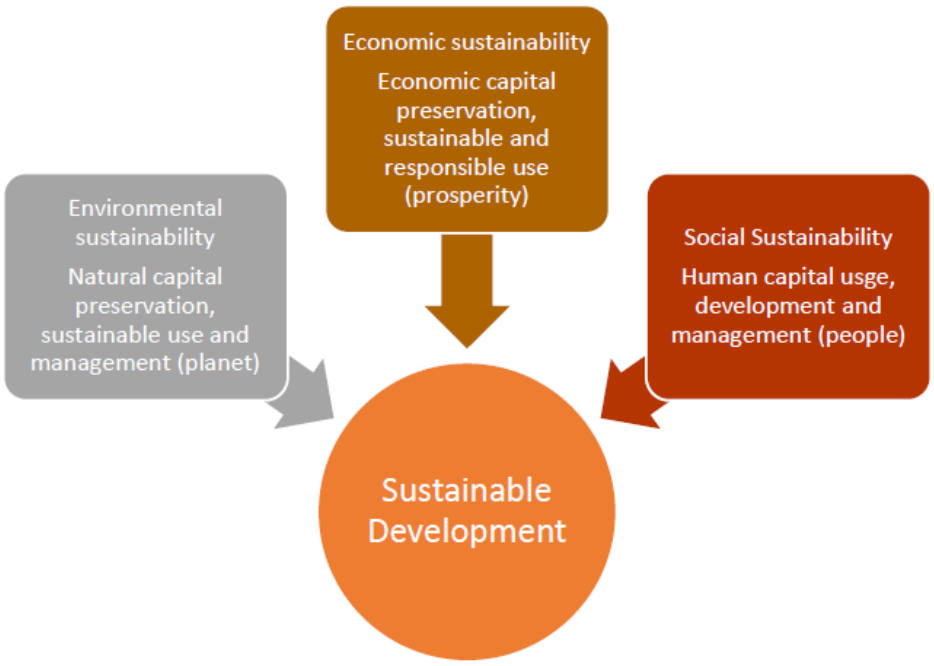


Figure 2. The Three Pillars of Sustainable Development. Source: compiled by (Mpofu, 2022) from the UN (UN, 2019)

Since the SDGs are inter-connected and indivisible, it is necessary to achieve balance among the three aspects of sustainable development. These are the environmental, social, and economic aspects.

The 2030 Agenda for Sustainable Development, adopted by all United Nations Member States in 2015 to which Zambia is a part of, provides a common blueprint for peace and prosperity for people and the planet, now and into the future. At the center are the 17 Sustainable Development Goals (SDGs), which are an urgent call for action by all countries both developed and developing in a global partnership (UN, 2024). Against the 17 SDGs are 169 targets and 232 indicators that the UN uses to guide policy, budgets and tracking of progress. The SDGs cut across all aspects of human and planet sustainability from SDG 1 which is poverty reduction to SDG 11 and 12 which are sustainable cities and communities and responsible consumption and production respectively. The SDGs are interrelated which means that changes in one goal whether negative or positive has an effect on the outcome of the rest of the other goals (Alliance, 2024).

The challenge facing countries in relation to 2030 SDGs is how to create and foster sustainable development practices that take into account the need to improve the well-being of the environment and at the same time reap social and economic advantages. How to to pin the equilibrium point between minimizing environmental risks and advancing the resilience of society and that of the environment is problematic. How to ensure that the environmental perspective of sustainable development promotes socio-economic development is a pressing matter. The table below presents an overview of the 17 SDGs.

Table 2. Overview of the SDGs. Source: compiled from the UN (UN, 2019)

SDG	**Description**
1	Poverty eradication
2	No hunger
3	Promoting good health and well-being
4	Providing inclusive and equitable quality education
5	Ensuring gender equality and empowerment of women and girls
6	Provision of clean water and sanitation to facilitate economic development and improve the quality of life
7	Ensuring access to affordable and clean energy
8	Provision of decent work and promoting sustainable and inclusive economic growth

9	Promoting sustainable and inclusive industrialization, increased research and innovation and development of resilient infrastructure
10	Ensuring a reduction in inequalities
11	Building sustainable, inclusive, resilient, and safe cities and communities
12	Fostering responsible consumption and production
13	Taking action to address climate change and its impact
14	Preservation and protection of life below water
15	Preservation and protection of life on the land
16	Promoting peace, justice, and strong institutions
17	Building partnerships to achieve the goals

Liyanage, Netswera and Motsumi posit that seven of the 17 SDGs (SDG 1, 2, 3, 4, 5, 7, 11 and 16) are cantered on society, while four of the 17 SDGs focus on promoting sustainability and preservation of the 'biosphere'(SDG 6, 13, 14 and 15), whereas four of the remaining five SDGs anchor on the economy (SDGs 8, 9, 10 and 12), and SDG 17 is the thread that connects all the SDGs (Liyanage, et al., 2020).

The environment aspect of the SDGs is a critical dimension of sustainable development that directly encompasses ten of the 17 SDGs and indirectly touches on the other remaining 7, with SDG13 specifically focusing on dealing with climate change. the 10 SDGs directly related to environmental sustainability and protection include SDG11, making cities and human settlements, safe inclusive, resilient, and sustainable, SDG 12, ensuring sustainable consumption and production trends call for sustainable practices when it comes to the consumption of plastics. Environmental taxes such as plastic taxes can positively impact SDG 11, Target 11.6, Indicator 11.6.1 by incentivizing the reduction of municipal solid waste generation and encouraging sustainable waste management practices.

Plastic taxes can assist in increasing global resource efficiency in consumption and production of plastic waste and to endeavor to decouple economic growth from environmental degradation. They can also influence other SDGs including SDG 13, that calls for countries to urgently address climate change, combat climate changes and their impacts, SDG 14, calling for the conservation and sustainable usage of the seas, marines and ocean resources for sustainable development and SDG 15, which

focuses on protection, restoration and the promotion of sustainable usage of terrestrial ecosystems and sustainable management of forests, combating diversification and to reverse land degradation and stop the loss of biodiversity. It is also important to note that some scholars have suggested that interdependence between the SDGs can also result in negative correlations in the attainment of the SDGs (trade-offs as opposed to synergies). Pradhan et al., 2017 demonstrate a negative correlation with respect to SDG 7, 8, 9 and 15.

In view of the discussion on SDGs, there is a need for countries to have adequate revenues to commit to achieving the SDGs. The 2030 Sustainable Development Agenda emphasizes that countries need to mobilize resources to facilitate the attainment the SDGs. The COVID-19 post – pandemic era that is driven by recessionary conditions calls for the need for countries to mobilize more resources while ensuring sustainable economic growth consistent with climate responsibilities. Fiscal approaches have thus become instrumental, especially green taxes to enable governments to tap into new sources of domestic revenue and drive consumption that is environmentally friendly to achieve overall envisaged environmental gains (Mpofu, 2022). In affirmation, Piciu and Trica adduce “Fiscal tools should reflect the current needs of the world including environmental issues” (Piciu & Trica, 2012). The researchers further show a link between environmental taxes and the objective of domestic revenue mobilization to achieve the SDGs and overall sustainable economic development. They posit that “Environmental taxes are an important field of future fiscality for countries of the world having the main objective of environmental protection as well as stimulating a healthy economy, simultaneously rising budget for the country funds and economic involvement”. This is affirmed by Ziolo et al., who suggest that to achieve the SDGs, financing is crucial and suggestions of financing for SDGs recommend increasing tax revenues, overhauling the global tax legislation, improving the effectiveness and allocation of financial resources as well as the introduction of environmental taxes (Ziolo, et al., 2021).

2.5 Conceptual Framework

For this study, the framework focuses on how excise duty on plastics affects sustainable development outcomes in Lusaka. A simple framework for assessing the impact of environmental taxes that proceeds on the basis of questions that focus

attention on key elements of the tax and the implications for sustainable development is proposed. The framework should assess the relationship between environmental taxes and sustainable development. The overall outcome should be a clear picture of how this fiscal instrument can and is affecting the preservation of the environment.

