CONTEXTUALIZING ENVIRONMENTAL EDUCATION WITHIN THE GREEN ECONOMY AND GROWTH AGENDA: A CASE OF LUSAKA DISTRICT, ZAMBIA.

By

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A Dissertation submitted to the University of Zambia in partial fulfillment of the requirement for the award of Master of Education in Environmental Education and Management

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DECLARATION

I, **Charles Mumba Mukosha**, hereby solemnly declare that this dissertation represents my own work and has not been previously submitted for a degree at the University of Zambia or any other University and that it does not incorporate any published work or material from another University.

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CERTIFICATE OF APPROVAL

This dissertation, prepared by **Charles Mumba Mukosha**, is approved as fulfilling part of the requirements for the award of the degree of Master of Education (Med) in Environmental Education and Management of the University of Zambia.

Examiners' Signatures:

Examiner 1…….. Signature……Date……

Examiner 2……...Signature……Date……

Examiner 3……...Signature……Date……

Supervisors'…….Signature……Date……

DEDICATION

This work is dedicated to my wife Mirriam Namweemba, my children and the Zambia Air Force.

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ABSTRACT

This study aimed at exploring how Environmental Education could be contextualized within the Green Economy and Growth agenda in Lusaka, Zambia. It was governed by three objectives namely: exploring how Environmental Education can support the Green Economy and Growth agenda through promoting the efficient use of natural resources, establishing how Environmental Education can be used to influence social inclusivity within the Green Economy and Growth agenda, and examining how Environmental Education can be used to integrate the low-carbon economy into the Green Economy and Growth agenda in Lusaka, Zambia. The study was guided by qualitative approach whose specific research design was hermeneutic phenomenology. The study sample size comprised 22 participants who were chosen using nonprobability purposive sampling. Homogeneous purposive sampling was used to extract data from the six University of Zambia Environmental Education 2024 fourth year students, and expert purposive sampling was applied by the researcher in order to obtain data from key informants who included officials from Zambia's Ministry of Green Economy and Environment, a private company called Community Markets for Conservation, a non-governmental organisation called Green Cosmos Zambia, and lecturers of Environmental Education at the University of Zambia. A structured schedule of focused group discussion guide and an interview guide were used to gather data from the participants. The data was processed using thematic analysis and descriptive analysis to produce themes and codes, which served as a roadmap for the formulation of the thesis and conclusions. The findings of this study revealed that Environmental Education could be used to influence social inclusivity within the green economy and growth through educating and raising awareness about efficient use of resources, promoting sustainable behaviours, encouraging innovation, fostering responsible production and consumption, and building skills and capacities. The findings also reviewed that environmental education may be used to influence social inclusivity through enhancing inclusive curriculum and content, diversity in leadership and representation to promote social inclusivity. Furthermore, Environmental Education could serve as a fundamental catalyst for transforming attitudes, behaviors, and systems towards sustainability, thereby contributing to the achievement of a low-carbon green economy. Given a thorough review of the study's essential findings, it is recommended that the government, through the Ministry of Green Economy and Environment, consciously incorporate Environmental Education into the larger plan to green the economy and all green transitional approaches.

Key words: *Environmental Education, Green Economy, Green Growth, efficient use of resources, social inclusivity, low carbon economy, economic sustainability.*

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ACF	Australian Conservation Foundation
CBD	Convention on Biological Diversity
CEPA	Communication, Education and Public Awareness
COMACO	Community Markets for Conservation
DI	Initiative Darwin
EE	Environmental Education
EM	Environmental Management
ESD	Education for Sustainable Development
FNDP	Fifth National Development Plan
GE	Green Economy
GG	Green Growth
ILO	International Labour Organisation
IRP	International Resource Panel
IUCN	International Union for Conservation of Nature
KPCS	Kimberley Process Certification Scheme
KZCGC	Keeping Zambia Clean and Green Campaign
LIRDP	Luangwa Integrated Resource Development Project
MGEE	Ministry of Green Economy and Environment
NFF	National Farmers Federation
NCS	National Conservation Strategy
NGO	Non-Governmental Organisation
NLP	National Land Care Program
NRC	Natural Resource Charter

NSI	National Systems of Innovation
OECD	Organization for Economic Cooperation and Development
PWYP	Publish What You Pay
SDG	Sustainable Development Goal
UNDP	United Nations Development Program
UNCED	United Nations Conference on Environment and Development
UNEP	United Nations Environment Program
UNESCO	United Nations Education, Science and Cultural Organisation
UNFCCC	United Nations Framework on the Convention on Climate Change
WWF	World Wide Fund
ZEMA	Zambia Environmental Management Agency

CHAPTER ONE: INTRODUCTION

1.1 Overview

This chapter introduces the study by firstly presenting the background, statement of the problem, purpose of the study, specific objectives, general research question and specific research questions. It also provides the significance of the study, theoretical framework, delimitations and limitations, and operational definitions of terms.

1.2 Background of the Study

In recent years, the Green Economy Initiative of the United Nations Environment Program (UNEP) and the Green Growth Strategy of the Organization for Economic Cooperation and Development (OECD) have remained topics of interest and have been gaining momentum among academicians and global leaders (Odiyo. Bikam and Chakwizira., 2022). This is due to their efforts to constrain economic performance within accepted social and environmental norms. Numerous techniques must be used to realize this economic model; hence, this study aims to contextualize Environmental Education within the Green Economy and Growth agenda: A case of Lusaka district of Zambia.

The term Environmental Education according to the United Nations Education, Scientific and Cultural Organization (UNESCO) is a "learning process that increases people's knowledge and awareness about the environment and associated challenges, develops the necessary skills and expertise to address the challenges, and fosters attitudes, motivations, and commitments to make informed decisions and take responsible action" (UNESCO, Tbliisi Declaration, 1978). It is a lifelong, multidisciplinary subject of study rather than a distinct branch of science that uses education as a tool for development to increase the standard of living in human societies and seeks to preserve and improve the environment.

The Green Economy was defined by the UNEP and promoted through its Green Economy Initiative as one that results in improved human well-being and social equity while significantly reducing environmental risks and ecological scarcities (UNEP, 2013). The concept is further defined as an economic model that is low-carbon, resource efficient, and socially inclusive and advocates for technological innovations, recycling and addressing issues such as climate change, poverty eradication and job creation in an attempt to contribute to the country's economic growth and development (Ngare, Otieno, Omwami, Ogutu, Opiyo, Gikonyo, and Otieno., 2022).

The OECD Green Growth Report defines green growth as “fostering economic growth and development, while ensuring that natural assets continue to provide the resources and environmental services on which our well-being relies”. Hence, both operate on the basis of development within environmental limits (OECD, 2015). Green growth focuses on accelerating investments and innovations that will underpin sustainable development and provide new economic opportunities. It is further believed to be an addition, or rather the requirement and ingredient, for a green economy and sustainable development. It is argued that a green economy cannot be achieved without championing Green Growth first and therefore considered the path and need to achieve sustainable development and a green economy (OECD, 2011:8).

After the global financial crisis of 2008, the "green economy" concept grew in popularity. Policymakers considered the idea to be a quick fix to the worsening of the financial crisis worldwide. The economic collapse resulted from a number of factors, one of which was the complete disregard of social and environmental considerations by those in charge of economic activities at the time. As a result, the world's use of natural resources has been negatively impacted, with irreversible effects (Jacobs, 2012). The International Labour Organization (ILO) and the UNEP both support the Green Economy as a solution to the multiple problems that led to the global financial crisis, including climate change, poverty, unemployment, and other effects (ILO, 2011; UNEP, 2013).

The Zambian government has demonstrated its commitment to environmental protection by putting forth a number of plans, such as the National Policy on Environment (NPE), whose aim is to ensure responsible environmental management in Zambia within the context of sustainable development. This is in accordance with international environmental treaties and agreements (GRZ, 2007). The government further passed an Act titled Environmental Management Act No. 12 of 2011 to help the nation implement environmental management and Environmental Education effectively. This Act stipulates that, within the bounds of the constitution, every person in Zambia has the right to a hygienic, secure, and healthy environment. In addition, the law further stipulates that, "within three years of the commencement of this Act, each Minister shall ensure that an environmental management strategy for the Ministry to which the Minister is responsible is prepared and submitted to the Zambia Environmental Management Agency (ZEMA) for approval" (The Environmental Management Act 2011, Section 22 Subsection 1).

Zambia's Eight National Development Plan (8NDP) is a strategy aimed at serving as a crucial stepping stone in achieving the national goal. The Sustainable Development Goals (SDGs) are Zambia's national vision, which must be accomplished by 2030. As a result, the plan has been used as a vital tool to help Zambia fulfil its obligations under multiple international and regional frameworks, including the past ten years of action to achieve the Sustainable Development Goals and deliver on Africa We Want. To meet these challenges and achieve Vision 2030, the 8NDP introduces strategic interventions anchored in economic transformation and job creation, human and social development, environmental sustainability, and good governance (8NDP, 2022).

For a country to achieve its economic developmental agenda, which will result in poverty eradication, job creation and climate change mitigation, an education tool should be used to equip its citizens with the required knowledge and skills. The creation of the Ministry of Green Economy and Environment is a plus on the part of the new dawn government because it clearly indicates the will to manage various environmental challenges and create an economic pathway that is green. The mainstreaming of green solutions, such as strategies for mitigating and adapting to climate change and building climate-resilient infrastructure in all sectors, has been prioritized for sustainable development and given substantial consideration. To attain these goals, the country will need to use various strategies that will change the way people think and do things (8NDP, 2022).

Environmental Education is a strategy that qualifies as a behaviour change tool needed if the agenda of the Green Economy and Growth was to be made a reality. This is because it is an education platform that plays an important role in the process of transforming people's mindset through inculcating knowledge and awareness about the environment and its challenges. Once the information is spread among people, they will start to comprehend various environmental issues and become aware of the causes of environmental challenges such as climate change and how to mitigate them. Environmental Education is designed in such a way that learning can occur in formal, nonformal, or informal settings at all societal levels, regardless of age, gender, or race. Environmental Education ultimately aims to create a population around the world that is not only aware of environmental issues and the problems they cause but also uses that knowledge to transform the economy and create jobs. One of the main objectives of Environmental Education is education for sustainable development, which addresses the root causes of environmental problems rather than using unsustainable methods that frequently cause symptoms. As a result, sustainable development addresses a broad range of issues that

have an impact on all facets of human life as well as the environment. This process necessitates the use of creative thinking, effective decision-making, management abilities, entrepreneurship, development, and production while maintaining the environment (Sharma, 2014).

1.3 Statement of the Problem

Environmental Education plays a crucial role in promoting sustainability and addressing environmental challenges in developing countries like Zambia. With its rich biodiversity and natural resources, Zambia has a vested interest in sustainable development. However, the consequences of not having an effective Environmental Education in a country results in significant environmental threats such as deforestation, pollution, and climate change. Realistically Environmental Education should inculcate knowledge and awareness to people about the environment and should be integrated into the green economy and growth agenda in Zambia. This integration would enable the country to harness its natural resources sustainably, promote eco-tourism, and ensure responsible industrial practices (Government of the Republic of Zambia (GRZ), 2021). Though several studies support the notion that integrating Environmental Education into the green economy can bring about positive environmental and socio-economic outcomes (Namafe and Muchanga, 2019). However, the current situation in Zambia demonstrates a discrepancy between Environmental Education and the green economy and growth agenda. Environmental Education programs exist in Zambia, but their integration into the broader green economy agenda appears limited and fragmented. The lack of policy framework enforcement at various levels and limited coordination between relevant stakeholders hinder the effective implementation of Environmental Education initiatives. A study by Simwinga et al. (2018) reveals that while Environmental Education programs are active in Zambia, there is a lack of coordination and coherence between different providers and educational institutions. A study by the World Bank (2019) highlights the need for stronger linkages between Environmental Education and the green economy in Zambia to ensure sustainable development and address environmental challenges. If the current situation is not addressed, Zambia may face a myriad of consequences such as continued environmental degradation due to inefficient use of natural resources. Without proper integration of Environmental Education, green businesses and eco-tourism initiatives may struggle to gain traction, limiting potential socio-economic benefits for local communities. Generally, social inclusivity and even low carbon economy may not be effectively achieved due to poor environmental literacy. Through contextualizing environmental education within Zambia's

green economy and growth agenda, this study helps to address these concerns by ensuring policy coherence and stakeholder coordination.

1.4 Purpose of the Study

The study sought to explore how Environmental Education can be contextualized within the Green Economy and Growth Agenda in Zambia.

1.5 Specific Objectives

The research objectives for the study were to:

i. explore how Environmental Education may support Green Economy and Growth agenda through promoting the efficient use of natural resources in Lusaka district of Zambia.

ii. establish how Environmental Education may be used to influence social inclusivity within the Green Economy and Growth agenda in Lusaka district of Zambia.

iii. examine how Environmental Education can integrate the low-carbon economy into the Green Economy and Growth agenda in Lusaka district of Zambia.

1.6 General Research Questions

The general research question is: How can Environmental Education be contextualized within the Green Economy and Growth Agenda: A case of Lusaka district in Zambia?

1.7 Specific Research Questions

The following were the specific research questions:

i. How can Environmental Education support green economy and growth agenda through promoting the efficient use of natural resources in Lusaka district of Zambia?

ii. How can Environmental Education be utilized to influence social inclusivity within the Green Economy and Growth agenda in Lusaka district of Zambia?

iii. How can Environmental Education be used in the intergration of low-carbon economy into the Green Economy and Growth agenda in Lusaka district of Zambia?

1.8 Significance of the Study

The findings of this study may not only contribute to the broad knowledge foundation of Environmental Education but also help in contributing to the transition towards a green economy and growth Agenda in Lusaka, Zambia. Environmental Education as a behaviour change tool could be used to support Zambia's green economy and growth agenda through

promoting the efficient use of natural resources, to influence social inclusivity within the green economy and growth agenda in Lusaka, Zambia and examine the integration of low-carbon economy into the green economy and growth agenda in Lusaka, Zambia. The researcher believes that various institutions in Zambia could as well benefit from this study. This study may further contribute to strengthening other policy documents such as Inclusive green growth in Lusaka district of Zambia, scoping its needs and potentials (Banda and Bass, 2014).

Environmentalists, researchers and other stakeholders may need these findings to critically investigate further how to contextualize Environmental Education within the green economy and growth agenda in Lusaka, Zambia. The study may also entice the private sector to invest in green business, which may result in the creation of green skills and green jobs.

1.9 Theoretical Framework

The theoretical framework is a collection of interrelated ideas based on theories (Kombo and Tromp 2006). It is a reasoned set of prepositions that are derived from and supported by data (Msabila and Nalaila, 2013; Chalawila and Muchanga, 2022). This study was anchored and guided by the Transformative Learning Theory proposed by Jack Mezirow (Mezirow, 1991) and the Situated Learning Theory proposed by Jean Lave and Etiene Wenger (1991). According to Mezirow (1991), the aim of transformational learning is that of transforming people's mentality and emotion, thought, belief and knowledge related to their mentality and transforming knowledge to new approaches in learning process (Mezirow and Associates, 2000). The process of transformation "begins with a disorienting dilemma and concludes with a changed self-concept that enables a reintegration into one's life context", which includes a mental shift as well as a behavioural change. In this study, transformative learning was applied to influence participants' levels of awareness of the context of their opinions and feelings, a critique of their premises and assumptions, an evaluation of alternative perspectives, a choice to reject an outdated viewpoint in favour of a modern one or create a hybrid of the two, the capacity to act on the new perspective, and a desire to integrate the perspective into a larger context of their lives (Mezirow, 1991: 161). Through transformative learning theory, participants were made aware that creating dilemma process is a part of transformation. At this point, participant looked for new ideas, roles, new relations and new actions that the study presented in a conscious way. Additionally, the participants were informed that experiences related to new roles and relationships are beneficial in fostering self-sufficiency and trust. Through their interactions with the researcher, the participants are able to incorporate new

roles and relationships into their lives. When this kind of change occurs correctly, it's referred to as a "new perspective (McWhinney and Markos, 2003).

Situated learning theory is concerned with how learning occurs on a daily basis. This is a theory about the nature of human knowledge claiming that knowledge is dynamically constructed as people conceive of what is happening to themselves, talk or move, especially in communities and workplaces. The theory further claims that every idea and human action is a generalization adapted to the ongoing environment because what people see and what they do arise together. From this perspective, thinking is a physical skill. Situated learning theory, or at least elements of it, is emerging as a possible vehicle for revitalizing the understanding of, and prescriptions for, how knowledge is developed and organized within workplaces (Brown, Collins and Duguid, 1989 and Motteram, 2013).

Situated learning theory in this study was applied based on the principle that the theory has the potential advantage of placing participants in realistic settings where socially acquired ways of knowing are often valued, increasing the likelihood of application within similar contexts, and strategically applying the learner's prior knowledge on a given subject (Lave and Wenger, 1991). The researcher in the study believed that by engaging with participants at individual level or as a group through focus group discussion, learning took place. Situated learning mostly requires social interaction and collaboration within the "community of practice". However, those destined to learn gradually move away from this community to become engaged in more dynamic and complex activities, and transition into the role of the expert. This process usually occurs unintentionally (Lave and Wenger, 1991)

1.10 Delimitation

Delimitation is the process of creating clear boundaries to show the exact geographical locations that were eligible for the sampling of participants (Bhat, 2018). This study was conducted in Lusaka Province and the Lusaka district. Furthermore, the study included the University of Zambia, an industrial area inhabited by private companies and non-governmental organizations (NGOs), and the newly created Ministry of Green Economy and Environment. Some of the components, such as the research findings in this study, may therefore not apply to the whole country because the study was conducted in an urban setting.

1.11 Limitation

The limitations of this study included the following: The researcher's presence during data collection, which is often unavoidable in qualitative research, could have affected the

responses from the participants. Some participants may have withheld certain valid information about how Environmental Education can be contextualized within the Green Economy and Growth agenda in Lusaka, Zambia. Since this is a hermeneutics case study, the manual designed may not be used or directly applied to other institutions. Being a student, the researchers' visitation to some institutions initially caused anxiety and panic in the participants, however, they were assured that the study was part of the researchers' academic progression and not for monitoring purposes.

1.12 Chapter Summary

Chapter one provides the background, problem statement, purpose of the study, specific objectives, general research question, specific research questions, and significance of the study, theoretical framework, delimitations, limitations and definitions of the terms. Chapter two reviews the literature by first showing the origins of Environmental Education and then examining the role of Environmental Education in line with the efficient use of natural resources, social inclusivity and how to attain a low carbon footprint at the global, continental and national levels. Literature review will look at the Green Economy and Growth and Environmental Education in promoting Green Economy and Growth. Chapter three will present the methodology of the main research design used in this study and the reasons for adopting it and the philosophical assumptions of the adopted research traditions on which the study will be guided. Thereafter, particular emphasis will be placed on the study area, study population, sample size and sampling method, tools for data collection, data analysis, trustworthiness and ethical considerations.

CHAPTER TWO: LITERATURE REVIEW

2.1 Overview

This chapter focuses on literature review with the aim of attempting to gain a deeper understanding of contextualizing Environmental Education within the Green Economy and Growth Agenda: A case of Lusaka district in Zambia and identifying gaps in the literature so that this research can be used to fill those gaps. Fink (2010) defines literature review as a systematic review of an existing body of data that identifies, evaluates, and synthesizes for explicit presentation. Lambert (2012) defines literature review as a critical analysis of what is known about the study topic, the themes related to it, and the various perspectives expressed regarding the topic. Going through these written materials enabled the researcher to identify what knowledge has been investigated before and what knowledge has not. Eventually, this led to bridging the knowledge gap. The layout of the literature review in this research starts with the origins of Environmental Education and then looks at the role of Environmental Education in line with the efficient use of natural resources, social inclusivity and how to attain a low carbon footprint at the global, continental and national levels. The literature reviewed has further examined the use of Green Economy and Growth and Environment Education in promoting the Green Economy and Growth.

2.2 Origins of Environmental Education

Kearns (2014) attributes the survival of humanity to interactions with the environment since time became in immemorial. The lifestyles people are living today are a carbon copy from people who lived there. The elders then conduct various activities, such as fetching food through farming and gathering other necessities, and all of these activities are still adopted in today's lives. Archeologists have demonstrated various ways in which humans have passed on knowledge to their children over time (Kearns, 2014). However, complex degradation of the environment over time has occurred as a result of an increase in population size and the application of unsustainable tools for agriculture and incorrect resource harvesting methods, which have no remaining option but demand educational approaches to promote environmental protection. Environmental Education is a tool for behavioural change that emerges in response to the growing awareness of the threats of environmental degradation (Gough and Gough, 2010).

Historically, the roots of Environmental Education can be traced back as early as the 18th century when Jean-Jacques Rousseau stressed the importance of an education that focused on the environment. Several decades later, Louis Agassiz, a Swiss-born naturalist, echoed

Rousseau's philosophy, as he encouraged students to "Study nature, not books." These two influential scholars helped in laying the foundation for a concrete Environmental Education program known as nature study, which took place toward the end of the 19th century and early 20th century (Carter and Simons, 2010).

Major influences on Environmental Education era were the Stockholm Conference on the Human Environment in 1972, where it was declared a "tool" to address global environmental problems. The Belgrade Charter arose from an international workshop on Environmental Education in 1975, the Declaration arose from the Intergovernmental Conference on Environmental Education held in Tbilisi, 1977, and the World Conservation Strategy. These high-level meetings and policy statements signified the increasing importance of Environmental Education on the political agenda at the international and national levels. They also proposed the theme of sustainable development (Frisk and Larson, 2011)

From its inception, the aim of Environmental Education was centered on inculcating knowledge and awareness about the environment and its challenges to people through the school system from kindergarten through primary to postsecondary education. However, this scenario slowly changed as a result of various environmental challenges that have led to issues such as climate change, poverty, global warming and deforestation. This meant that plans to solve these environmental challenges were to be put in place to save the environment. Solutions where to be found by turning the acquired knowledge and awareness into economic development. Some of the guiding principles that were put across include enabling learners to have a role in planning their learning experiences and being able to discover the symptoms and real causes of environmental problems.

This study finds that contextualizing Environmental Education within the Green Economy and Growth agenda in Lusaka Zambia is better placed. This is because education and training activities are important for finding sustainable solutions to problems, including those that are environmentally friendly, because they approach such problems from the root cause perspective. The most effective method for solving these problems is to start by understanding the nature of the problem and then raising awareness of environmental challenges (Frisk and Larson, 2011).

Although Environmental Education has been ongoing for some time, in recent years, it has been recognized that Environmental Education can provide sustainable solutions to the problem of environmental degradation. To solve issues such as climate change, deforestation,

pollution, ozone depletion and waste management, a new way of learning about human relations with the environment is needed. Environmental Education further focuses on the relationships and impacts of humanity on the environment. It is the type of education that stresses an integrated way of structuring human nature and natural and physical resources. This education aims at creating self-confident, responsible and environmentally conscious people (Nevin, 2008).

2.3 Green Economy

The idea of Green economy is essentially a new paradigm that has emerged since the United Nations Environment Programme first introduced it, particularly in developing nations (UNEP 2012:15). Nonetheless, it is gradually integrating into national development strategies and procedures. There are several ways in which the green economy paradigm and sustainable development are similar. Sustainable development, as defined by Callaghan (2012), is an improvement in quality of life that satisfies current needs without jeopardising the ability of future generations to satiate their own needs.

According to Brown (2015), the term "green economy" describes an economic system that prioritises lowering environmental risks like rising carbon emissions, environmental degradation, and ecological scarcities (low resource availability due to overexploitation) while simultaneously producing value added, human welfare, and social equity. That economy ensures that people's lives are not in danger. Due to its economic activity, it lessens the adverse effects of one sector on another, ensuring a balance between the political, ecological, and economic aspects of the environment. The main goal is to use environmental resources sustainably and efficiently without using more than they can produce; examples of this include the need for increased human welfare, equity, resilience, and climate change adaptation. Additionally, the foundation of the Green Economy is the idea of qualitative growth that is, growth that doesn't jeopardise society. One example of this kind of growth is a system of production processes that uses environmentally friendly and low-carbon technologies. The private and public sectors' sustained growth in income and employment is also regarded as contributing to the green economy's decrease in pollution and carbon emissions.

According to Erkal, Şafak, and Yertutan (2011), the Green Economy framework advocates for a closer bond between the three pillars of sustainable development: environmental sustainability, sociopolitical sustainability, and economic sustainability. As a result, decisions made should presumably support environmental sustainability and a decrease in carbon

emissions even as economic activities those involving the production, distribution, and consumption of goods and services take place in an economy. Additionally, sustainable growth, the sustainable use of environmental resources, and sustainability from a sociopolitical perspective are all implied. Since there is mutual dependence among these three pillars of sustainable development, one cannot exist without the other. Nonetheless, the Green Economy demands that all three pillars of sustainable development be taken into account in order to prevent economic activity from adversely affecting social and environmental aspects and vice versa, thereby promoting environmental self-regeneration. It has also been realised that a green economy cannot be realised without adhering to a specific production process. Green growth was therefore put forth as a method for creating a green economy. Green growth and the realisation that a green economy has been achieved are the outcomes of an economy defined by environmentally friendly procedures and practices. It functions in a way that lessens environmental pressure and raises commodity prices (Callaghan, 2012). The Ministry of Green Economy and Environment is in charge of Zambia's government-led Green Economy programme. The country is supported by all ministries and departments of the government, and it works with several countries in the area, on the continent, and globally. There have been setbacks despite all the efforts Zambia's government is making to promote the green economy, especially in terms of the kinds of businesses that are still lagging behind in implementing policies like carbon sequestration or guaranteeing the reduction of carbon emissions (Matakala. , Kokwe and Statz, 2015).

The expected green growth has been impeded by this. Therefore, it is imperative to put environmental education into practice. It can change people's perspectives and show them that they are capable of making efficient use of natural resources, that they can engage in socially responsible economic activity, and that by banding together, a low-carbon economy can be achieved, ultimately leading to the growth and realisation of a green economy. To improve their environmental management strategy, organisations such as the Zambia Environmental Management Agency (ZEMA) will need to extend their horizons. They should put a lot of emphasis on education since it will help people understand the economic benefits of the environment, rather than just concentrating on issues related to mitigation, protection, and awareness. It is now necessary for them to correctly perform their jobs and responsibilities on the basis of merit without giving in to pressure from those in positions of political authority (Brown, 2015).

2.4 Environment Education and the Green Economy

After consultations with the International Environmental Education Movement, Agenda 21 acknowledged the role that education plays in establishing a sustainable economy. Protecting and conserving the environment, including natural habitats and ecosystems, is the main goal of the Environmental Education Platform, which was founded out of the concern that human development has seriously detrimental effects on the natural environment. Reducing poverty, advancing social justice, and enhancing people's quality of life are the goals of environmental education, just like other educational goals. It links local and worldwide actions and attends to basic human needs. Improving human well-being without endangering the environment is the main goal of education for sustainable development. One of the most important tools for creating a more sustainable world is high-quality education. This was highlighted in 2002 at the UN World Summit in Johannesburg, where it was stated that the transformation of the present educational systems was essential to sustainable development. The Summit focused on the significant connections between poverty, the environment, and the use of natural resources, which strengthened and expanded our understanding of sustainable development. Governments agreed to and reaffirmed a wide range of specific commitments and action targets to achieve more effective implementation of sustainable development objectives than previously thought, which was a significant accomplishment of the summit (Nevin, 2008). According to the UNESCO programme "Educating for a Sustainable Future," human development is predicated on economic growth because it acknowledges the close relationship between a "sustainable" economy and the preservation of natural resources as well as the fair distribution of those resources. Environmental education (EE) has therefore grown in importance as a means of guaranteeing sustainable development. According to UNESCO, ESD encompasses not only knowledge acquisition and issue understanding, but also the development of skills, values, and perspectives (Nhamo, 2014).