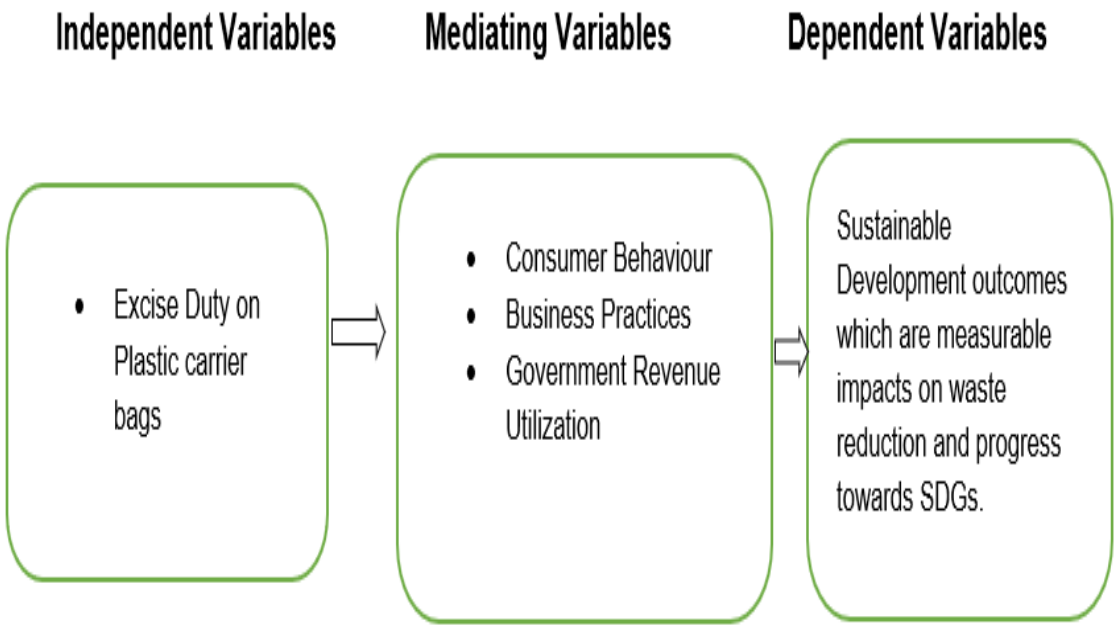


Figure 3. Framework of variables in this study. Source: Own compilation

The figure above shows the correlation between the independent and dependent variables as well as mediating variables identified for this study. This framework shows how excise duty on plastics influences consumer and business behaviors and government revenue use, which in turn impacts sustainable development outcomes like reduced plastic waste and improved environmental quality.

2.6 Study Variables

The table below gives an overview of the variables identified for the study.

Table 3. Variables identified in the study. Source: Own compilation

	Variable	**Explanation**
Independent Variable:	Excise Duty on Plastics	This includes the tax rate, coverage, enforcement mechanisms, and compliance rates.
Mediating Variables:	Consumer Behavior	Changes in plastic usage, demand for alternatives.
	Business Practices	Changes in plastic production, investment in recycling or sustainable alternatives.
	Government Revenue Utilization	Allocation of revenue from excise duty to environmental projects or public awareness campaigns.
Dependent variables:	Sustainable Development Outcomes	These include measurable impacts on waste reduction, pollution levels, and progress toward Zambia's SDGs, especially SDG 11 (Sustainable Cities and Communities), SDG 12(Responsible Consumption and Production) and SDG 13 (Climate action).

The table above highlights the independent variable of the study which is Excise duty on plastic carrier bags, it also highlights the mediating variables as well as the dependent variables. Any change in the independent variable should cause a change in dependent variable where the variables are correlated.

CHAPTER 3: METHODOLOGY

3.0 Overview

The research methodology refers to a structured approach used to collect, analyze and interpret qualitative or quantitative data, or a combination of both, in order to answer research questions or answer a hypothesis. It describes the techniques and procedures used to identify and analyze information regarding a specific research topic (Sreekumar, 2023). This chapter describes the research strategy and design specific to this project, the data collection tools and techniques, data analysis tools and interpretation techniques used to answer the research question. Information on the study site, target population along with their inclusion and exclusion criteria are also highlighted in this section. The study adopted a mixed methods approach, incorporating both qualitative and quantitative methods.

3.1 Research Design

The research design refers to the overall strategy and analytical approach used to integrate, using coherent and logical means, the different components of the study, thus ensuring that the research problem will be thoroughly investigated. It constitutes the blueprint for the collection, measurement, and interpretation of information and data (University of California, 2024). The study adopted a descriptive research design incorporating both qualitative and quantitative research methods. A cross-sectional study was adopted for the qualitative part of the mixed methods approach. A cross-sectional study is a type of observational design in which the researcher measures both the exposure and outcome at the same time (Setia, 2016). This design was chosen since it has previously proven successful in comparable research.

3.2 Research Population

The research population, also referred to as the target population, encompassed the entire group of individuals, objects, or events that shared specific characteristics and were of interest to the researcher in representing a larger population from which a sample was drawn (Thomas, 2023). For this study, the target population specifically comprised taxpayers in Lusaka City who possessed a Taxpayer Identification Number (TPIN) and had an active tax account. This group was relevant to the study as it directly related to the research objective. According to the Zambia Revenue Authority (2023) and the Zambia Statistical Agency (2024), the total number of taxpayers registered

with a TPIN in Zambia was 3,500,000 as of 2022. Among these, 51% were located in Lusaka, resulting in an estimated 1,785,000 taxpayers in the city. This 1,785,000 constituted the target population from which the sample was drawn, as it represented the group that met the study's criteria for participation.

3.3 Sample Size

A sample size for a research study refers to a part of the population selected from which the required information for a survey or research can be obtained. The sample size used for this study was determined using the Cochran formula which allows the researcher to calculate the ideal sample size given a desired level of precision, a desired confidence level, and the estimated proportion of the population possessing the attribute required to answer the research question (Glen, 2024).

Therefore, the formula used to calculate the sample size is given by;

$$n_0 = \frac{Z^2 pq}{e^2}$$

Where;

- n_0 is the initial sample size before considering population adjustments.
- Z represents the Z-score corresponding to the 95% confidence level, which was 1.96.
- e was the desired level of precision (i.e., the margin of error), set at 5% (0.05).
- p was the estimated proportion of the population that possessed the attribute in question. For this study, p was determined based on the proportion of TPIN users with a tax account in Lusaka, which was 51% of the total number of people with TPINS in Zambia which is equivalent to 0.51 (Zambia Revenue Authority, 2023; Zambia Statistical Agency, 2024). Therefore,

Since p = 0.51 due to the 51% recorded by ZRA (2023).

The value of q was given by:

q = 1 – p = 1 − 0.51
q = 0.49

The sample size used for this study was given by,

$n_o = \frac{1.96 \times 1.96 \times 0.51 \times (1-0.51)}{0.05 \times 0.05}$

$n_o = 384$

$n_o =$ 384 participants

Based on the calculations above, 385 or more survey results are needed to have a confidence level of 95% that the real value is within ±5% of the measured/surveyed value. Cochran's formula was ideal for this study because it accounted for the estimated proportion (p) of the population that possessed the attribute of interest. Since the study focused on taxpayers with TPIN accounts, the formula ensured that the selected sample accurately represented the target population. Additionally, Cochran's formula was commonly is used in large populations where the total number of individuals is high but the specific proportion of interest is known or estimated. Given that Lusaka had an estimated 1,785,000 taxpayers with TPINs, the formula helped ensure a sufficient and statistically valid sample size that could generalize findings to the larger population.

3.4 Sampling design

Sampling refers to the process of choosing a smaller group from the population required to answer the research question at hand using a particular sampling design or method (Nuzha & Cena, 2023). For this project, the use of a simple random sampling technique was adopted. Simple random sampling infers that the members of the population do not have an equal chance of being a part of the study (Lauren, 2022). The choice of simple random sampling is justified by its ability to minimize selection bias and ensure that each respondent represents the population accurately. Given that the study aimed to analyze the perspectives of taxpayers in Lusaka without favoring specific groups, simple random sampling is the most suitable technique. This approach enhances the generalizability of the findings and ensures that the sample accurately reflects the characteristics of the broader population.

3.5 Data Collection

3.5.1 Primary Data

Primary data for this study was collected through a self-administered, semi-structured questionnaire distributed to participants via Google Forms. The collected responses

were then entered, stored, and analyzed using Microsoft Excel 2019 to ensure systematic data organization and interpretation. The questionnaire served as the primary instrument for data collection and is attached as Annex I in this reports Appendix section. Its design was guided by the research objectives and conceptual framework, ensuring that the questions were structured to elicit the most relevant and comprehensible responses from participants. Additionally, the questionnaire incorporated elements from previous studies with similar objectives, enhancing its validity and relevance to this research.

3.5.2 Secondary Data

Secondary data for this research study was obtained from various relevant sources such as similar studies conducted at the University of Lusaka, various studies done across the country and globally using electronic sources such as google scholar, ScienceDirect and Scihub. Other sources such as websites, biographies, school libraries, textbooks, management reports, newspaper articles and historical and documentary records were also used to collect secondary data.

A questionnaire was the main instrument used for primary data collection. Attached as Annex I to this report. In formulating the questionnaire, the research objectives and conceptual framework was used to design questions that yielded the best information in a manner comprehensible to the study participants. The study also adopted designs done in studies similar and relevant to this particular study.

3.6 Data Analysis

The information obtained from the semi-structured questionnaires was cross-checked by the Researcher to minimize errors and ensure accuracy, infirmity and completeness. The data was then coded and cleaned using Microsoft Excel. To answer the quantitative part of the research study, descriptive statistics and visualizations have been adopted. Data will also be presented in tables for easier understanding.

3.7 Validation of the Instrument

To ensure the validity of the questionnaire, it was reviewed by two specialists from the Excise Unit and the Research & Corporate Strategy Department of the Zambia Revenue Authority. These experts assessed the face and content validity of the

instrument by evaluating its relevance, clarity, and alignment with the research objectives. The specialists were provided with the study's aim, research questions, and questionnaire items for review. Based on their feedback, necessary modifications were made to refine the questionnaire. After incorporating expert recommendations, the final version of the instrument was deemed to have an estimated validity rate of 90%, as the majority of the reviewed items were found to align with the study objectives.

A high validity rating of 90% indicated that the questionnaire was well-structured, relevant, and capable of capturing the intended data. This enhanced the credibility and applicability of the findings. However, since the assessment was based on expert judgment rather than statistical validation, there was a slight subjectivity risk, as different experts might have different perspectives. Despite this, the extensive review process and modifications made to the instrument significantly minimized potential biases, making the advantages far outweigh the disadvantages.

3.8 Reliability of the Instrument

To ensure the reliability of the questionnaire, a pilot study was conducted with a small group of participants similar to the target population. This process helped identify and address any ambiguities, ensuring that the instrument was clear and effectively captured the required data. Additionally, standardized procedures and clear instructions were implemented to minimize response variability. Based on the consistency of responses from the pilot study, the questionnaire was estimated to have a reliability rate of 85%, indicating that it was a dependable tool for collecting accurate and consistent data.

An 85% reliability rating suggested that the instrument consistently produced similar responses under similar conditions, enhancing the trustworthiness and reproducibility of the data. However, a potential limitation was that minor inconsistencies could still arise due to respondent interpretation or external factors such as question fatigue. Nevertheless, the structured pre-testing and the use of clear, standardized instructions helped mitigate these risks. Given that the observed reliability was well within an acceptable range, the benefits of using the instrument for data collection far outweighed any minor limitations.

CHAPTER 4: DATA PRESENTATION AND ANALYSIS

4.0 Overview

This chapter presents the analysis and interpretation of data collected on environmental taxation and its impact on sustainable development, specifically focusing on the case of excise duty on plastics in Lusaka City, Zambia. The study seeks to understand how the excise duty on plastic products influences behavior among consumers, its effectiveness in reducing plastic waste, and its role in fostering environmental sustainability.

Primary data was collected through a questionnaire. The questionnaire was presented to diverse persons that were selected using simple random sampling. The figures below give an overview on the sex and age distribution.

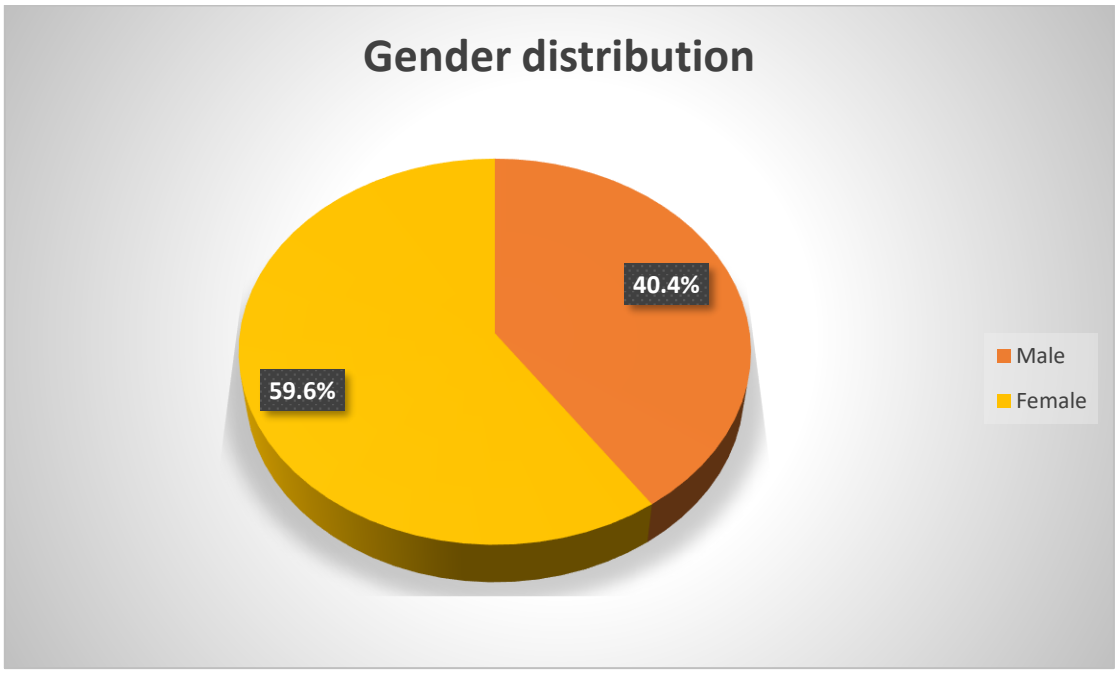


Figure 4. Gender distribution of respondents. Source: Questionnaire responses

The figure highlights the gender distribution where 59.6% represented female whilst 40.4% represented male respondents. The figure below represents the age distribution of the respondents. 44% are aged between twenty-one (21) to thirty (30) years whilst 43% are aged between thirty-one (31) and forty (40) years.

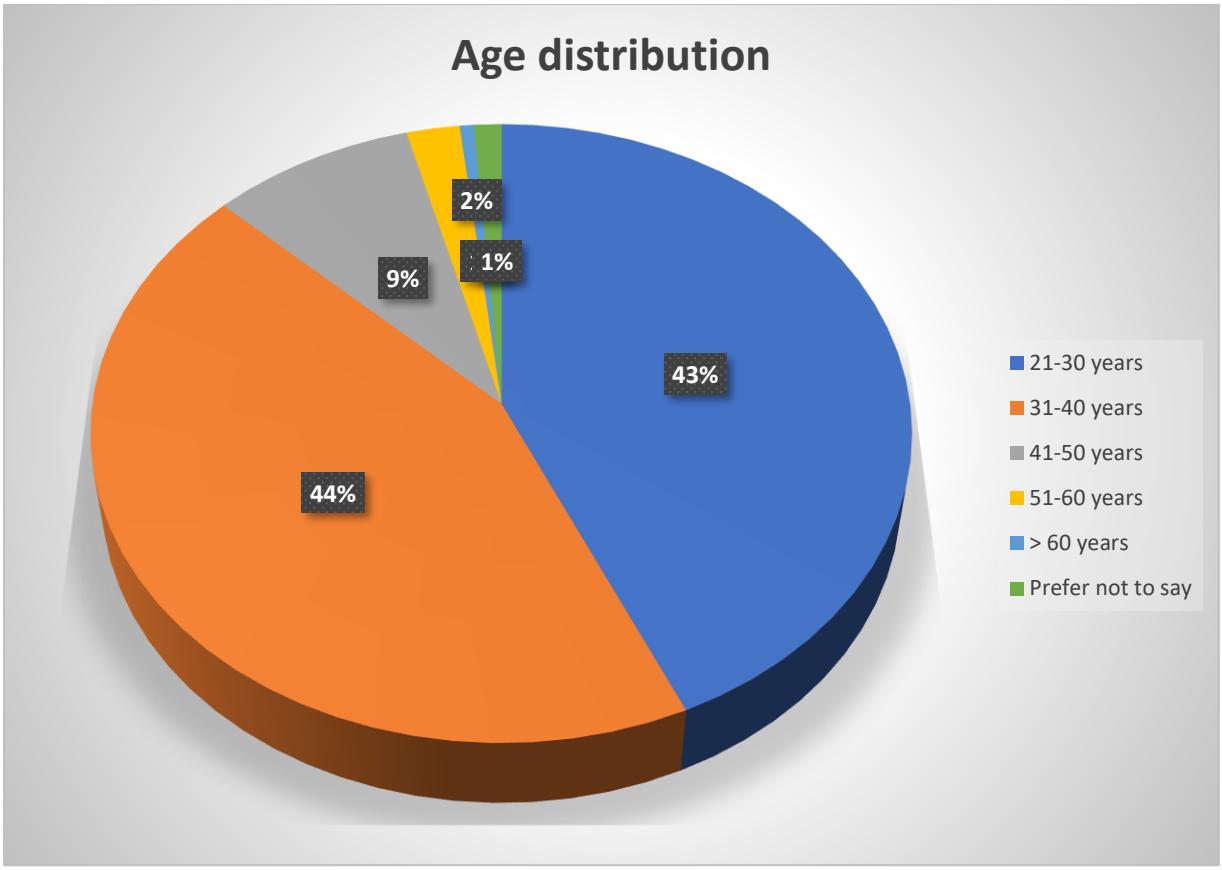


Figure 5. Age distribution of respondents. Source: Questionnaire responses

The statistics highlighted above suggest that the sample is composed of a diverse group of individuals and representing different age groups which may influence their perspectives on environmental taxation.

4.1 Public awareness, perceptions of environmental taxation, and behaviors related to plastic consumption

4.1.1 Awareness levels of environmental taxes

Figure 6 and figure 7 below displays the awareness levels of the respondents to environmental taxes and Excise duty on plastic carrier bags.