The goal of education for sustainable development is to help people acquire the values, knowledge, skills, and behaviours needed to build a sustainable world that upholds social justice, environmental preservation, and economic sustainability. The idea behind ESD originated primarily from Environmental Education, which aims to give people the knowledge, abilities, attitudes, values, and behaviours necessary to take care of their surroundings. ESD seeks to empower individuals to take actions and make decisions that enhance quality of life without endangering the environment. Incorporating the principles of sustainable development into all facets and educational levels is another goal (Ozdemir, 2007).

Environmental Education can be defined as the process of fostering individual environmental awareness; achieving sensible, positive, and consistent changes to the environment; safeguarding historical, natural, and cultural heritage; encouraging active participation; and taking control of problem solving. A society that is at war while remaining sustainable is the main topic. Environmental Education becomes significantly more relevant when environmental awareness is attained in this context. The grade at which this education should begin is the subject of discussion. The most important answer to this question is the education of humans as they age little. Therefore, the first step is family-related. The second is school and the environment. Environmental Education should be given to men during the education process and started during the preschool education period, continuing through the following stages until the end of their university education. However, even then, it should continue throughout life rather than from school (Tuncer and Erik, 1992).

2.4.1 Environmental Education and Efficient Use of Natural Resources

From the global perspective, issues of Environmental Education, especially in terms of efficient natural resource use, have been approached differently from those of different countries, of course, with various United Nations bodies, such as the United Nations Educational, Scientific and Cultural Organization (UNESCO); and many others, setting the pace through various global engagements, such as conferences and global strategic programmes, while believing that Environmental Education is vital for imparting inherent respect for nature among society and enhancing public environmental awareness (UNESCO, 2014).

Through various case studies on Environmental Education in effective natural resource use, various countries have proposed strategies for natural resource use. In 1989, DAFF (2010) alluded that the Australian Government announced the Decade of Land Care, which was to be carried out until 1996, and emphasized landscape-wide but local responses to challenges of national concern. Importantly, this globally remarkable initiative was the result of an unprecedented alliance between conservation (ACF) and farmer (NFF) lobbies (Curtis 2003). This alliance was launched in the wake of a dramatic drought in the early 1980s and on the information legacy of the Commonwealth-State collaborative soil conservation study of the late 1970s and the later consolidation of those data (Woods 1983). Support from the Australian Government for the ‘Land Care Model’ continued through the National Land Care Program (NLP) from 1990 to 1996 and then through 2008 as a sub-programme of the Natural Heritage Trust. There was significant enthusiasm for the vision of land care. Local groups were

encouraged to self-organize around land and water resource degradation, with limited short-term funding support. Within five years, there was a proliferation of local land care groups, expanding from 200 in 1989 to 2,200 by 1994 and as many as 4,000 groups were recorded in 1998, representing 30 percent of the farming community (Bryon and Curtis 2002). The case study from Australia demonstrates that informal Environmental Education can stimulate enthusiasm among community members to care for their natural resources and ensure that they are efficiently used.

Another case in point is the Darwin Initiative (DI), which was established in 1992 by the British Government at the Rio Earth Summit to assist countries rich in biodiversity but poor in resources in fulfilling their obligations with regard to the Convention on Biological Diversity (CBD, 1992, Defra, 2009). The scheme has an international reputation as a world-class programme promoting biodiversity conservation and sustainable resource use worldwide. The Rio Earth Summit was called by the United Nations (UN) to discuss ways to combat the intensifying biodiversity crisis, increasing rate of environmental degradation, and growing threat of climate change (UN, 1992). Five agreements were drawn up at the meeting, namely, the Rio Declaration of Environment and Development, Agenda 21, the Convention on Biological Diversity (CBD), Forest Principles, and the Framework on the Convention on Climate Change (UNFCCC). Of these agreements, two were legally binding, namely, the CBD and UNFCCC.

A study conducted by Börjesson and Karlsson (2016) examined the impact of environmental education on the efficient use of natural resources in Sweden. The study found that environmental education plays a significant role in increasing awareness and knowledge about conservation and sustainable practices among individuals. It also highlighted the importance of integrating environmental education into formal systems in order to promote lifelong environmental literacy. Similarly, in Norway, a study by Enger and Jensen (2019) explored the effectiveness of a nature school programme on the efficient use of natural resources. The results showed that participation in the nature school programme significantly enhanced students' understanding of environmental issues and their willingness to engage in sustainable behaviors. The study suggested that nature-based education programmes can be effective in promoting the efficient use of natural resources among young generations. A review by Shear and Sawchuk (2016) focused on the role of environmental education in the United States in promoting the efficient use of natural resources. The study highlighted that Environmental Education programmes, including school-based curriculum and community initiatives, can

enhance individuals' knowledge, attitudes, and behaviors towards conservation and sustainability. The review also emphasized the importance of active participation and experiential learning in Environmental Education to achieve long-lasting impacts. Research by Gruenewald (2004) examined the role of Environmental Education in Canada in promoting the efficient use of natural resources. The study indicated that Environmental Education plays a crucial role in fostering a sense of environmental responsibility and promoting sustainable practices. It emphasized the need for interdisciplinary approaches and community engagement in Environmental Education to address complex environmental challenges and stimulate positive behavioral changes. A study conducted by Mizutani (2015) in Japan reveled almost similar findings showing that Environmental Education programs in schools significantly improved students' knowledge about conservation, resource management, and sustainability. In India, a study by Tiwari and Gopal (2018) explored the role of environmental education in promoting the efficient use of natural resources. The research demonstrated that environmental education initiatives, including awareness campaigns, eco-clubs, and sustainability-focused curriculum, positively influenced attitudes and behaviors towards resource conservation. The study highlighted the need for governmental support and policy integration to enhance the effectiveness of environmental education programs in India. These case studies were found to be profound indeed, but they all spoke to the formal educational context unlike green economy and green transitioning issues.

Despite the high rate of resource degradation by developed countries, the African continent is the only continent still boasting most of its indigenous natural resources. There is a great threat to Africa’s natural resources, leading to the continent not being left out as regard to continental participation in preserving the environment and its resources. There are various Environmental Education activities taking place in Africa today either collectively or through individual countries (Milupi., Mweemba. and Mubita. 2022).

In Ghana, the practice of multi-stakeholder dialogues for effective natural resource governance has slowly resulted in the development of resource management policy based on consensus among stakeholders at the community, district and regional levels. Policies initiated from this approach, such as the modified Taungya system and artisanal timber milling, have had significant positive impacts on reducing conflicts and illegalities in forestry (McKeown *et al.* 2013). Botswana, Namibia, Burkina Faso, Tanzania and Zimbabwe have individually developed community forestry programs where different communities, with the help of other stakeholders, have established forest management objectives. The communities are able to

achieve these goals and improve their welfare with the help of incentives and training from the government and NGOs, which lowers their propensity to engage in illegal activity and associated insecurities. (Chitotombe, 2012).

In addition, after revising the nation's educational policy, the Botswanan government made Environmental Education mandatory in secondary schools in 1994. This action was taken to combat environmental degradation, which has worsened and is under pressure due to improved economic development and population growth in the nation (Silo, 2015). Through this initiative, Environmental Education has made it possible for youth to learn new skills, knowledge, and values, which has led to a protective attitude toward how they use the environment's resources. Environmental Education has increased individual accountability and dedication to conservation efforts as motivated action to support environmental sustainability ethics and values (Kanene, 2016).

The Kimberley Process Certification Scheme (KPCS) and the Publish What You Pay (PWYP) initiatives continue to monitor resource extraction activities, and UNEP's International Resource Panel (IRP) is steadily developing an understanding of global resource flows and the need to decouple economic growth from rates of resource extraction. However, for the aforementioned programs and others such as the Natural Resource Charter (NRC) (www.naturalresourcecharter.org) and the AMV to truly help Africans as a whole, there is a "need for greater ownership and buy-in by African citizens and greater policy space for countries to regulate and monitor resource extraction for the benefit of their populations," according to the report (Africa-Canada Forum, 2013).

From the Zambian perspective, there have been many initiatives that are environmentally sound and developmental in nature; these initiatives were carried out as early as 1985 when the Zambian cabinet adopted the National Conservation Strategy (NCS) as a pioneer mainstreaming process whose aim was to handle issues of conservation and development. The main focus of this strategy was, among other things, to promote the environment as a positive foundation for development. Previous environmental initiatives tended to focus on preserving nature from the impacts of development. It involved an early multisector, multidisciplinary assessment and planning process, such as drawing on government-wide consultation and placing business, NGO and scientific inputs on an equal footing with the government. In the past, multisector work has been restricted mainly to the planning of national development. The groundbreaking World Conservation Strategy from 1980, created by the UNEP, WWF, and

IUCN, was incorporated into the strategy as one of the first national conservation strategies in the world, translating its principles into Zambia-specific plans and policies. The issues surrounding national development policy had not previously been brought up to the level of environmental group concern. NCSs contributed to the promotion of the three ecological development principles of biodiversity protection, ecological process preservation, and sustainable use of natural resources (Aongola. 2009).

This strategy led to the identification of two emerging local exercises as pilot projects in an NCS development plan, namely, the Luangwa Integrated Resource Development Project (LIRDP), which promotes the sustainable use of wildlife, and the Human Settlements of Zambia project, which involves the use of environmentally sound squatter self-help in the slums of Lusaka. These factors helped to restructure local economies to build on sound natural resource use and to enable communities to claim and effectively manage environmental assets under their control (Aongola. 2009).

The Fifth National Development Plan is another initiative that Zambia carried out in its approach toward efficient natural resource use. The survey was used as an introduction to the new entry points for the environment. In the (FNDP) the country through its theme broad-based wealth and job creation through citizen participation and technological advancement'. The aim was to approach and achieve economic development through four main economic pillars, namely, agriculture, tourism, manufacturing and mining. As the title of the publication suggested, it was believed that the environment is key to creating and protecting that wealth, especially given that each of these four sectors has strong environmental foundations. The FNDP provided a chapter on the environment and recognized environmental problems (FNDP 2006).

Furthermore, Environmental Education in Zambia is used to enforce activities such as "keeping Zambia Clean and Green Campaigns where issues related to waste management are considered matters of priority. Citizens are educated through these programs on the need to live in a clean and green environment, subsequently leading to sustainable living. Although the time allocated to these programs is limited, the difference can be seen as compared to when the program was introduced. Environmental articles in print media and environmental programs aired on radio and television during news times where a segment of environmental awareness was spared on national television are signs of the country's commitment to Environmental Education.

Other activities, such as the formation of clubs in schools such as the Chipembele and Chongololo clubs on world life-related issues as well as the Mundawanga Botanical Gardens, where people are free to go and learn more about Environmental Education, constitute another commitment toward the protection of the environment. Although not directly referred to as environment education at the primary level in schools, Environmental Education does exist where pupils learn about environment-related issues in science and social studies. At the high school level, environmental issues are taught in geography and biology. At the university and college levels, the University of Zambia main campus currently offers environmental courses in the School of Natural Sciences, Department of Geography and School of Education, which have designed a special program that concentrates on Environmental Education with the hope of increasing environmental awareness programs in the country (GRZ 2017).

The programs are meant to disseminate environmental knowledge to the people of Zambia so that they can begin to appreciate environmental sustainability. It is quite unfortunate that despite all the activities mentioned, Zambia has continued to face environmental problems. The major problem worth pointing out is that the people at the grassroots level who account for a larger group are not fully involved, and they are ignorant of environmental issues and hence have a negative attitude toward some of these programs. It is imperative to acknowledge that organizers of these activities ought to develop better strategies to ensure that these programs are developed as they start at the community level. There has been a lack of information from other researchers, such as Kangwa (2008), on how and at what stage people at the grassroots level are involved during the planning stages of Environmental Education programs (Kangwa 2008).

The reviewed studies show the inherent potential of Environmental Education in fostering behavioral change that promotes efficient use of natural resources. Notwithstanding that, their focus was so much on educational setting unlike broad government agenda such as promoting green growth.

2.4.2 Environmental Education and Social Inclusivity

Silver (2015) refers to social inclusion as a process that promotes social interaction between people who have various socially relevant characteristics; alternatively, social inclusion can be an impersonal institutional mechanism that allows people to participate in all facets of social life. She claimed that her own definition of social inclusion is a multidimensional, relational process that entails improving social participation opportunities; enhancing social roles that are

normatively prescribed; extending the scope of respect and recognition; and, at the collective level, enhancing social ties, cohesion, integration, or solidarity.

According to Dugatova (2015), the idea of social inclusion, also known as social integration or social cohesion, represents a vision for "a society for all" in which every person has rights and responsibilities and an active role to play. He further suggested that achieving an inclusive society that respects human rights, cultural diversity, democratic governance, and the principles of equality and equity is one of its universal goals. All groups, especially marginalized groups, are able to participate in this process because it allows citizens to participate in activities that affect their lives. As a result, it guarantees the eradication of all forms of exclusion, the attainment of social justice, and cohesion. He continued by saying that one should be aware of the multifaceted nature of "inclusion": inclusion of whom (social groups or communities), inclusion of what (goods, services, resources), inclusion into what (labor market, welfare system, or space, whether physical, political, social, or cultural), how (equally, fairly, voluntarily or involuntarily), for what purpose, and on what terms, and caution is needed regarding the terms on which social inclusion is carried out. The challenge for policy is to ensure that social norms in a society promote fair opportunities and guarantee equitable outcomes for all. In all this education plays a role in knowledge and awareness acquisition where once people are equipped, they will be able to participate in various activities.