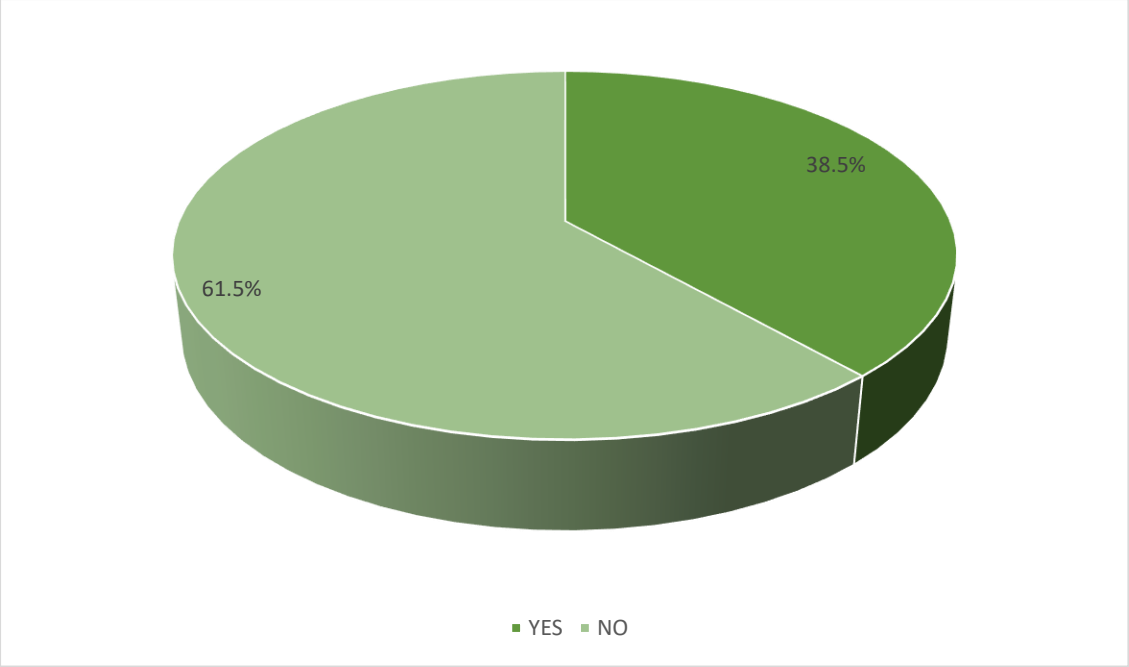


Figure 6. Environmental tax awareness levels of respondents. Source: Questionnaire responses

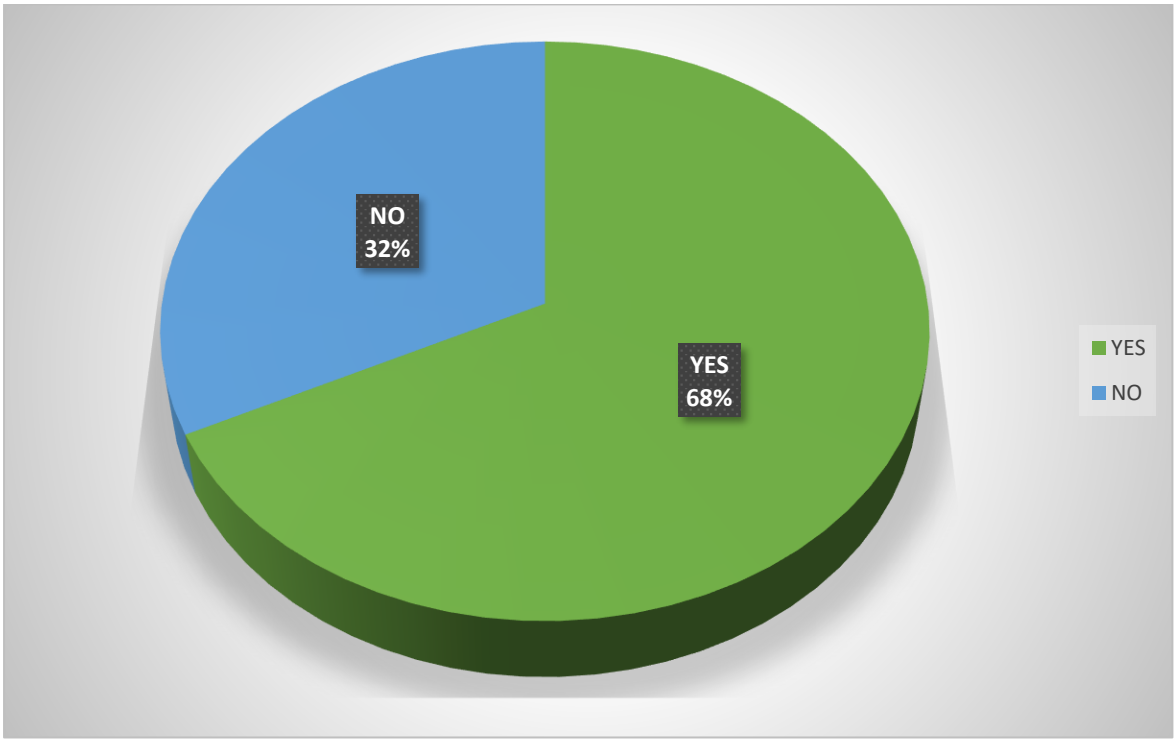


Figure 7. Excise duty on plastics awareness levels of respondents. Source: Questionnaire responses

Out of the 348 respondents 61.4% reported to know environmental taxes whilst the remaining 38.6% had no knowledge of environmental taxes. Of the 61.4% who had

reported that they knew environmental taxes, 67.3% had heard of excise duty on plastic carrier bags.

4.1.2 Perceived Impact of green taxes on the environment

When respondents were asked about their perceived impact of green taxes on the environment, out of a multiple selection of the closest perceptions “Environmental taxes encourage the development of cleaner cities through levy on plastic carrier bags” received 278 votes whilst “People are enticed to use and produce less of plastic carrier bags because of the need to pay environmental taxes.” and “Environmental taxes may be used to solve environmental issues by encouraging people to engage in more ecologically friendly activities” received 210 votes. The figure below gives a visual representation of the perceived impact of the excise duty on the purchase of plastic carrier bags.

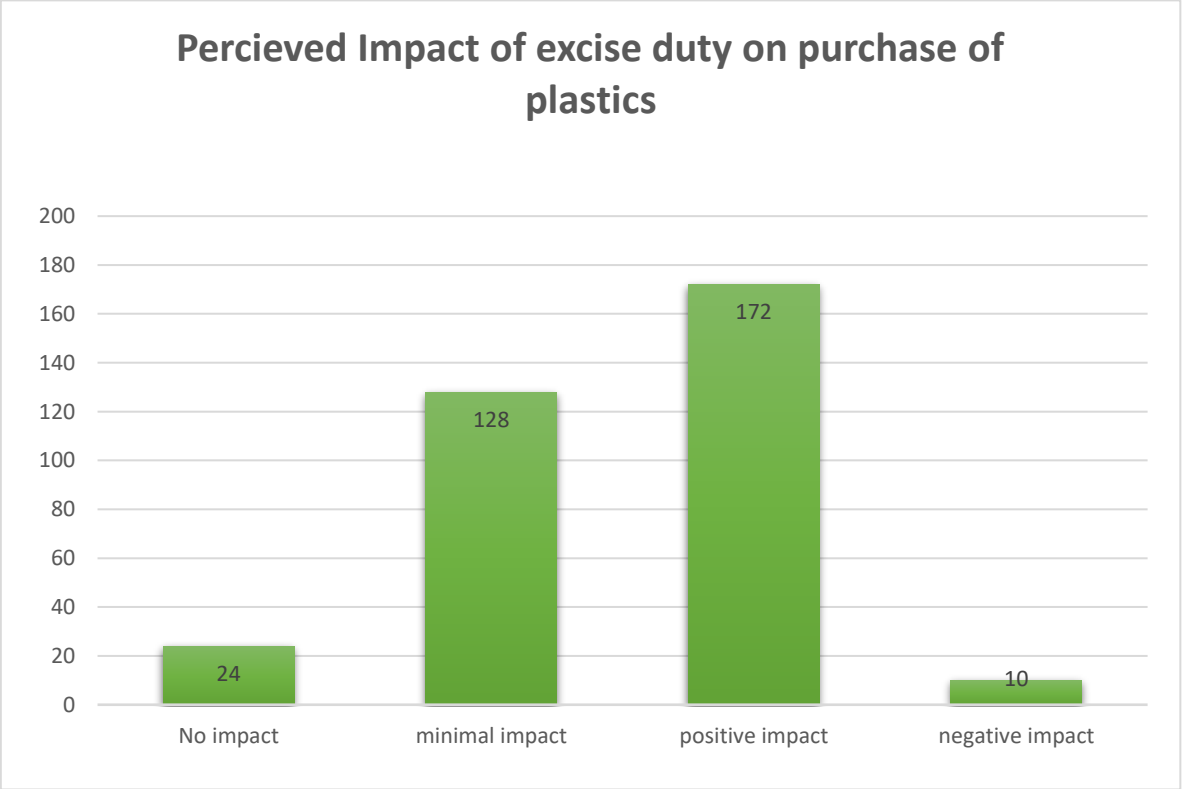


Figure 8. Perceived impact of excise duty on purchase of plastics. Source: Questionnaire responses

Of the responses, 172 indicated that environmental taxes have a positive impact on the purchase of plastic carrier bags, whilst 128 respondents alluded to a minimal impact, 24 respondents and 10 respondents highlighted that environmental taxes have no impact and a negative impact on the purchase of plastic bags respectively.

4.1.3 Public attitudes towards Excise Duty on plastic carrier bags

Figure 9 below illustrates the impact of plastic excise duty on the purchase behavior of respondents.

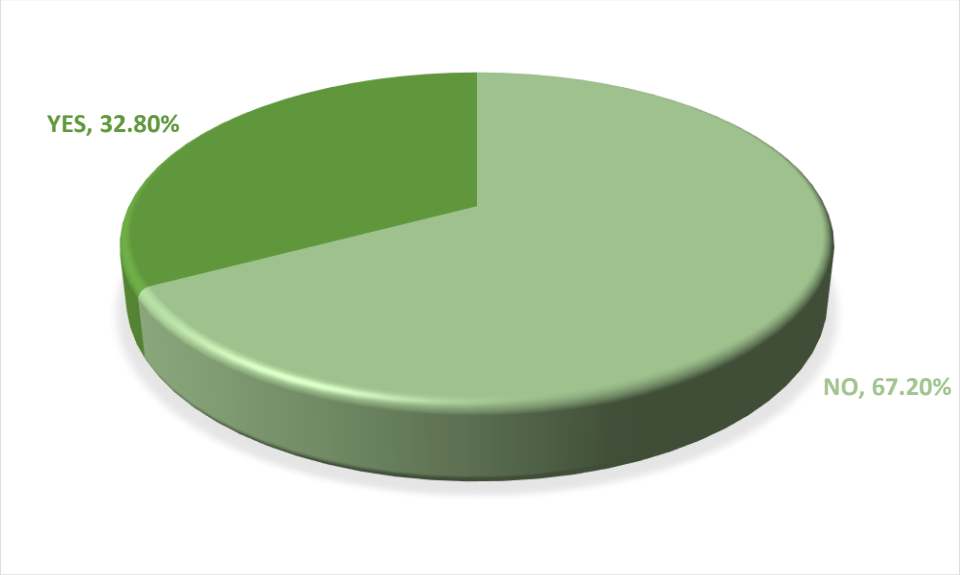


Figure 9. The impact of plastic excise duty on the purchase behavior of respondents. Source: Questionnaire responses

Regarding attitudes toward the excise duty, 67.2% of respondents admitted that the excise duty had little or no impact on their purchasing habits whilst the remaining 32.8% indicated their knowledge on the excise duty impacted their purchase of plastic carrier bags.

4.2 Trends in revenue collection of excise duty on plastics

This sub chapter presents the analysis on trends in revenue collection from excise duty on plastics. The data covers the period 2018 to 2022, highlighting patterns, growth rates, and key observations. Table 3 summarizes annual revenue collected from excise duty on plastics carrier bags.

Table 4. Annual revenues collected from excise duty on plastics

Year	Revenue Collected (K'million)	Percentage Change (%)
2018	9.1	-
2019	14.6	37.67
2020	17.2	15.12
2021	23.9	28.03
2022	24.9	4.02

The table shows that revenue has shown an upward trend, with an average growth rate of K17.8 million. The highest growth rate was seen in 2019 at 37.7% whilst the highest revenue collected was in 2022 amounting to K24.9 million. Figure 10 illustrates the trend in annual revenues for excise duty on plastics from 2018 to 2022.

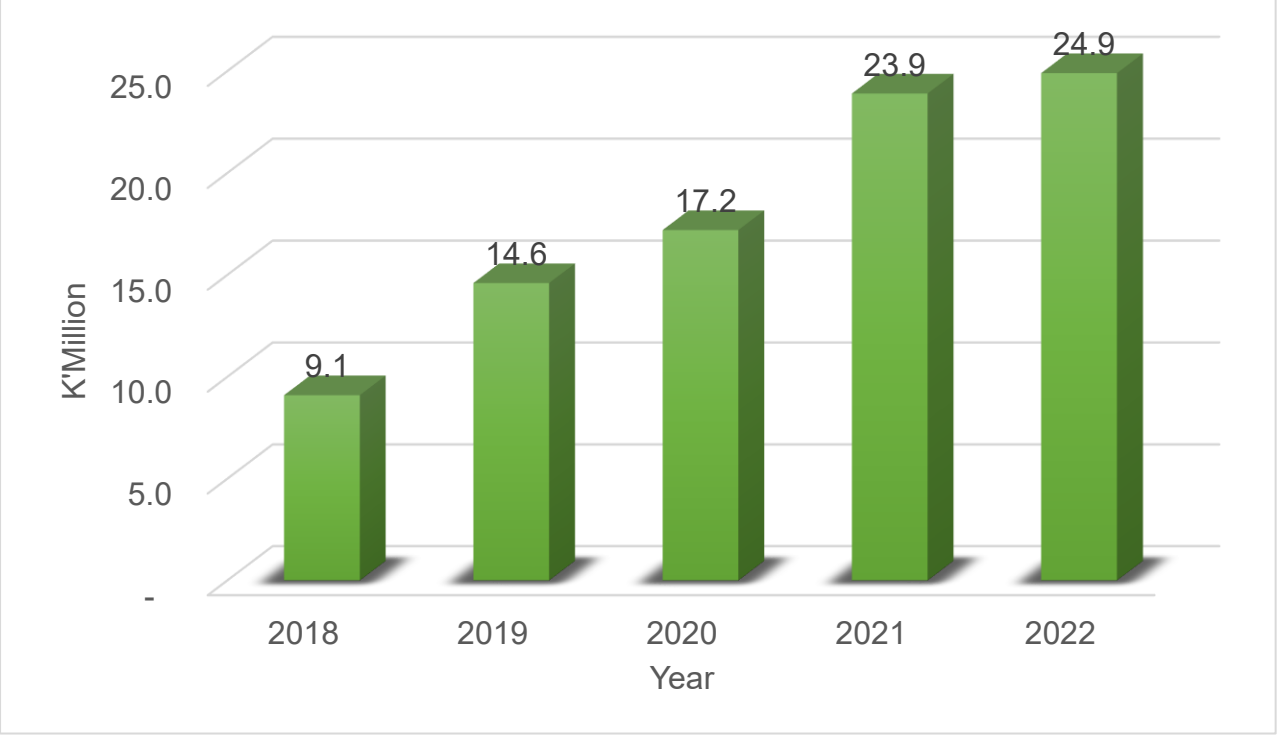


Figure 10. Trend in annual revenues for excise duty on plastics from 2018 to 2022. Source: (ZRA, 2023)

Table 5 below shows the percentage of green taxes against the total tax revenue collections. This analysis presents the contribution of green taxes to government revenue.

Table 5. Contribution of green taxes to Govt. revenue

YEAR	TOTAL TAX REVENUE (K' MILLION)	ENVIRONMENTAL TAXES (K'MILLION)	% OF ENVIRONMENTAL TAXES AGAINST TOTAL TAX REVENUES
2018	48,176.7	574.0	1.19
2019	52,681.4	727.5	1.38
2020	57,422.6	726.0	1.26
2021	83,572.5	540.1	0.65
2022	89,937.4	708.6	0.79

As per the table above, green taxes on average make up 1.1% of the total revenue collections.

4.3 Summary

The data gathered from both primary and secondary sources is analyzed to assess the effectiveness of this tax policy in achieving Zambia's sustainable development objectives. With an initial sample size of 384, the responses that were received are 348 participants, yielding a response rate of 91%. This response rate provides insights into the relationship between environmental taxes and sustainable development goals, highlighting trends, challenges, and opportunities. Proxy indicators and qualitative data are utilized to fill gaps caused by lack of direct plastic consumption statistics.

Figure 3 highlights the gender distribution where 59.6% represented female whilst 40.4% represented male respondents. Figure 4 below represents the age distribution of the respondents. 44% are aged between twenty-one (21) to thirty (30) years whilst 43% are aged between thirty-one (31) and forty (40) years. The statistics highlighted above suggest that the sample is composed of a diverse group of individuals and representing different age groups which may influence their perspectives on environmental taxation.

In terms of awareness levels of environmental taxes, of 348 respondents 61.4% reported to know environmental taxes whilst the remaining 38.6% had no knowledge of environmental taxes. Of the 61.4% who had reported that they knew environmental taxes, 67.3% had heard of excise duty on plastic carrier bags. 58 responses describing what environmental taxes are is provided for in Appendix II.