For a number of studies that were reviewed at global scale, it was noted that Environmental Education plays a pivotal role in promoting social inclusivity by fostering an understanding of environmental issues and engaging diverse communities in meaningful ways. Environmental Education initiatives have the potential to promote social inclusivity by addressing social, economic, and environmental disparities. By engaging diverse communities in learning about environmental issues, Environmental Education programs can foster social inclusivity and equity. In their study, Davis and Benn (2019) emphasize the importance of creating inclusive Environmental Education practices that cater to the needs of individuals from different social and cultural backgrounds. They argue that incorporating diverse perspectives in Environmental Education can promote social inclusivity and enrich the learning experiences of all participants.

A study by Öhman and Öhman (2017) investigated the role of environmental education in promoting social inclusivity as a principle of the green economy in Sweden. The research emphasized that environmental education should address social inequalities and ensure equal access and participation for all individuals, regardless of socio-economic background. It

highlighted the potential of environmental education to foster inclusive and sustainable societies by empowering marginalized groups and promoting social justice. The only challenge with this study was lack of practically implemented cases. Jensen and Schnack (2019) did a study in Norway, which also examined the impact of environmental education on social inclusivity. The research highlighted the potential of environmental education programmes to break down socio-economic barriers and engage individuals from diverse backgrounds in sustainability initiatives. It emphasized the need for participatory approaches and collaboration with marginalized communities to ensure the inclusion of all voices in green economy transformations. This study simply showed that, an environmentally educated society is crucial towards achieving social inclusivity within the green economy framework. A case study from the United States by Hamlin and Alpern (2016), Chawla (2015) furthermore highlight similar perspectives with emphasis on the importance of culturally relevant and place-based approaches in environmental education to engage diverse groups and foster inclusive green economies. In Canada, a study by Orr and Simpson (2019) highlighted the potential of environmental education to empower communities, including indigenous peoples and marginalized groups, to participate in decision-making processes regarding environmental issues especially those that may potentially promote inclusivity towards green transitioning. It underlined the importance of incorporating indigenous knowledge and perspectives into environmental education to promote cultural diversity and social inclusivity. This resonates with a study by Fujioka and Inoue (2017) Basu and Mitra (2020) whose studies in Japan and India, respectively emphasized the role of environmental education in raising awareness about social inequalities and empowering individuals to take active roles in addressing environmental and social challenges. It highlighted the importance of community-based initiatives and citizen participation in environmental education to promote inclusivity and sustainable development. demonstrated that environmental education programmes can empower marginalized communities, including women and low-income groups, by providing them with knowledge and skills to engage in sustainable practices. The Indian case study specified a gender-sensitive and community-driven approaches in environmental education to promote social equity and inclusiveness within green economies.

Moreover, according to Heimlich and Ardoin (2008), Environmental Education can contribute to social inclusivity by providing opportunities for individuals from different social groups to engage in collaborative problem-solving and decision-making processes related to environmental issues. This collaborative approach fosters inclusivity by valuing and integrating

diverse perspectives, thereby promoting social equity and understanding. The literature suggests that inclusive educational strategies are essential for promoting social inclusivity through Environmental Education. In their research in Australia, Johnson and Stevenson (2017) demonstrated that employing culturally responsive teaching methods in Environmental Education can enhance the engagement of marginalized communities, thereby promoting social inclusivity. By integrating culturally relevant content, incorporating diverse teaching methods, and valuing the knowledge of all participants, educators can create inclusive learning environments that cater to the needs of diverse communities.

Sipos, Battisti, and Grimm (2008) study in Canada argues that community-based Environmental Education initiatives that involve local stakeholders can contribute to social inclusivity by empowering community members to participate in environmental decision-making processes. By collaborating with diverse stakeholders, including community leaders, educators, and policymakers, Environmental Education programs can address the needs and concerns of underrepresented groups, thus promoting social inclusivity and equity. Additionally, Mikkelsen (2015) underscores the role of participatory action research in promoting social inclusivity through Environmental Education. Participatory action research engages community members in the research process, allowing them to contribute their knowledge and experiences to address environmental issues collectively. By involving individuals from diverse backgrounds in research and decision-making, Environmental Education programs can promote social inclusivity and empower communities to advocate for environmental justice and sustainability.

While the literature highlights the potential of Environmental Education for promoting social inclusivity, it also acknowledges the challenges and opportunities associated with this endeavour. For instance, Zelezny, Chua, and Aldrich (2000) in their Russian case study identified the need to address power dynamics and social inequalities within Environmental Education initiatives to promote genuine social inclusivity. They argue that recognizing and mitigating power differentials among participants is crucial for creating inclusive learning environments that value diverse perspectives and experiences.

Furthermore, O'Toole and Castillo (2016) highlight the importance of place-based education in promoting social inclusivity among selected countries in West Africa. They argue that place-based Environmental Education, which focuses on local environmental issues and community engagement, provides a platform for inclusive learning and fosters a sense of belonging among

diverse community members. By connecting individuals to their local environments and involving them in meaningful environmental projects, place-based education can promote social inclusivity and empower communities to address environmental challenges collectively.

While studies from Zambian context proved to be difficult to come by, there were similar studies by Namafe and Muchanga (2019); Muchanga and Nakazwe (2015); whose studies advocate for inclusion of environmental education, ESD and green concepts into the formal and informal settings. Research in Zambia has focused on sustainable development and social inclusivity in various sectors, such as agriculture, energy, and natural resource management. These studies emphasize the importance of social inclusivity in achieving sustainable development goals and addressing social justice issues. For example, Chomba and Bond (2020) explored the challenges and opportunities of social inclusivity in Zambia's agriculture sector. They highlighted the need for inclusive agricultural policies and practices that promote the active participation and empowerment of small-scale farmers and marginalized groups. Research in Zambia also focuses on community engagement in environmental conservation efforts, acknowledging the importance of social inclusivity. For instance, Muzumi and Chonde (2019) examined the role of community-based natural resource management in Zambia, highlighting the need for inclusive decision-making processes and equitable benefit-sharing to ensure social inclusivity. In the context of sustainable energy access, research in Zambia explores social inclusivity by examining the barriers faced by marginalized communities. For example, a study by Kabisa *et al*. (2019) investigated the social inequities related to energy access in the rural areas of Zambia. It underlined the need for inclusive and affordable energy solutions to address energy poverty and promote social inclusivity. The current study strengthens the earlier studies' shortcoming by specifically speaking to green economy and green transitioning agenda from Environmental Education perspective.

2.4.3 Environmental Education and the Low Carbon Footprint

Environmental Education plays a crucial role in shaping public awareness, understanding, and action toward achieving a low-carbon economy. This review synthesizes the literature to explore how Environmental Education can be effectively utilized to advance the transition to a low-carbon economy. By providing specific examples and insights from various studies and reports, this review demonstrates the significant impact of Environmental Education in driving sustainable behavioural change, promoting renewable energy adoption, and fostering a culture of environmental stewardship. Environmental Education is an influential tool for raising

awareness about climate change and is imperative for reducing carbon emissions (Misra and Verma, 2015).

Research indicates that increasing public awareness and understanding of environmental issues through education is crucial for motivating individuals and communities to take action toward sustainability (Lysgaard, Klitkou, and Madsen, 2017). This awareness serves as a catalyst for behavioural change and can influence energy consumption patterns, transportation choices, and consumption habits—all of which contribute to carbon emissions.

Moreover, comprehensive Environmental Education initiatives have been shown to enhance public understanding of the interconnectedness between human activities and environmental impacts (Wals and Jickling, 2002). This interconnectedness is critical in fostering a sense of responsibility and promoting sustainable behaviours that contribute to a low-carbon economy as illustrated by Wals and Jickling (2002) in their Canadian case study. By integrating hands-on learning experiences, interdisciplinary approaches, and real-world applications, Environmental Education can effectively convey the complex relationships between human actions and their environmental consequences. In addition to raising awareness, Environmental Education plays a pivotal role in promoting the adoption of renewable energy technologies and sustainable practices. Studies have highlighted the positive impact of educational programs on increasing public engagement and support for renewable energy projects (Pillan, Costa, and Caiola. 2023). From the European Union (EU) context, Pillain *et al.* (2023) suggest that by providing information about the benefits of renewable energy, such as reduced carbon emissions and improved air quality, Environmental Education can facilitate the transition from fossil fuels to renewable energy sources.

Furthermore, educational interventions targeted at various stakeholders, including students, businesses, and policymakers, can drive the implementation of low-carbon technologies and practices. For example, a case study from East Africa by Pujol *et al*. (2015) also demonstrated that educational programmes can equip professionals with the knowledge and skills to integrate sustainability principles into business operations can contribute to the widespread adoption of energy-efficient practices and renewable energy solutions. Similarly, educating policymakers about the economic and environmental benefits of low-carbon initiatives can lead to the development of supportive policies and incentives for renewable energy deployment.

Beyond the individual and organizational levels, South African case study shows that Environmental Education also plays a crucial role in cultivating a culture of environmental

stewardship and collective responsibility for achieving a low-carbon economy. By instilling values of sustainability, equity, and environmental justice, education can foster a societal shift toward more conscious consumption patterns and proactive environmental management (Sterling, 2001). This shift is fundamental in building resilient communities and promoting sustainable development pathways that prioritize low-carbon strategies. This connects with another study by Rickinson *et al*., 2004 in Libya where it was noted that, community-based Environmental Education programmes have been effective at mobilizing local stakeholders to implement renewable energy projects, develop sustainable infrastructure, and advocate for policies that support low-carbon development. Scally *et al*. (2019) confirmed that this community-led approach not only contributes to carbon reduction at the local level but also strengthens the social fabric and encourages broader participation in sustainability initiatives.

In Zambia, a study by Mwape and Kabali (2012) emphasizes the importance creating awareness about carbon emissions and promoting the adoption of carbon-efficient practices among individuals and communities in Zambia. The study highlights successful initiatives and provide recommendations for future strategies emphasizing the need for environmental education. In another research conducted by Kambole and Mulenga (2015), the influence of education on the adoption of carbon-efficient practices in rural areas of Zambia was investigated. The study found that individuals who received environmental education were more likely to adopt practices such as energy-saving measures and sustainable agricultural techniques. Similarly, Banda and Ngoma (2018) examined the impact of environmental education initiatives, such as workshops and community outreach programs, on carbon efficiency in urban areas of Zambia. They noted that these initiatives significantly influenced individuals' behavior, leading to the adoption of carbon-efficient practices in their daily lives. Hamudikuwanda *et al*. (2020) explored the role of climate change knowledge and perceptions in the adoption of carbon-efficient techniques among smallholder farmers in Zambia. The findings from this study suggest that improving environmental education and knowledge about climate change can facilitate the adoption of carbon-efficient practices.

Overall, all studies from various geographical contexts highlight the importance of environmental education in creating awareness, influencing behavior, and promoting the adoption of carbon-efficient practices in various settings in Zambia. From global, continental and national contexts, Environmental Education plays a multifaceted role in advancing the transition to a low-carbon economy. By raising awareness, promoting renewable energy adoption, fostering sustainable behaviours, and cultivating a culture of environmental

stewardship, education serves as a catalyst for sustainable development and emissions reduction. As highlighted by the literature, comprehensive and targeted Environmental Education initiatives are essential for building the knowledge, skills, and motivation necessary to achieve a low-carbon economy.

2.5 Mainstream approaches to Addressing the Green Economy and Growth and their Shortcoming

There are no unique definitions of the words "green economy" or "green growth", but the terms underscore the economic dimensions of sustainability. They respond to the "growing recognition that achieving sustainability rests almost entirely on getting the economy right". Moreover, economic growth and environmental management can be complementary strategies. The UNEP defines a green economy as one that results in improved human well-being and social equity while significantly reducing environmental risks and ecological scarcities (UNEP 2011), and the OECD defines green growth as fostering economic growth and development while ensuring that natural assets continue to provide the resources and environmental services on which our well-being relies (OECD 2015).

The concepts are economic models that emphasize low carbon, resource efficiency, and social inclusiveness and focus on accelerating investments and innovations that will underpin sustainable development and provide new economic opportunities. To fully achieve a green economy and growth, there should be a strong government support system through public expenditure and policy reform formulation that aligns with the new intended objectives, which include growth, income and job creation. The approach in these concepts is that economic activities such as growth in income and creation of employment should be driven by both public and private investments that aim at reducing carbon emissions and a pollution-free society, enhancing energy and preserving biodiversity and ecosystem services. This investment advocates for new sectors and technologies that will be the main sources of economic development and growth in the future. Investments in renewable energy technologies, resource and energy efficient buildings and equipment, low-carbon public transport systems, infrastructure for fuel efficient and clean energy vehicles, and waste management and recycling facilities are part of what the Green Economy and Green Growth agenda entails. The green economy further complements heavy investments in human capital, which includes greening-related knowledge, management, and technical skills, to ensure a smooth transition to more sustainable development (UNEP, 2011).

Much as transitioning toward a green economy and green growth will in the long run generate long-term economic benefits, it is evident that such a shift involves risks and costs. The mayor fact that the world is literally unsustainable right now in the way it operates, at all scales and dimensions, is a shortcoming on its own, and this is the starting point towards trying to attain a green economy. The lack of public and private funding needed to invest in various sectors, such as new technological or industrial revolution, to achieve the intended objectives has become a challenge, especially in third-world countries. Furthermore, challenges to changes in consumption and production patterns and lifestyles resentment to change by people who feel that their interests may be compromised or threatened add to the long list of shortcomings.

2.6 Research Gap

From the literature reviewed, there is no research which focused on contextualizing Environmental Education within the green economy and growth agenda particularly in Lusaka district of Zambia. Furthermore, all the information which has been reviewed relates to the foreign countries, there is no clear information on contextualizing Environmental Education within the green economy and growth in Zambian contexts, particularly on the current situation. Thus, this research seeks to contribute to this knowledge gap which exists in the literature.

2.7 Chapter Summary

The review of literature in this chapter covered most of the major aspects relating to contextualizing Environmental Education within the green economy and growth agenda in Lusaka, Zambia. The objective of Environmental Education is focused on the relationship and impact of humanity on the environment and turning the relationship into an economic advancement. The literature has reviewed worldwide that through Environmental Education, education for sustainable development is a great tool for achieving a green economy and sustainable development. Through the efficient use of natural resources, Environmental Education imparts knowledge on how to use the earth's limited resources in a sustainable manner while minimizing impacts on the environment. Further social inclusivity is a process that encourages individuals and groups of people to be part of economic activities occurring in societies, regardless of their gender, age, colour, race, religion or ethnicity. The low-carbon economy is an economic paradigm whose focus is on low-carbon emissions, a pollution-free environment and the encouragement of alternative energy sources to fight climate change and make our society a better place to live in.

CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Overview

Chapter two described relevant literature. The purpose of this chapter is to describe the research methodology used to collect and analyse the data. It explains the main research design that was used in this study and the reasons for adopting it and the philosophical assumptions that guided the study. Also covered in this chapter are the study area, study population, research design, sampling design, sample size, methods and tools of data collection, data analysis, data quality check and trustworthiness and ethical considerations.

3.2 Philosophical Basis of the Study

Research design refers to perspectives, plans and techniques a researcher uses to accomplish a study's goals (Padgett, 1998). According to Yin (2002), the philosophy or logic connects the data to be gathered and the conclusions to be made to the study's original questions. This study attempted to address three philosophical research opinions as outlined by Karangwa (2006) and Mertens (2003). These are the epistemological position, that questions the nature of knowledge to be captured. Epistemologically, events related to environmental education are understood through the mental processes of interpretation that is influenced by interaction with social contexts. The researcher and participants process socially construct knowledge by experiencing the real life or natural settings within the institutions and encourage more personal, interactive mode of data collection.

Ontologically the nature of reality and truth in the field is investigated. This entails that there are multiple realities when dealing with issues related to environmental education. When dealing with environmental education, green economy and growth, there is need to discover how personnel in various institutions make sense of their social worlds in the natural setting by means of daily routines, conservations and other related activities while interacting with others around them. The methodological position, of the study is to seek the means by which a person with expertise obtains the desired knowledge and understanding. This can be achieved through processes of data collected by interviews, focus group discussion, and observations. The study used a qualitative technique to achieve the research positions mentioned above (Creswell, 2009). By using interpretivist as its scientific perspective, the study aimed at constituting a methodology that embraces qualitative methods to the study.

3.2.1 Interpretivism

Interpretive researchers believe that reality is people's subjective experiences of the outside world; as such, they may adopt an inter-subjective epistemology and the ontological belief that reality is socially constructed. According to Gephart (1999), interpretivists hold that there is no objective knowledge that exists outside of thinking, reasoning humans because they believe that meaning and knowledge are acts of interpretation. Walsham (1993) further argues that in the interpretive tradition, theories should be evaluated based on how "interesting" they are to the researcher, rather than being considered "correct." Through a thorough analysis of the phenomenon of interest, they try to derive their constructs from the field. Consciousness, and shared meanings are examples of social constructions that provide interpretive researchers with their only means of accessing reality, whether it be given or socially constructed (Myers, 2009). The observation and interpretation processes that support the interpretive paradigm involve gathering data about events and giving that data meaning through inferences or quantitative comparisons with an abstract pattern (Aikenhead, 1997).

It looks at the interpretations that people give to phenomena in an effort to comprehend them (Deetz, 1996). Understanding the world through people's subjective experiences is the interpretive paradigm's main goal. They employ subjective relationships between the researcher and subjects in meaning-oriented methodologies like participant observation and interviews. Kaplan and Maxwell (1994) state that interpretive research concentrates on the entire complexity of human sense making as the situation emerges rather than predefining dependent and independent variables. The interpretive method seeks to clarify the individualised motivations and interpretations underlying social action. Interpretivism, according to Burrell and Morgan (1979), is actually a broad family of different paradigms rather than a single paradigm. Hermeneutics and phenomenology form the philosophical foundation of interpretive research (Boland, 1985). The central tenet of hermeneutics is that all human understanding arises from a process of repetition in which the interdependent meaning of the parts and the whole that they form are considered. The field of modern hermeneutics includes not only problems with written texts but also all aspects of the interpretive process, such as pre-suppositions and pre-understandings, as well as verbal and nonverbal forms of communication.

3.2.2 Rationale for choice of the Interpretivism Paradigm

For this study, the interpretative paradigm was used to make the investigation's structure and methodological decisions more understandable. Interpretivists argue that reality can only be fully understood by subjective interpretation and intervention. A fundamental component of interpretivist philosophy is the observation that researchers cannot completely escape having an impact on the phenomena they study, nor should they deny the importance of studying phenomena in their natural settings. There may be a variety of interpretations of reality regarding Environmental Education, green economy and growth, but these interpretations are part of the knowledge being pursued. The fact that different institutional environments may have different interpretations of Environmental Education, green economy and growth makes interpretivism a useful paradigm.

The interpretivism paradigm makes sense for this study on contextualizing Environmental Education within the green economy and growth, with a variety of realities. According to this paradigm, people's subjective experiences institutional structures will be used to understand the contributions that Environmental Education can make towards achieving green economy and growth in Lusaka, Zambia. In one institutional setting, what is deemed as Environmental Education's role towards green economy and growth might not be in another. Ernest (1994) supports this by arguing that interpretivism holds that various people see social reality, and these various people interpret events differently, resulting in multiple perspectives of an incident.

The direct experience of the people is one of the main tenets of interpretivism. This suits a study on Environmental Education, green economy and growth because information has to really come from the personnel in the targeted institutions, because they have direct experience. Moreover, the role of the interpretivist paradigm is to understand, explain and demystify social reality through the eyes of different participants, in this case, officials of different institutions that was sampled within Lusaka district.

3.3 Study Area

The study was undertaken in Lusaka district, Lusaka Province of Zambia as shown in Figure 2. Its central geographical coordinates are 15°32′0″ S and 28°12′0″ E (Figure 2). It lies on a plateau in the south and west at an altitude of 1200 m above sea level (masl) that increases gently to 1300 masl toward the north and east. Lusaka is the country's capital city of Zambia. The city is also the political, cultural, and economic center of the country and the home town of

the central government. According to Msabila and Nalaila (2013), there are many motivating factors that could influence the researcher's choice of study site. The Lusaka district was chosen as the site for this study because of its central location and multicultural society in nature where almost all types of lifestyles are represented. The newly created Ministry of Green Economy and Environment was targeted as the center of information in line with the study, and its presence is still primarily in Lusaka city, hence forming the other reason for choosing Lusaka city. The University of Zambia offers courses such as Environmental Education, and the researcher was able to find it more convenient to interview lecturers and students. The industrial area is home to a number of private companies and nongovernmental organizations; hence, it was able to contribute to the information that was needed in the study. The study area was more accessible because it was the researcher's place of residence, which made it more convenient, especially from an economic perspective.

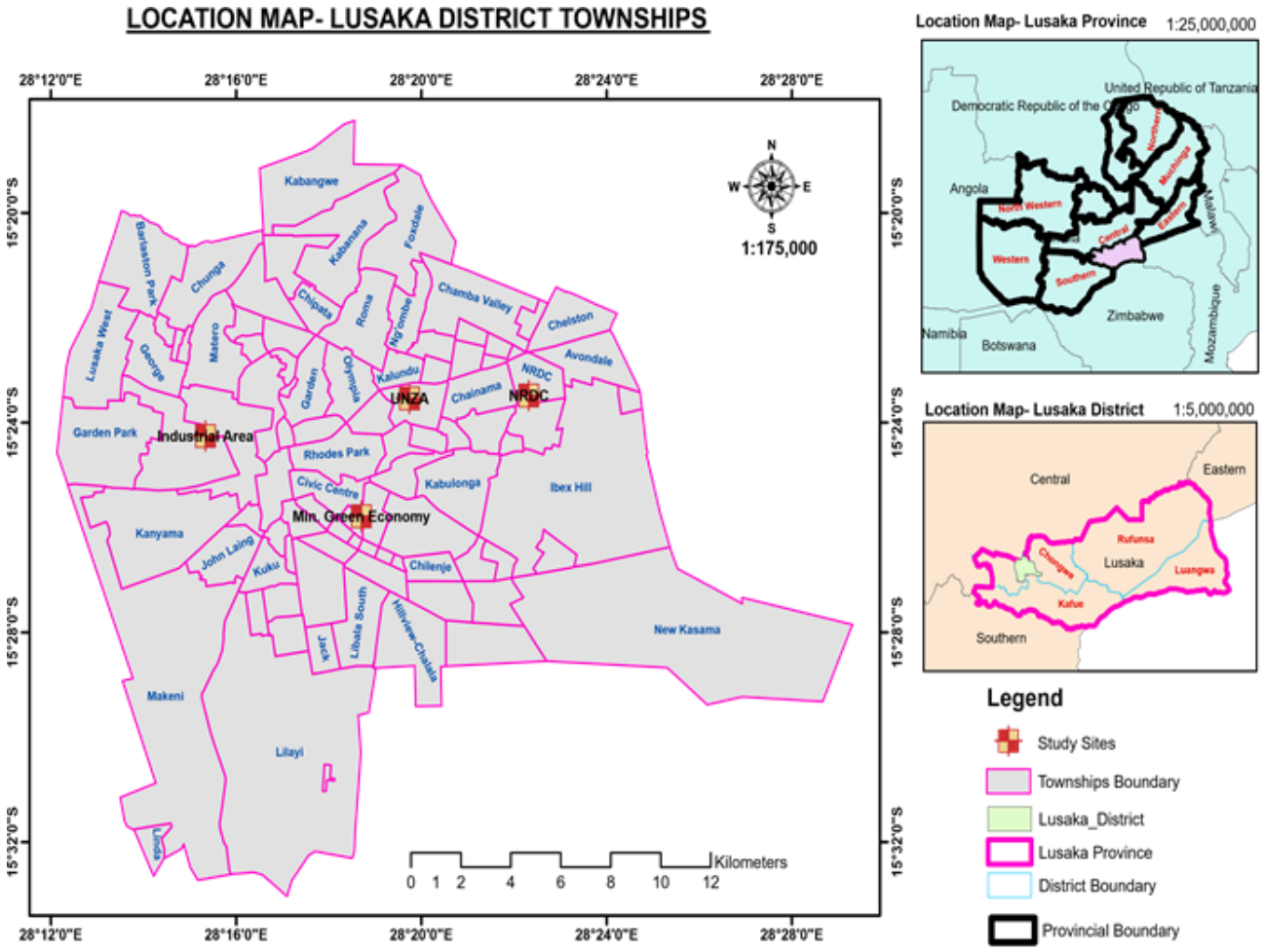

Figure 2: Shows the location of Lusaka district and Zambia in the region.

(Source: M. Ziwa, 2023).

3.4 Study Population

Explaining the study's target population at this point is appropriate. Study population is referred to as the group of people with shared characteristics that allow for statistical inference to be drawn about them. A group of elements or cases, whether they be people, things, or events, that meet particular criteria and about which the researcher hopes to generalize the results is referred to as a population (Newby, 2010, cited in Mulenga, 2015). A population is defined as the complete collection of items, occasions, or individuals that are the subject of a study and about which the researcher hopes to ascertain certain characteristics (Kombo and Tromp, 2006). According to these criteria, all lecturers at the University of Zambia's Department of Environmental Education, all specialised staff members at the Ministry of Green Economy and Environment, all staff members in the environmental department at Community Markets for Conservation, all staff members at Green Cosmos Zambia, and all fourth-year University of Zambia's Department of Environmental Education students from 2024 became the study's target population.

3.5 Research Design

Research design is a formal plan of action for a research project. The research approach for this study was qualitative approach whose specific research design was hermeneutic phenomenology. According to Kombo and Tromp (2013), a research design is used to structure the research to show how the entire research project will work together to address the central research questions. Msabila and Nalaila (2013: 27) argues that a research design will typically include how data is to be collected, what instruments will be employed, how the instruments will be used and the indented means of data for data analysis. Mouton (1996: 175) states that a research design serves to "plan, structure and execute" the research to maximise the "validity of the findings". It gives direction from the underlying philosophical assumptions to research design and data collection. Muzumara (1998:46), defines research design as …the organisation, plan, or procedure by which an investigator intends to answer research questions. The design is also intended to control errors of procedures and interpretation: the structure of the design specifically delimits the kind of observations which can be made, the persons from whom data can be collected, and the kind of analysis it is possible to make within the framework and the form of the data.

3.5.1 Qualitative Approach

The primary methodology in this study was qualitative. To adequately address the research questions about contextualising environmental education within the green economy and growth agenda in Lusaka, Zambia, a qualitative approach was used. Leedy and Ormrod (2005:133) state that "we cannot skim the surface to answer research questions." To fully comprehend the phenomenon we are studying, we must delve deeply. In qualitative research, we really go deep: we gather a variety of data sources and analyse them from different perspectives to create a comprehensive and insightful picture of a complicated, multifaceted situation". Qualitative research is described by McMillan and Schumacher (2001:395) as an investigation in which researchers gather data in person by engaging with specific individuals in their environments. Additionally, Smith (1987:175) points out that the foundation of qualitative research is the idea of context sensitivity. The social context in which individuals find themselves has a significant impact on their thoughts and behaviours, which sets it apart from other types of research. It was also envisaged that study participants would discuss their opinions, sentiments, and views regarding environmental education, the green economy, and growth with the researcher. Because this study is naturalistic, qualitative research was employed.