With regards to the perceived impact of green taxes on the environment, 172 indicated that environmental taxes have a positive impact on the purchase of plastic carrier bags, whilst 128 respondents alluded to a minimal impact, 24 respondents and 10 respondents highlighted that environmental taxes have no impact and a negative impact on the purchase of plastic bags respectively.

Regarding attitudes toward the excise duty, 67.2% of respondents admitted that the excise duty had little or no impact on their purchasing habits whilst the remaining 32.8% indicated their knowledge on the excise duty impacted their purchase of plastic carrier bags.

An analysis on the trends of annual revenues collected from excise duty on plastics revealed upward trend, with an average growth rate of K17.8 million. The highest growth rate was seen in 2019 at 37.7% whilst the highest revenue collected was in 2022 amounting to K24.9 million.

CHAPTER 5: DISCUSSION OF RESULTS

5.0 Overview

This chapter discusses the findings in relation to the research questions. It aligns the findings with the objectives and literature that were highlighted in previous chapters. The aim of the study was to assess the impact environmental taxes on sustainable development in Zambia with key focus on assessing excise duty on carrier bags in Lusaka city. This chapter will also recommend possible and practical strategies to enhance environmental sustainability and attainment of SDGs through environmental taxes.

5.1 Discussion

Objective One: In terms of the level of public awareness, perceptions of environmental taxation, and behaviors related to plastic usage and disposal, the study revealed that out of all the respondents, 61.4% reported to know environmental taxes whilst the remaining 38.6% had no knowledge of environmental taxes. Of the 61.4% who had reported that they knew environmental taxes, 67.3% heard of excise duty on plastic carrier bags. This result suggests a reasonably high level of awareness of environmental taxes and excise duty of plastic bags to be specific. However, there is still need for public awareness programs and education to sensitize the masses who are still unaware of this crucial social topic.

When asked to give a general definition of the tax, 88% of respondents identified environmental protection as the main objective of the tax, while others cited other reasons. See responses in appendix II. When respondents were asked about their perceived impact of green taxes on the environment, 88% selected "Environmental taxes encourage the development of cleaner cities through a levy on plastic carrier bags." Meanwhile, "People are enticed to use and produce fewer plastic carrier bags because of the need to pay environmental taxes." and "Environmental taxes may be used to solve environmental issues by encouraging people to engage in more ecologically friendly activities." received 62.9% and 62.1% of responses respectively. A considerably high level of awareness among respondents suggests that environmental taxes are well known and that the excise duty on plastics is a well-known policy. This could be due to increased levels of Taxpayer education and focus

by the ZRA. Similar perceptions about its purpose may positively influence public support and compliance. When respondents

In terms of perception, most respondents acknowledged the benefits of environmental taxation, believing that such policies encourage sustainable behavior and contribute to cleaner urban environments. However, despite this positive perception, the study found that the tax had not significantly influenced plastic consumption behaviors. A considerable number of respondents admitted that the excise duty had little or no impact on their purchasing habits, indicating that the tax in its current form may not be strong enough to alter consumer behavior.

The results from the survey also suggest environmental taxes would have more public support if they are structured to be environmental taxes proper and not environmentally related taxes. Environmental taxes proper explicitly have an environmental management goal whilst the goal of environmentally related taxes is to raise revenue from activities that have an impact on the environment (ICTD, 2023). According to (Muhammad, et al., 2021) people are more supportive of public policy when they (i) are well informed about a policy's effectiveness and the policy content, particularly the use of revenue, (ii) have high trust in the government, (iii) have a positive attitude toward protecting the environment, (iv) perceive the policy is fair in terms of costs distribution and social sharing, and (v) are concerned about the climate change issue.

Objective two: The second objective of this study sought to explore the trends in revenue collection of excise duty on plastics carrier bags. The trends give insight on the performance of the tax as an environmental protection policy tool as well as a revenue generating instrument. This viewpoint was also asserted by (Štreimikienė, et al., 2022), who penned that environmental taxes deter anti-environmental behavior and (Brown, 2022) who portend that environmental taxes can also help governments to raise revenue for their social expenditures. Also, in a study done by (Xing, et al., 2022), it was suggested that green taxes are intended to make polluters pay a price that reflects the cost of their externalities. Environmental taxation, according to the findings, might create public funds for governments, allowing other taxes to be reduced or environmental programs to be implemented. This is comparable to the findings of (Grundel, et al., 2020), who found that collecting environmental taxes and levies is a

critical method for governments to produce public money that allows them to invest in various social security programs such as basic health care, infrastructure and education.

Table 4 and figure 10 above present the trends in annual revenues for excise duty on plastics from 2018 which is the year in which the tax was introduced up to 2022. The upward trend in revenues suggest enhanced compliance or growth in plastic manufacturing industry. In the short term an upward trend is expected because of increased Taxpayer awareness and education as well as increased levels of compliance, however, it is expected that in the long term, revenue collections of the excise duty on plastic carrier bags should start to fall as the policy is designed to deter public consumption of plastic carrier bags. The upward trend in the collection of excise duty on plastic bags may suggest both increased consumption as well as ineffectiveness of government tax policies aimed at regulating their usage. Other factors that have led to the increase is changes in consumer behavior and overtime improvement of tax compliance mechanisms.

Increased government efforts to enforce compliance with excise duty regulations have also played a critical role. According to a case study conducted in Kenya, the Revenue Authority's adoption of digital tax stamps on plastic products led to a 20% increase in excise duty collections over three years (Mwangi & Njoroge, 2020). This approach has reduced tax evasion and enhanced monitoring of manufacturers and importers of plastic bags.

On the other hand, an increase in revenue collections of the excise duty directly translates to increased widespread use of plastic bags in commercial and domestic settings. Studies have shown that despite setting a price on plastic bags and robust awareness campaigns advocating for reusable alternatives, plastic bags remain a popular choice due to their convenience and low cost. For example, a report by (Isaac & Misuzu, 2023) points out that the demand for single-use plastics, including bags, has risen alongside urbanization and population growth in developing economies.

An increase in the collection of excise duty on plastic carrier bags indicates a direct increase in the demand of these single use plastic carrier bags. Unlike the desired scenario of a reduction in the consumption of plastics due to the tax, this upward trend may suggest a partial failure in the excise duty as a deterrent in the consumption of

plastic carrier bags. The performance of the excise duty in the years observed indicate that it is effective as a revenue generating tool but lags behind in effectiveness as an environmental protection tool. This may be due to two major reasons that is (i.) not enough policies and standards to back up excise duty on plastic carrier bags and (i.) the price that has been placed on plastics due to the tax is too low to influence significant behavior change. A study conducted by Dikgang and Visser (2012) in South Africa provided similar findings. In South Africa, researchers noted that the Plastic Bag Levy that was implemented in 2003 recorded a short run success due to two reasons that were suggested. Firstly, the price of the bags was reduced which made the bags affordable and secondly consumers got accustomed to paying for the bags. Another study conducted by Isaac and Misuzu (2023) concluded that it is most efficient to use different policy mix instruments to manage plastic within its lifecycle was identified in African countries.

Objective three: The third objective focused on strategies to enhance environmental sustainability and attainment of SDGs through environmental taxes. Based on the findings, the following strategies scored the highest percentages:

- Acts of pollution should be subject to environmental taxes.
- The scope of environmental tax should be as broad as the harm it is meant to alleviate.
- The tax rate of environmental taxation should be proportionate to the quantity of pollution caused.
- Environmental taxes should be carefully articulated for them to be accepted by the general public.

The strategies presented above suggest that the public have greater support for green taxes that directly support environmental sustainability programs. Currently the national budget only allocates around 0.6% of its total allocated expenditure towards environmental protection which is significantly low. Of this, only 26% is financed via government spending while the rest has been financed through donors (Jacqueline, et al., 2023). There are some relatively minor tax expenditures for green products, e.g. solar street lights and solar charge control units (PWC, 2021). Respondents also suggest that green taxes enforced must encompass the cost of the negative externality caused by the pollutant such as plastic carrier bags.

CHAPTER 6: CONCLUSION

6.0 Introduction

This chapter presents the conclusions drawn from the findings of the study on environmental taxation and its role in sustainable development in Zambia, with a specific focus on excise duty on plastic carrier bags in Lusaka City. The study aimed to assess public awareness and perceptions of environmental taxation, analyse revenue trends from excise duty on plastics, and propose strategies to enhance environmental sustainability through environmental taxes. The conclusions derived from the research findings are discussed in relation to the research questions, followed by recommendations, areas for future research, and the study's limitations.

6.1 Conclusions

6.1.1 Public Awareness, Perceptions of Environmental Taxation, and Behaviours Related to Plastic Usage and Disposal

The study established that 61.4% of respondents were aware of environmental taxes, with 67.3% of them specifically knowing about the excise duty on plastic carrier bags. This suggests that tax awareness campaigns have reached a broad audience in Lusaka, helping to inform the public about environmental taxation. However, the remaining 38.6% who were unaware of such taxes highlight a gap in public knowledge, which could be attributed to limited outreach efforts in certain communities, particularly among lower-income groups.