This means that the study aims to examine various participants' daily activities in various sampled institutions as they would occur naturally; studying environmental education issues and procedures is especially beneficial. Making sense of, or interpreting, phenomena in terms of the meaning people assign to them is the goal of interpretive, naturalistic research (Denzin and Lincoln, 2003). Since there is little information available about the problem, Domegan and Fleming (2007) state that the goal of qualitative research is to explore and uncover issues related to the problem at hand. Concerns regarding the nature and scope of the issue are typically unclear.

Qualitative research obtains "rich" data by using "soft" data. This supports the claim made by Myers (2009) that the goal of qualitative research is to better understand individuals and the social and cultural environments in which they live. These investigations enable the exploration and representation of the intricacies and distinctions of the worlds being studied (Philip, 1998: 267). The qualitative method was chosen because it gave the researcher flexibility in terms of knowledge claims, inquiry techniques, and data collection and analysis procedures (Creswell, 2003). Sources of qualitative data include participant observation and observation in the field, interviews, documents, texts, and the researcher's perceptions and

responses (Myers, 2009). As a result, the researcher found it manageable to obtain data through written interviews, and focus group discussion (Sprinthall, Schmutte, and Surois, 1991: 101). The researcher is regarded as the main tool for gathering and analysing data in qualitative studies. As both the researcher and the participants create their own realities, the researcher engages the situation and makes sense of the various interpretations. Multiple realities exist in any given context. In order to study real-world situations as they naturally develop without predetermined constraints or conditions that control the study or its outcomes, she or he tries to collect data in a non-interfering manner.

Merriam (1998: 23) states that the researcher interacts with the situation most of the time without following an observation schedule and actively participates in creating an understanding of the research environment by interpreting what they observe for themselves. As a result, the output of qualitative research is an interpretation of other people's perspectives that the researcher has filtered through his or her own.

3.5.2 Rationale for a Qualitative Study

As a study participant, the researcher carried out the procedures that shaped these experiences and the descriptive data analysis that followed. As a result, the qualitative approach provided rich narrative accounts of the phenomena being studied and allowed the researcher to consider participant perspectives, the nuances of intricate group dynamics, and various interpretations within the group's natural setting. The researcher determined that an inductive analysis of data, a qualitative description of the experiences of stakeholders in the green economy and growth, and environmental education were best suited for this research because they all increased the possibility of objectivity, which would have been lost if experimental or quantitative strategies had been used. The use of the qualitative approach allowed the researcher to identify a number of factors pertaining to the contextualization of environmental education within the green economy and growth agenda in Lusaka district, Zambia. Numerous academics contend that qualitative data is the most effective way to study human learning (Domegan and Fleming, 2007; Henning *et al,* 2004; Denzin and Lincoln, 2003; Richardson, 1995). Choosing a research methodology should consider that "it is proper to select that paradigm whose assumptions are best met by phenomenon being investigated," according to Guba (1981: 76). It is also widely acknowledged that process is more important to qualitative researchers than results or products alone. The qualitative approach was more suitable in this study's context than the quantitative designs because it offered the understanding that was needed.

3.6 Sampling Design

Sampling design according to Creswell (2014), is a plan that explains how the participants for the study will be selected from the population. The study adopted a nonprobability purposive sampling design based on its ability to empower the researcher to come up with participants he felt could contribute to the study based on his judgement. Patton (2002) argues that the researcher targets a group of people believed to be reliable for the study and people with reliable information or data. Non-probability purposes sampling is more convenient and select only those individuals that are relevant to research design and somewhat less costly, more readily accessible, Besides this, there is no way to ensure that the sample is truly representative of the population, and more emphasis is placed on the ability of the researcher to assess the elements of the population. The study further employed homogenous purposive and Expert purposive sampling as sampling techniques. The design used the two sampling techniques as follows:

- Homogeneous purposive sampling was applied by the researcher to extract data from the University of Zambia Environmental Education fourth year 2024 students. This was made possible because the students were part of the participants out of the sample size and formed a small subgroup. The students have many things common in terms of activities and lifestyles. From this subgroup, the researcher expected that the data that were to be collected would have less variation and simplified the analysis, and it was easy to facilitate a focus group discussion concerning the study.

- Expert purposive sampling was applied by the researcher in order to select key informant sampling and to obtain data from participants he identified to be familiar with the field of study either by qualification or by experience. In this study, officials from the following institutions: the University of Zambia EnvironmentalEducation lecturers, the officials from the Ministry of Green Economy and Environment, the officials from a non-governmental organisation called common markets for conservation (COMACO) and officials from one environmental related organisation called green cosmos Zambia were engaged. The researcher used common techniques to conduct key informant interviews through face-to-face interviews. In a case where the participants were not easily available, the researcher tried and obtained them through a mobile phone.

3.7 Sample Size

Garg and Kothari (2019) define sample size as the number of items that must be selected from the population to create a sample. However, Sandeloski (1995) asserts that there is no predetermined formula for determining sample size in qualitative research. It ultimately comes down to the researcher's discretion and expertise, and they must evaluate the veracity of the data they have gathered in light of the context in which it was used. According to Bless and Achola (1988:60), a sample is the portion of the population that is the subject of an investigation by a researcher and whose features will be applied to the complete population. Samples are the specific entities that qualitative researchers choose for their study; the process of selecting these entities is known as sampling, according to Leedy and Ormrod (2005:133). Identifying a suitable sample to collect data from is the most essential phase in the sampling process. Cohen, Manion, and Marrison (2007) explains that a small sample size is sufficient for a qualitative study. The study's intended sample consisted of 22 participants, all from within Lusaka district which included 4 officials from the Ministry of Green Economy and Environment, 4 officials from a private company , 4 officials from an Non-Governmental Organization (NGO), 4 University of Zambia lecturers of Environmental Education, and 6, 2024 University of Zambia Environmental Education fourth year students as indicated below.

Table 1. study sample size

Population	**Male**	**Female**
Ministry of Green Economy officials	2	2
Private company officials	2	2
NGO officials	2	2
University of Zambia Lecturers	2	2
Environmental Education current Fourth year students	2	4
Total Sample Size by gender	10	12
GRAND TOTAL SAMPLE SIZE	22	

(Source: Field data 2023).

3.8 Methods and Tools for Data Collection

To achieve the aims and objectives of this study, the researcher used two types of methods namely semi-structured interviews and focus group discussion as shown in appendix two and appendix three. This was to investigate how Environmental Education can be contextualized

within the Green Economy and Growth agenda in Lusaka, Zambia. During this process, the participants were allowed to express themselves as widely as possible on one theme of research before proceeding to the other. As the participants expressed their views, the researcher was alert to capture subtle, meaningful cues and phrases in participants' expressions and articulations of issues of Environmental Education, Green Economy and Growth. As respondents did a lot of talking, the researcher did a lot of listening, note taking and some follow-up questions where used to seek clarifications. This is because interviews help open up participants, especially when they do not want to talk about sensitive issues in a group environment (Ary, Jacob, Sorensen, and Razavieh, 2010). The researcher's exclusion of his academic perception about Environmental Education helped to gain full understanding of the typical experiences and perceptions of Environmental Education, Green Economy and Growth that the participants have had. Each participant was interviewed for about 20 to 30 minutes and about 60 minutes for a focus group discussion.

Focus group discussion is a form of qualitative research where a group of people are asked about their perceptions, opinion, beliefs and attitudes towards a product, service, concept, idea and many other issues. Questions are asked in an interactive group setting where participants are free to talk with other group members (Greenbaum, 2000). In the context of this study, focus group discussions clarified and shade more light on issues raised and not clarified in the interviews. Focus group discussion was particularly utilized because it is economical on time, focuses on particular issues, yields insights that would not otherwise be available in a straightforward interview, produces large amounts of data in a short period of time and useful to triangulate with more traditional forms of interviewing and observation. Focus group discussions are more advantageous because they provide authentic environments in which participants are able to influence one another and they are also influenced (Casey and Crueger, 2000). In this study, a focus group discussion was held with 6 University of Zambia Environmental Education 2024 fourth year students. Questions were asked in an interactive-group-setting where members were free to discuss. It was used to create consensus among group members, produce new information, and clarify additional details and information obtained from other sources. The focus group participants were allowed to feel at liberty. This environment promoted discussion on how to contextualise Environmental Education within the framework of the green economy and growth agenda, using the Lusaka district of Zambia as an example. The researcher moderated focus group interviews using a pre-written script that addressed particular study-related topics (See Appendix Three).

During the focus group discussion, the researcher was not only able to observe the way the participants were interacting in a social setting but also had the opportunity to ask for further clarification to gain more insight. The researcher had to deal with a number of challenges during the discussion, including creating strategies and new ideas, designing persuasion and behaviour prediction, prioritising the discussion, interpreting symbolism, and partially deciphering complex situations that came up. However, these difficulties were addressed by using a recorder to capture the conversation in case anything was missed. The conversation was later recorded and written down. The benefits of the discussion included learning in-depth details about individual and collective sentiments, perspectives, and opinions about placing Environmental Education in the context of Zambia's Green Economy and Growth agenda in the Lusaka district. In addition, focus groups yielded more comprehensive information at a lower cost and in less time than individual interviews as shown in table 2.

Table 2. Data collection methods.

POPULATION	METHODS
Ministry of Green Economy and Environment	Semi-Structured Interview
Private Company	Semi-Structured Interview
Non-Governmental Organization (NGO)	Semi-Structured Interview
Lecturers	Semi-Structured Interview
Environmental Education Current Students	Focus Group Discussion (FGD)

(Source:Field data 2023)

3.9 Data Analysis

Bogdan and Biklen (2003) states that working with the data, organising it, breaking it up into smaller pieces, coding it, synthesising it, and searching for patterns are all steps in the analysis process of qualitative data. Finding patterns, concepts, themes, and meanings is the goal of qualitative data analysis. Partington (2003) asserts that when it comes to the relationship between a particular type of qualitative data and a particular type of analysis, there is minimal standardisation and no absolutes. Neuman (2011) supports this further by stating that there isn't a single widely accepted approach to qualitative data analysis. This indicates that there are always going to be differences in the quantity and nature of the steps involved in the analysis of qualitative data. From the aforementioned points of view, it follows that qualitative data analysis is, in some ways, a specially created event for every study. In this regard, thematic analysis was used for the qualitative data analysis of this study, and the subsequent protocols

were adhered to. The process of data analysis started with a familiarization process where the researcher ready through the data several times, the researcher became acquainted with it and emerging patterns were given extra consideration. This stage also involved noting preliminary concepts or trends. This was followed by creation of initial codes in this case, patterns were found and used to identify where and how patterns appeared. This resulted from data reduction, in which the researcher created categories for more effective analysis by collapsing data into labels and then provide context for the initiated codes. The third stage involved looking for themes in the codes, this entails themes that represented the data were created by organising the codes. Through description, the researcher provided context for the themes. The next stage focused on reviewing themes. By using themes as a guide, the researcher accounted for every coded extract in the data set. The researcher re-examined the data in areas where the analysis appeared to be lacking information. Themes were given precise names and definitions, and categories were defined. Each theme included a description of the data aspects that were being captured. The themes' contributions to comprehending the data were thoroughly examined. Finally, the process ended with a report writing this was guided by themes that surfaced and further included summarizing the results.

3.10 Data Quality Check and Trustworthiness

Trustworthiness refers to the assessment of the quality and worth of the complete study, while helping to determine how closely study findings reflect the aims of the study, according to the data provided by participants. Lincoln and Guba (1985) posits that trustworthiness of a research study is important to evaluating its worth. Therefore, this study used Guba's four-trustworthy strategy, which is ideal mostly in qualitative studies. In this study, issues of credibility, dependability, confirmability, and transferability were cardinal and applied as follows:

- **Credibility:** In qualitative research, credibility is the degree of plausibility and trustworthiness of the data and the data analysis. Because reality differs, qualitative research is valid or trusted by the researcher but not by others. According to Lincoln and Guba (1985), building credibility entails improving the findings' plausibility. where Prolonged engagement offers scope, and ongoing observation offers depth. The researcher in this study spent enough time in the field to comprehend the findings completely. This required the researcher to build rapport and trust with the participants in order to protect data. This meant that the researcher would need to record the participants' responses and take notes.

- **Transferability:** In qualitative research, transferability is equivalent to external validity, also known as generalizability, in quantitative research. Transferability is demonstrated by giving readers proof that the research study's conclusions might be applicable to different populations, times, contexts, and situations (Guba and Lincoln 1985). In order to improve transferability, this study included detailed narrative descriptions of the participants' social contexts and the study area. The research offered clear linkages to the social and cultural environments surrounding the gathering of data. With the aid of participant daily life, the reader may be able to better visualise the setting around the research study. This might enable readers and other researchers to determine the transferability on their own. The actual data from this study might not be applicable in different institutional contexts (Holloway, 1997).

- **Dependability**: This metric was also employed to assess the study's credibility. This pertains to the constancy or steadiness of the investigation techniques employed throughout the years. Triangulation was a significant method that was employed to evaluate the reliability of this study. To validate newly discovered information, the researcher consulted a variety of data sources. Additional techniques employed to ensure the reliability of this study included member checks, peer review, and dependability auditing, in which an impartial auditor examined the researcher's operations to determine how well the methods for fulfilling the credibility standards had been adhered to. When dependability is lacking, credibility cannot be achieved (Creswell, 1998).