In terms of perception, most respondents acknowledged the benefits of environmental taxation, believing that such policies encourage sustainable behaviour and contribute to cleaner urban environments. However, despite this positive perception, the study found that the tax had not significantly influenced plastic consumption behaviours. A considerable number of respondents admitted that the excise duty had little or no impact on their purchasing habits, indicating that the tax in its current form may not be strong enough to alter consumer behaviour.

In conclusion, this finding suggests that awareness alone is insufficient to drive significant behavioural change. While knowledge of environmental taxation is relatively high, the effectiveness of the excise duty as a deterrent to plastic use remains limited. For the tax to achieve its intended environmental goals, additional

measures—such as increasing the tax rate or introducing complementary policies—may be necessary.

6.1.2 Trends in Revenue Collection of Excise Duty on Plastics

The study found a consistent increase in revenue collected from excise duty on plastic carrier bags between 2018 and 2022, with the highest collection recorded at K24.9 million in 2022. This upward trend suggests improved tax compliance and possibly an expanding plastic manufacturing sector. However, the continued rise in revenue also implies that plastic consumption has not significantly declined, contradicting the primary environmental goal of the tax.

While increasing revenue may be viewed as a sign of the tax's success in generating government funds, it also highlights a policy challenge. In the context of environmental taxation, the ideal long-term outcome is a reduction in tax revenue as consumers shift away from the taxed product. The findings suggest that either the tax rate is too low to discourage plastic usage or that there are insufficient alternatives available for consumers.

To ensure that environmental taxation fulfils its intended purpose, it is necessary to complement the excise duty with additional measures. These may include raising the tax rate, implementing stricter regulations on plastic production and distribution, and encouraging the use of biodegradable alternatives. Without such interventions, the tax may continue to function more as a revenue-generating tool rather than an effective environmental policy.

6.1.3 Strategies to Enhance Environmental Sustainability Through Environmental Taxes

The study highlighted several strategies that could enhance the effectiveness of environmental taxation in promoting sustainability. Respondents emphasized the need for environmental taxes to be structured in a way that is transparent, fair, and directly linked to environmental protection efforts. They also expressed support for policies that ensure tax revenues are reinvested into environmental programs, such as waste management and recycling initiatives.

A key issue identified was the limited allocation of environmental tax revenue to sustainability initiatives. Zambia's environmental protection sector receives minimal

government funding, with a significant portion coming from external donors. This lack of financial commitment undermines the effectiveness of environmental taxation. Respondents suggested that a higher percentage of tax revenue should be earmarked for environmental projects to maximize impact.

Additionally, the study found that policy integration is crucial in achieving sustainability. Increasing the excise duty on plastics should be combined with other regulatory measures, such as promoting reusable alternatives, providing incentives for businesses that adopt eco-friendly packaging, and imposing stricter penalties on non-compliant manufacturers. Through the adoption of a multi-faceted approach, Zambia can strengthen the role of environmental taxation in reducing plastic pollution and promoting sustainable development.

6.2 Recommendations

Based on the study findings, the following recommendations are proposed to improve the effectiveness of environmental taxation in promoting sustainable development:

6.2.1 Strengthen Public Awareness and Education Campaigns

- Increase public education initiatives through media, workshops, and school curricula to enhance knowledge of environmental taxation.
- Target low-income and less urbanized areas, where awareness levels were found to be lower.

6.2.2 Adjust Taxation to Effectively Reduce Plastic Use

- Increase excise duty rates on plastic carrier bags to make them less economically attractive.
- Introduce tax incentives for eco-friendly alternatives, such as reusable bags and biodegradable packaging.

6.2.3. Reinforce Complementary Policies

- Implement strict regulations on plastic production and importation to complement taxation efforts.
- Encourage private sector participation by incentivizing businesses to reduce plastic waste through tax benefits.

6.2.4. Improve Tax Utilization and Transparency

- Allocate a higher portion of tax revenues from excise duty on plastics toward environmental conservation projects.
- Establish monitoring mechanisms to ensure tax revenues are used effectively for sustainability efforts.

6.2.5. Implement Digital Tax Tracking Systems

- Introduce digital tax monitoring tools similar to Kenya's digital tax stamps to improve compliance and reduce evasion.

6.2.6. Outright ban of single use plastics including plastic carrier bags

- Given the study's findings that excise duty alone has not significantly reduced plastic consumption, an outright ban on single-use plastics, including plastic carrier bags, would be a more effective measure in addressing environmental concerns. Countries that have implemented bans, such as Rwanda and Kenya, have seen significant reductions in plastic waste. A ban would force both consumers and businesses to transition to sustainable alternatives, reducing plastic pollution and promoting long-term environmental sustainability.

6.3 Areas of Future Research

While this study has provided valuable insights into the role of excise duty on plastics in environmental sustainability, there are several areas that warrant further investigation:

6.3.1. Effectiveness of Alternative Policy Measures

- Comparative research on the effectiveness of bans, subsidies, and behavioural incentives relative to taxation in reducing plastic waste.

6.3.2 Socioeconomic Impacts of Environmental Taxation

- Examining how excise duty on plastics affects low-income households and small businesses, ensuring that taxation does not disproportionately burden vulnerable populations.

6.3.3 Assessment of Green Tax Revenue Utilization

- Evaluating whether revenue from environmental taxes is effectively reinvested into sustainability initiatives and its impact on achieving Zambia's SDGs.

6.4 Limitations

Despite the contributions of this study, certain limitations should be acknowledged:

6.4.1 Limited Scope of Geographic Coverage

- The study was conducted only in Lusaka City, which may not fully represent the national perspective on environmental taxation. Future research should expand to **rural and peri-urban areas** to provide a broader understanding.

6.4.2. Reliance on Self-Reported Data

- The study relied on questionnaire responses, which may be subject to response bias. Some respondents might have provided socially desirable answers rather than their actual behaviours.

6.4.3. Lack of Direct Plastic Consumption Statistics

- The study used proxy indicators due to the absence of direct data on plastic consumption, which may limit precise conclusions on how excise duty influences plastic use.

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ANNEX I

QUESTIONNAIRE: ENVIRONMENTAL TAXATION AND SUSTAINABLE DEVELOPMENT IN ZAMBIA - A CASE OF EXCISE DUTY ON PLASTICS IN LUSAKA CITY

My name is Chinyama Chilala Kashimu, a final stage student pursuing a Master of Science in Public Finance and Taxation at the University of Lusaka in Zambia. I am conducting a study on Environmental Taxes and their Impact on Sustainable Development in Zambia - A Case of Excise Duty on plastics in Lusaka City. The study aims to determine the trends in revenue collection of excise duty on plastics and the impact of excise duty on plastics on promoting environmental sustainability. The study is beneficial in that it will help determine the pace at which the nation is moving in achieving the Sustainable Development Goals in ensuring clean cities. Anonymity and confidentiality will be maintained throughout the study. For any other queries, feel free to contact the Researcher, Chinyama Chilala Kashimu, on her mobile on +260970403855 or via email on mpft22118922@stud.unilus.ac.zm.

Section One: Sociodemographic Information

Kindly circle or cross the answer that best fits your situation.

1. What is your gender
    a) Male
    b) Female
2. How old are you?
    a) 20 – 30 years
    b) 31 – 40 years
    c) 41 – 50 years
    d) 51 – 60 years
    e) > 60 years of age

Section Two: Knowledge on Environmental Taxation

3. Have you ever heard about environmental taxation?
    a) Yes
    b) No

4. If the answer to the above question was yes, how would you describe environmental taxation?

   ……
   ……
   ……
   ……

5. Have you heard about excise duty on carrier bags?
   a) Yes
   b) No
6. If your answer to the question above was yes, has your knowledge on excise duty on carrier bags impacted your purchase of plastics?

a) Yes
b) No

7. What is the impact of excise duty on plastic carrier bags in terms of ensuring sustainable development on encouraging cleaner cities?

a) No impact
b) Positive impact
c) Negative impact

Section 3: Perceived Impact Green Taxes on the Environment

8. How do green taxes impact the environment? Select all that apply.

a) Environmental taxes encourage the development of cleaner cities through levy on plastic carrier bags
b) Behaviour that destroys the environment is discouraged through implementation and collection of environmental taxes
c) Companies are compelled to innovate in the field of sustainability as a result of environmental taxes.
d) Environmental taxes generate income for the government, enabling the reduction of other taxes or the implementation of environmental initiatives.
e) People are enticed to use and produce less of plastic carrier bags because of the need to pay environmental taxes.
f) Environmental taxes promote the development of innovative technologies, process and goods that promote cleaner cities

g) Environmental taxes may be used to solve environmental issues by encouraging people to engage in more ecologically friendly activities.

h) Other. Please state briefly

……

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……

……

Section Four: Strategies

9. What strategies do you think should be put in place to promote clean cities through the reduction of the use of plastic carrier bags as a result of environmental taxation? Select all that apply

   a) Acts of pollution should be subject to environmental taxes.