- **Confirmability:** Finally, this study employed the Confirmability criterion as a measure of Trustworthiness. The degree of assurance that the study's conclusions are based on the participants' stories and words rather than any potential biases on the part of the researchers is the basis for this criterion. To ensure that the results are more influenced by the participants than by the qualitative researcher, conformability is present. Confirmability of this study was demonstrated through the use of an audit trail. Data collection, analysis, and interpretation procedures were all described in detail by the researcher.

3.11 Ethical Consideration

Given that this is a qualitative study, the data collection required the researcher to engage in deep interaction with the participants, gaining insight into their personal domains of values,

weaknesses, and unique learning disabilities. According to Silverman (2000), researchers should never forget that they are actually invading their participants' private spaces while conducting their study. This naturally brings up a number of ethical concerns that ought to be discussed both during and after the research is completed. According to Creswell (2003), the researcher has a duty to respect the subjects' needs, rights, beliefs, and preferences.

Silverman (2000), postulates that cultural factors and the researcher's values should be considered when analysing the interaction between the participants and the researcher during an interview. Thus, appropriate measures were implemented to comply with stringent ethical guidelines to protect the privacy, confidentiality, dignity, rights, and anonymity of study participants. In light of the aforementioned, ethical concerns were considered during the research process as follows: The researcher was able to obtain written ethical clearance from The University of Zambia Ethics Committee to conduct this research. All the participants were made aware of the nature and purpose of the study, and they were further informed that their participation in this study would not affect their status in the institutions they are found in. Strict adherence to all ethical guidelines served as a benchmark for the veracity and integrity of the data gathered and the analysis that went along with it. As the study included a focus group discussion, total anonymity was realised. The researcher made it clear that participants' names were not used for any other purposes, nor would information be shared that revealed their identity in any way. Despite all the above-mentioned precautions, it was made clear to the participants that the research was only for academic purposes and their participation in it would be absolutely voluntary and they had the freedom to withdraw from the study once they felt so.

3.12 Chapter Summary

This chapter clarified several steps that the researcher took to carry out the investigation. The research participants, data collection techniques, and data collection and analysis procedures were explained. Focus group discussion and semi-structured interviews were the methods used to collect the data. The chapter made it clear that qualitative analysis was a non-numerical process of interpretation rather than quantification of qualitative data, with the aim of identifying concepts and relationships in the raw data and arranging them into a theoretical explanatory scheme. In order to confirm that the study was carried out with appropriate ethical considerations, the researcher also clarified issues pertaining to ethical considerations.

CHAPTER FOUR: PRESENTATION OF RESULTS

4.1 Overview

The methodology of the study was examined in the preceding chapter. This chapter addresses the presentation of research findings from the field on contextualizing Environmental Education within the green economy and growth agenda in Lusaka, Zambia. Mardson (2009) states that the best way of presenting results collected from the field is by way of reflecting on the objectives that were formulated. The study collected data from participants who were members of the Ministry of Green Economy and Environment, a private company called Common markets for , a Non-Governmental Organization (NGO), University of Zambia lecturers of Environmental Education and current University of Zambia Environmental Education 2024, fourth year students. The , which were gathered was necessary to inform this research about the participants' views on contextualizing Environmental Education within the green economy and growth agenda in Lusaka, Zambia.

4.2 Understanding the Concepts of Environmental Education to Society

The study sought to establish the information on how the participants understands the concepts of Environmental Education to society. This information was important to this study because it was imperative to understand the Concepts of Environmental Education to Society. The information parterning to participants responses on the way they understand the concepts of environmental education is presented in Table 3.

Table 3: Understanding of the concept of environment education

Themes	Code	Data description
Capacity building for environmental sustainability	Skills	• An educational approach that can equip different classes of communities with skills that can help them care for the broad environment and be able to deal with environmental issues that are mostly caused by natural and anthropogenic activities.

Table 3: Understanding of the concept of environment education

Themes	Code	Data description
	knowledge and awareness	• This is the acquisition of knowledge both formally and informally in environmental matters which can be used and applied to foster a clean and green environment. • process of imparting knowledge to the people about the place they live and operate from. • Education concerning our surroundings in which we live. Things concerning living and non-living things. • It is the learning process, that increases people's knowledge and awareness about the environment and to manage it. • It is a kind of education that creates awareness among the citizenry in relation to how human activities negatively impact the environment. • Is a field or a discipline that looks at education and awareness of the environment
Behavioural change for environmental sustainability	Values and attitudes	• It is a process of acquiring values, attitudes, knowledge, and skills that promote behavioural change for the sustainability of the environment." • Is construed differently depending on where you are, but I would love to give it a more Zambian context by saying that critical in the definition of EE are values, attitudes, knowledge, and skills because the values and attitudes are the ones that are going to influence the actions that one is going to take towards the environment, and if you go around, most people are mistaking environmental awareness for Environmental Education. • However, environmental awareness ends with knowledge, so it cannot be compared to or be an alternative to Environmental Education in the sense that merely knowing something does not mean you are going to act. • People know that caring for the

Table 3: Understanding of the concept of environment education

Themes	Code	Data description
		environment is good, but do they have the attitudes and values to act so that there is a good and clean environment? So that process of learning the values, attitudes, knowledge, and skills for behavioural change towards sustainability is what we call Environmental Education."
Holistic learning about environment	Sustainability	• It can also be called environmental and sustainability education. • The reason that we are talking about sustainability education is in the sense that whatever we are talking about in the environment, the environment must be sustained. • The focus when we talk about the environment is we are talking about from the sustainability point of view. • It will give you the skills and concepts to go about managing the environment.
Learning about ecosystem	Ecological system	• process of educating individuals about the environment, its ecosystem and the interdependence between human and natural world. • Fosters awareness, knowledge and responsible behaviour towards the environmental conservation and sustainability.

(Source:Field data 2024).

The findings of this research, as indicated in Table 3 above, revealed how partcipants understood the concepts of environmental education to societ, and the proceeding section reviews the findings of the importance of Environmental Education to Society.

4.3 Importance of Environmental Education to Society

The study sought to establish the information on how the participants perceives the importance of Environmental Education to society. This information was important to this study because it was imperative to understand the importance of Environmental Education to society. The information parterning to participants responses on the importance of Environmental Education to society is presented in Table 4.

Table 4: Importance of Environmental Education to Society

• **Themes**	• **Code**	• **Data**
• Creation of capacity to manage environmental challenges	• Capacity development	• It equips members of any society with values and attitudes on how to care for the environment. Its, equips any society at large on how to deal with various environmental issues.
• Promote informed decision making.	• Decision-making	• It allows for positive and good practices for the environment It increases awareness, informed decision-making, sustainable practices, economic benefited, health and well-being, community engagement and biodiversity conservation Environmental challenges start with an unsustainable mindset, so unsustainable mindsets are the ones that drive people into unsustainable actions which eventually lead to the negative effects that we see. So Environmental Education is advantageous in the sense that it will provide the required behavioural change for environmental sustainability and can help remodel the current mainstream decision-making models which are reactive in nature. Most, if not all, environmental problems are more behavioural than technical.

Table 4: Importance of Environmental Education to Society

• **Themes**	• **Code**	• **Data**
		It is a cost-effective intervention in the long run because behaviour reorients people's mindset, actions, attitudes, and values. It may be very expensive from inception, but in the long run, you are going to have citizens or a population that is behaviourally changed, and they are not engaged in activities that may be cost-effective to the government.
• complementing environmental management and sustainability initiatives	• environmental management and sustainability	• Environment education gives skills and concepts on how to manage the environment. So, if people are not aware of this Environmental Education, they will definitely vandalize the environment and they will not manage it properly.When you have a citizenry that is well informed concerning environmental issues, it is very easy to implement programs that are aimed at addressing negative effects on the environment as a result of human activities. Increase their speed in terms of formulating programs that are aimed at addressing environmental problems and challenges.

Table 4: Importance of Environmental Education to Society

• **Themes**	• **Code**	• **Data**
• Promote the implementation of green economy, green growth and the SDG's	• green economy, green growth and the SDG's	• Environmental Education can effectively help to achieve all 17 SDGs and if we fail on that point, we would have failed on all other SDGs and there will be no targets that can be met by 2030. There is no green economy without an environmentally educated society. Therefore, an environmentally educated society is what is going to bring about green growth and a green economy; it is the one that is going to bring sustainable development, so at the base of all the 17 SDG's, the foundation is actually Environmental Education, and this Environmental Education can actually fit well in the SDG 4. Quality and inclusive Environmental Education is what can provide a good platform. P#4
• Promotion of green environments	• Green environment	• It creates a clean and green environment. It allows for sustainable environmental practices. It creates a positive mindset for environmental practices and attitudes. Increased public awareness and knowledge about the environment through instilling respect for nature, promoting a healthy lifestyle, and personal growth It helps attack the problem from the root cause; environmental awareness is

Table 4: Importance of Environmental Education to Society

• **Themes**	• **Code**	• **Data**
		not on the reactive side but speaks to symptoms and not the root cause.

(Source:Field data 2023).

The findings of this research, as indicated in Table 4 above, revealed that Environmental Education is important to society, and the proceeding section reviews the findings of the first objective on how Environmental Education may support Zambia's Green Economy and Growth Agenda through promoting the efficient use of natural resources.

4.4 How Environmental Education may support Zambia's Green Economy and Growth Agenda through promoting the Efficient Use of Natural Resources

In the context of the first objective, this section begins with the interpretation of the efficient use of natural resources from an Environmental Education lens and then the perception of how Environmental Education may support Zambia's green economy and growth agenda through promoting the efficient use of natural resources.

4.4.1 Interpretation of the Efficient use of Natural Resources through the lens of Environmental Education

In line with objective number one, the participants were asked whether they understood the interpretation of the efficient use of natural resources through the lens of Environmental Education and some of the responses regarding the perspective of the efficient use of natural resources emphasizes promoting their regeneration in view of realizing maximum long-term benefits through natural regrowth or through artificial methods was

> *"The responsibility and sustainable management of Earth's finite resources in a way that maximizes their benefits while minimizing waste, environmental impact and depletion. It involves using resources*

in a manner that meets current needs by emphasizing the regrowth of resources without compromising the ability of future generations to meet their own needs". **P11**

Another opinion from the participants regarding the importance of the efficient use of natural resources was based on the conservation of resources perspective, which refers to the process of taking care of existing natural resources.

"Natural resources are central to human wellbeing in so many ways; hence, they ought to be conserved. Citizens cannot live without access to resources such as clean air for breathing and clean water for drinking to sustain life. Generally, natural resources form a capital base for economic development and social well-being". **P6**

Furthermore, the meaning of the efficient use of natural resources was viewed from the perspective of care ethics-based use of natural resources as one approach that encourages citizens to take up responsibilities for natural resources through do-unto-others the way you want them to do unto you. One of the participants had the following to say: regarding the meaning of efficient natural resources from a care-ethics and empathetic dimension:

"This is using natural resources wisely and ethically because you need others to benefit from the same. Use of resources sustainably and be able to share with the future generation. It involves a careful use of the natural resources so that they are not depleted". **P4**

The preceding section presented results on the interpretation of the efficient use of natural resources from an Environmental Education lens. The following section presented results on how Environmental Education can be used to achieve the efficient use of natural resources as one of the pillars of the Green Economy and Green Growth Agenda in Zambia to make the first objective of this research complete.

4.4.2 How Environmental Education can be used to achieve the Efficient use of Natural Resources as one of the pillars of the Green Economy

The study sought to establish the information on how Environmental Education can be used to achieve the Efficient use of Natural Resources as one of the pillars of the Green Economy and Growth in Lusaka Zambia. This information was important to this study because it was

imperative to know how Environmental Education can be used to achieve the Efficient use of Natural Resources as one of the pillars of the Green Economy. The information parterning to participants responses on how Environmental Education can be used to achieve the Efficient use of Natural Resources as one of the pillars of the Green Economy is presented in Table 5.

Table 5: *How Environmental Education can be used to achieve efficient use of natural resources as one of the pillars of Green Economy*

Themes	Codes	Data
Educating and Raising Awareness about efficient use of Resources	Education and Awareness	• Helps people understand the value of natural resources, the impacts of overexploitation, and the importance of conservation. • Raising awareness about the finite nature of resources such as water, energy, and ecosystems • Fosters a greater appreciation for the need to use resources efficiently and sustainably. • Need to educate the population of sustainable practices in regard to the use of water, energy and food. • This can be achieved by raising awareness both in schools and outside the school set up
Promoting Sustainable Behaviours towards efficient resource use	Behavioural change	• Encourages individuals to adopt sustainable behaviours that minimize waste and maximize the use of natural resources. • Promoting energy conservation, water efficiency, responsible consumption patterns, and waste reduction practices. • Fostering a culture of sustainability, Environmental Education can contribute to the efficient utilization of natural resources at the individual and community levels.
Encouraging Innovation for efficient use of resources	Innovation	• Environmental Education inspires innovation and creativity in finding resource-efficient solutions. • Providing knowledge about sustainable

		technologies, circular economy principles, and eco-friendly practices. • Nurtures a mindset of innovation that drives the development and adoption of resource-efficient technologies and practices.
Fostering Responsible Production and Consumption	Production and consumption	• Emphasize the importance of responsible production and consumption patterns that prioritize resource efficiency. • Educating individuals about the impacts of their choices as consumers and the practices of businesses, it encourages the adoption of sustainable production methods and the selection of eco-friendly products and services.
Building Skills and Capacities for efficient use of natural resources	Skills and capacities	• Building the skills and capacities needed for the sustainable management of natural resources. • Providing training and education in areas such as sustainable agriculture, water conservation, energy management, and ecosystem stewardship, it ensures that individuals and communities are equipped to utilize natural resources efficiently.
Connecting People to Nature to appreciate the efficient use of natural resources	Bonding with Nature	• Fosters a sense of connection to the natural world, which can inspire individuals to take action to protect and responsibly manage natural resources. • Promoting environmental stewardship and a deep understanding of the interdependence between human activities and natural systems. • encourages people to support initiatives that promote efficient resource use.
Addressing Equity and Justice towards the efficient use of natural resources	Equity and Justice	• Raise awareness about the unequal distribution and access to natural resources, as well as the impacts of resource exploitation on marginalized communities. • Promoting environmental justice and inclusivity. • Ensure that the efficient use of natural resources benefits all members of society and does not exacerbate social and environmental inequalities.