   b) The scope of environmental tax should be as broad as the harm it is meant to alleviate.

   c) The tax rate of environmental taxation should be proportionate to the quantity of pollution caused.

   d) Earnings from environmental tax reforms can be used to supplement funds or aid in the reduction of other taxes.

   e) To reduce distributional implications, political courage and laws should be deployed.

   f) Environmental taxes should be carefully articulated for them to be accepted by the general public.

   g) Multisectoral collaboration between the government, academics and relevant stakeholder should be maintained to ensure the role of environmental taxation in maintaining clean cities.

   h) Other. Please state briefly

   ……

   ……

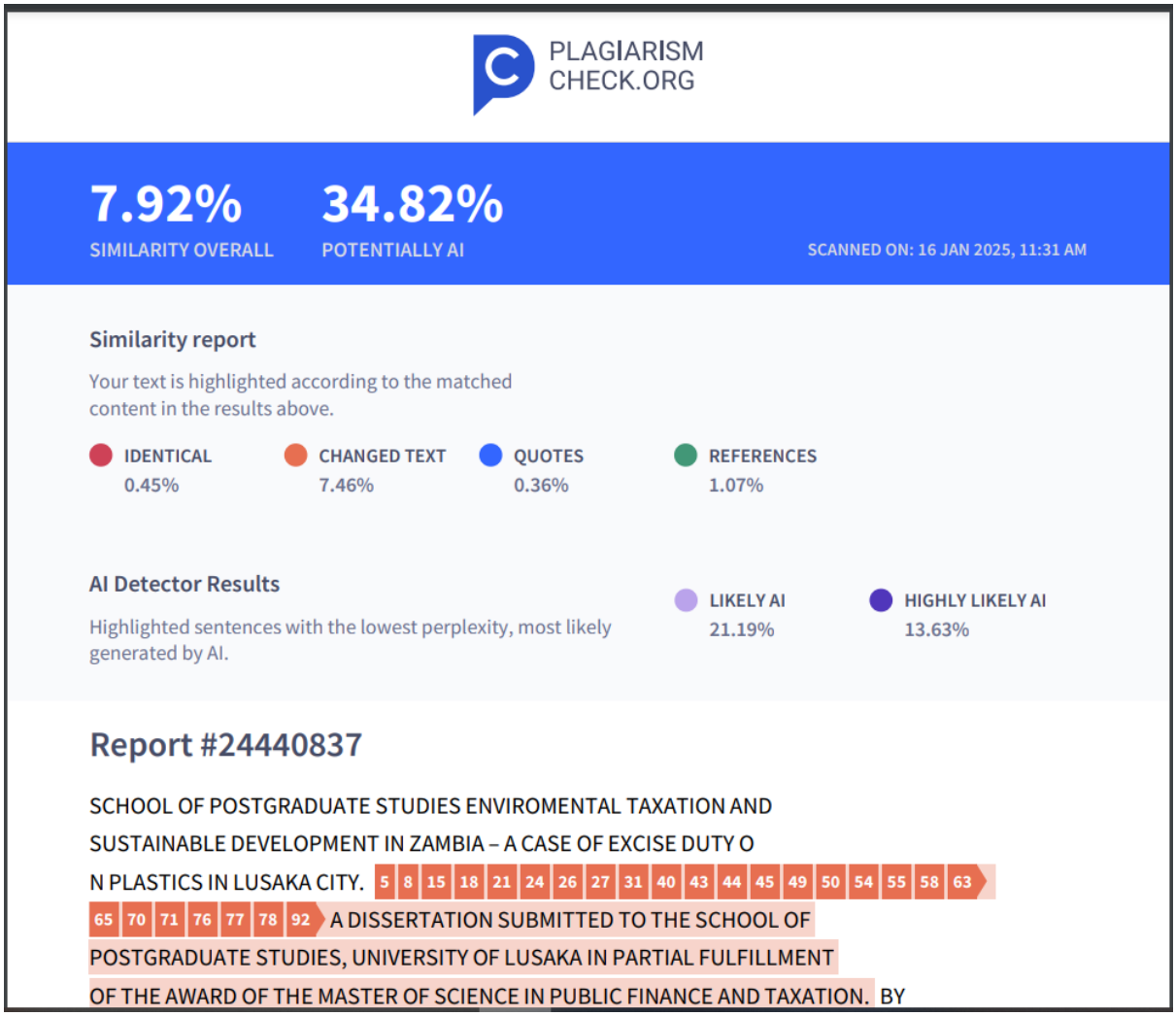
   ……

   ……..

APPENDIX II

Taxes levied to reduce the impact of pollution
Tax on environmental negative utilization
Activities that are levied and to be harmful to the environment.
is a tax levied on activities which are considered to be harmful to the environment and is intended to promote environmentally friendly activities via economic incentives
Tax ment to compensate for harmful activities don't to the environment
Tax imposed on good and services that cause harm to the environment
Taxation refers to the act of charging taxes on goods/products that have negative or positive impact on the environment as a way of detering or encouraging people to use the products thereby preserving the environment.
In simple terms, this is tax towards initiatives that facilitate environmental well being
A tax levied on pollution or polluting behavior designed to reduce the amount of environmental damage.
A tax that is imposed on businesses or persons conducting activities that are harmful to the environment
Taxes imposed on items that arr environmentally unfriendly
Just like any other tax. Carbon tax, collected but never used for the intended purpose.
Environmental tax is a tax on things that could potentially harm the environment and it encourages environmentally friendly practices.
Also known as green tax is a tax imposed on activities that harm or have the potential to harm the environment . The idea is that this tax aims at encouraging friendly actions
A tax imposed on carrier bags to reduce their consumption
In short it involves taxes designed to encourage eco-friendly practices and discourage activities that harm the environment. Examples include carbon taxes, fuel taxes, and waste disposal fees. These taxes aim to make polluters pay for environmental impacts, promoting reduced emissions, renewable energy, and conservation efforts.
These are taxes that include revenue, tax base, rates and exemptions.
Tax fines issued on organisations whose activities cause harm to the environment
An environmental tax, ecotax, or green tax is a tax levied on activities which are considered to be harmful to the environment and is intended to promote environmentally friendly activities via economic incentives.
The use of taxation to promote behaviors that are friendly to the environment in order to reduce pollution. This is done to make sure polluters pays for the harm they have done to the environment(polluter pays principle)
It's a tax put on activities that are harmful to the environment
Taxes imposed on activities that have negative impact on the environment.
Not quite known in zambia
A tax imposed on activities or goods that harm the environment. This is levied to encourage businesses or individuals to adopt sustainable practices.
A tax that encourages citizens to be mindful of and care for the environment
Environmental taxation is a tax on activities, goods, or services that harm the environment, like pollution or waste
As an initiative used to curb the use of toxic subtances to which affects the environment
Imposition of tax on products which have an adverse effect on the environment to discourage consumption

Tax with a potentially positive environmental effect
Indirect tax levied on consumption of goods that have an impact on the environment
This is tax taxed towards the environment
Tax aimed at mitigating environmental degradation
Tax to caution negative environmental impact
CARBON TAX
In general terms, I'd say taxes that citizens need to pay in order to keep the country clean, for example to pay workers to clean the garbage, to create recycling stations etc.
I have heard of carbon tax. I think it is enviormental related
Tax imposed on things harmful to the environment
Taxes and levies charged on activities that cause harm to the environment. The motive behind this is to reduce these human activities and the money raised should ideally be used to offset the harm caused by said activities.
Taxes on activities that have a negative impact on the environment
A percentage of finds deducted in order to improve the environmental conditions in a countrya
Environmental taxation includes taxes on carbon emissions, plastic imports, and plastic usage: Carbon tax: A tax on carbon dioxide emissions, which is a greenhouse gas that contributes to global warming added to import duty Carbon Emissions Surcharge: An annual tax on plastic emissions based on plastic displacement, such Environmental taxes are used to reduce environmental damage or pollution
It is a green tax that is levied on activities that are harmful to the environment
It is tax imposed on waste management such as purchasing of plastic bags.
Tax levied to entities for usage of the environment
In the mining circle that is where i hsve heard of environmental taxation towards the anticipated closure in future
Paying dues for non payment maintenance fees on environmental management
a tax levied on activities that are harmful to the environment
Taxation attached to activities with a negative impact on the environment
An environmental tax is a tax levied on activities which are considered to be harmful to the environment
Environmental taxation refers to the use of taxes and other economic instruments to encourage environmentally friendly behaviors and reduce pollution
Is the addition of taxes on activities that harm the environment to reduce environmental damage
These are taxes imposed on activities that have negative effects on the environment
Tax on anything harmful to the environment
Gray Area
A tax levied on substances that may cause harm to the environment
Taxations aimed at reducing activities are degrade the environment
Its taxation aimed at discouraging environmental externalities
Deterrent Taxes to discourage Consumption of goods with negative externalities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