(Source:Field data 2023).

The proceeding table shows the second objective of this research. These findings show how Environmental Education may influence social inclusivity within the Green Economy and Growth Agenda in Zambia.

4.5 How Environmental Education may be used to influence Social Inclusivity within the Green Economy and Growth Agenda in Zambia

The study sought to establish the information on how Environmental Education may be used to influence Social Inclusivity within the Green Economy and Growth Agenda in Lusaka Zambia. This information was important to this study because it was imperative to understand the importance of Environmental Education to society. The information parterning to participants responses on the importance of Environmental Education to society is presented in Table 6.

Table 6: How Environmental Education may be used to influence social inclusivity within the Green Economy and Growth agenda in Zambia.

Themes	Codes	Data
Inclusive Curriculum and Content for promoting social inclusivity	Curriculum and content	• Developing an inclusive Environmental Education curriculum that reflects diverse cultural, social, and historical perspectives can help to engage learners from various backgrounds. • Incorporating environmental knowledge from different cultures and communities, educators can promote a sense of belonging and respect for diverse ways of knowing and interacting with the environment. • Including topics such as environmental justice, indigenous knowledge, and community-based conservation approaches can help students see the relevance of environmental issues to their own lives and experiences.
Diversity in Leadership and Representation to promote social inclusivity	Leadership and representation	• Highlighting diverse environmental leaders, role models, and professionals from various backgrounds can inspire underrepresented groups to engage with environmental issues and pursue careers in environmental fields. • Showcasing diverse perspectives and experiences, Environmental Education can challenge stereotypes and promote inclusivity within the environmental movement. • Workshops, seminars, and guest speaker events featuring diverse environmental voices can provide students with a broader understanding of the environmental field and

Table 6: How Environmental Education may be used to influence social inclusivity within the Green Economy and Growth agenda in Zambia.

		the potential for making a difference regardless of their background.
Community Engagement and Empowerment for promoting social inclusivity	Community Engagement and Empowerment	• To engage communities in participatory decision-making processes related to environmental issues. • Involving diverse community members in local environmental initiatives, projects, and advocacy efforts. • Empower individuals to address environmental challenges collectively. • Ensures that all voices are heard and valued in the process of shaping sustainable environmental policies and practices.
Intersectionality and Inclusive Dialogue for promoting social inclusivity	Intersectionality and Inclusive Dialogue	• Recognizing the intersections between environmental issues and social justice concerns is crucial for promoting inclusivity in Environmental Education. • Acknowledging how environmental challenges disproportionately impact marginalized communities, educators can facilitate discussions on the interconnectedness of environmental and social issues. • Help students understand the complex relationships between race, class, gender, and environmental justice, leading to more inclusive and empathetic perspectives on environmental problems and solutions.
Accessible and Culturally Relevant Education for promoting social inclusivity	Accessible and Culturally Relevant	• Creating accessible and culturally relevant Environmental Education materials and resources can ensure that individuals from diverse backgrounds have equal opportunities to engage with environmental learning. • Providing translations, incorporating multimedia formats, and tailoring educational materials to different cultural contexts. • Making Environmental Education inclusive and accessible, educators can reach a wider audience and promote a more equitable understanding of environmental issues.
Experiential Learning and Outdoor Activities for promoting social inclusivity	Experiential Learning and Outdoor Activities	• Engaging students in hands-on, experiential learning activities in natural settings can promote inclusivity by connecting individuals with the environment in meaningful ways.

Table 6: How Environmental Education may be used to influence social inclusivity within the Green Economy and Growth agenda in Zambia.

		• Provide opportunities for individuals from diverse backgrounds to experience the natural world and develop a sense of stewardship and connection to the environment. • Experiential learning also allows for diverse learning styles and experiences, catering to the needs of students with varying backgrounds and abilities.
Social and Emotional Learning for promoting social inclusivity	Social and Emotional Learning	• Integrating social and emotional learning (SEL) into Environmental Education can foster empathy, collaboration, and conflict resolution skills, essential for promoting inclusivity. • By incorporating SEL competencies such as self-awareness, social awareness, relationship skills, and responsible decision-making, Environmental Education can cultivate an inclusive and empathetic mindset among students. • These skills are crucial for understanding and addressing environmental challenges in a collaborative and inclusive manner.
Action-Oriented Learning and Advocacy for promoting social inclusivity	Action-Oriented Learning and Advocacy	• Empowering students to take action on environmental issues and advocate for positive change can promote social inclusivity by providing opportunities for participation and amplifying diverse voices. • Encouraging students to engage in environmental activism, community service, and advocacy efforts. • Instill a sense of agency and empowerment among individuals from all backgrounds. • Active participation can strengthen inclusivity by demonstrating the value of diverse perspectives and contributions to environmental stewardship.

(Source:Field data 2023).

The proceeding table shows the third objective of this research. These are the findings of how Environmental Education may integrate the low-carbon economy into the Green Economy and Growth agenda in Zambia.

4.6 How Environmental Education may Integrate the Low-Carbon Economy into the Green Economy and Growth Agenda in Zambia

The study sought to establish the information on how Environmental Education may used to Integrate the Low-Carbon Economy into the Green Economy and Growth Agenda in Lusaka Zambia. This information was important to this study because it was imperative to understand how Environmental Education may used to Integrate the Low-Carbon Economy into the Green Economy and Growth Agenda in Lusaka Zambia. The information parterning to participants responses on how Environmental Education may used to Integrate the Low-Carbon Economy into the Green Economy and Growth Agenda in Lusaka Zambia is presented in Table 7.

Table 7. How Environmental Education may integrate the low-carbon economy into the Green Economy and Growth agenda in Zambia.

Themes	Codes	Data
Building Awareness to achieve a low-carbon green economy	Building Awareness	• Helps people understand the impacts of carbon emissions on the environment and climate change. • Raising awareness about the causes and consequences of high carbon emissions. • Individuals are better equipped to make informed choices and advocate for sustainable policies and practices.
Promoting Sustainable Behaviour in achieving low-carbon green economy	Promote Sustainable Behaviour	• Encourages individuals to adopt sustainable behaviours that reduce carbon emissions. • Promoting energy conservation, waste reduction, sustainable transportation, and responsible consumption patterns. • Fosters a culture of sustainability. • Contribute to lowering carbon emissions at the individual and community levels.
Fostering Innovation to achieve a low-carbon green economy	Foster innovation	• Inspires innovation and creativity in finding low-carbon solutions. • Providing people with knowledge about alternative energy sources, green technologies, and sustainable practices. • Nurtures a mindset of innovation that can drive the transition to a low-carbon economy.
Influencing Policy and Decision-Making	Policy and Decision making	• Equips individuals with the knowledge and skills to engage in policy discussions and advocate

		for low-carbon initiatives. • Empowers people to participate in decision-making processes and push for policies that support the transition to a green economy, such as renewable energy incentives, carbon pricing, and sustainable land use planning.
Creating a Skilled Workforce	Skilled workforce	• Contributes to building a skilled workforce capable of driving the transition to a low-carbon economy. • Providing training and education in sustainable technologies, environmental management, and green business practices. • Ensures that the workforce is equipped to drive innovation and implement low-carbon solutions across industries.
Connecting People to Nature	Nature-philia	• Environmental Education fosters a sense of connection to the natural world, which can inspire individuals to take action to protect the environment. • Promoting environmental stewardship and a deep understanding of ecosystem services. • Encourages people to support initiatives that reduce carbon emissions and promote ecological sustainability.
Addressing Equity and Justice	Equity and Justice	• Environmental Education can raise awareness about the unequal impacts of climate change and environmental degradation on different communities, particularly marginalized groups. Promoting environmental justice and inclusivity, it can ensure that the transition to a low-carbon green economy is fair and benefits all members of society.

(Source:Field data 2023).

4.7 Chapter Summary

Chapter four dealt with the presentation of research findings. Data was presented in tables, and using verbatim. Research findings in this study revealed that the concept of environmental education is multifaceted in nature as exemplified in the different dimensions. The study shows the importance of environmental education to society through stressing the need for capacity building for the management of environmental challenges, and equips society with respect on how to take care of the environment and its daily challenges. The findings in the study also revealed the interpretation of the efficient use of natural resources from an environmental education lens and then the perception of how environmental education can support Zambia's green economy and growth agenda through promoting the efficient use of natural resources. The opinion regarding how environmental education can be used to influence social inclusivity within the Green Economy and Growth agenda in Lusaka, Zambia is based on stressing a diversified leadership and representation that encourages a complete educational program based on content. The study revealed that environmental education plays a critical role in achieving a low-carbon green economy by raising awareness, changing behaviours, and promoting sustainable practices among individuals, communities, and organizations. The next chapter deals with discussion of the presented research findings.

CHAPTER FIVE: DISCUSSION OF RESEARCH FINDINGS

5.1 Overview

The previous chapter presented the research findings. This chapter discusses these issues in the context of the concepts of Environmental Education and the importance of Environmental Education to society. The concept of Environmental Education to society is discussed first, followed by its importance to society; finally, the specific objectives were to evaluate how Environmental Education can be contextualized within the green economy and green growth agenda in Zambia. Thereafter, a summary of the discussion was drawn.

5.2 Concepts of Environmental Education and its Importance to Societal Development

The study reviewed that Environmental Education adopts a multifaceted nature, as exemplified in the different dimensions. Participants believed that Environmental Education is a complete lifelong learning process meant to build the capacity for environmental sustainability that will develop responsible people who are able to explore and recognize environmental problems, solve them, and take appropriate action to protect the environment and are well placed to promote behavioural change. Further evidence shows that Environmental Education relies on a comprehensive or holistic awareness and understanding of planetary systems, as shown through the emphasis on learning about ecosystems. These findings agree with those of Smolyaninova et al., (2021); Sorakin *et al.*, (2022), who described Environmental Education as the act of developing or expanding knowledge and comprehension of the natural, physical, and human environments through the application of an interdisciplinary approach, with an emphasis on enhancing public understanding and appreciation of nature and the environment. In line with these findings, Erhabora and Dona (2016) further confirmed that Environmental Education, in its real essence, is a multidisciplinary process that cuts across the educational system to deliver environmental content for the purpose of enhancing people's awareness of environmental issues at all levels. However, Putilova *et al*. (2023) suggested that the formation of an eccentric type of environmental consciousness is the ultimate goal of Environmental Education and upbringing, as only consciousness determines an individual's behavioural reactions and actions and how they are expressed in ecological culture.

5.2.1 Capacity Building for Environmental Sustainability

The study showed that capacity building for environmental sustainability is an important aspect of the concept of Environmental Education for society. Almost all participants acknowledged that, regardless of their work environment, capacity building plays an important role in the

concepts of Environmental Education. The findings in the study reviewed that, capacity building is perceived as an educational approach that can equip different classes of communities with skills that can help them care for the broad environment and be able to address environmental issues that are mostly caused by natural and anthropogenic activities. Furthermore, capacity building is viewed as the formal and informal acquisition of knowledge in environmental matters with the aim of overcoming various environmental challenges, such as climate change, global warming, deforestation, droughts and floods, with the hope of attaining a clean and green environment. The study also describes capacity building as a process of imparting knowledge to people about the place from which they live and operate, and it is mostly concerned with education about people's surroundings. Therefore, these findings agree with the perspectives of Horton (2003) who suggested that capacity building involves the appropriation of knowledge, skills, and leadership as well as the revision and adaptation of roles, attitudes and accountabilities among concerned actors. Van der Voorn, 2008; Ferrero *et al.*, 2019 believe that capacity building should have a starting point followed by a continuous path to acknowledge the sociocultural, legal and political environment in which it takes place for it to be successful. However, UNEP (2002) provides a more comprehensive definition of capacity building as an all-encompassing business that does a wide range of things. It entails developing the skills, connections, and moral principles that will help businesses, teams, and people reach their goals for growth and performance improvement. This approach enhances people's technical proficiency and readiness to take on new developmental roles and adjust to changing circumstances. However, the findings in the study are contrary to kudo (2015) who stresses that although one of the development strategies in Zambia, especially in institutions such as local governments is capacity building which is aimed at strengthening the country's developmental agenda, there is no guarantee that once capacity building is carried out effectiveness is achieved. Despite the nation undertaken countless capacity building programs through the cooperation with international and donor organizations. Yet, the effectiveness of the programs has remained uncertain. In South Africa, Mohapi and Pitsoane (2017) views capacity building as a means of strengthening and empowering a person's or group's ability to make wise decisions and translate those decisions into actions and results. This implies that individuals possess the ability to choose, thanks to empowerment, and to go one step further by using their choices to better their circumstances. People have power on three different levels, according to Albertyn, Kapp, and Groenewald (2001). These levels are the micro, interface, and macro levels. People's self-perception, which encompasses issues of dignity, self-confidence, and self-esteem as well as leadership, coping

mechanisms, and assertiveness, is a major factor in their micropower. This empowerment at the micro level is connected to life skills. There is a connection between empowerment and people's choices.

5.2.2 Behavioural Change for Environmental Sustainability

The study findings revealed that behavioural change for environmental sustainability is a significant factor in the concept of Environmental Education. As acknowledged by the participants, behaviour change is a process of acquiring values, attitudes, knowledge, and skills that promote change in the way people perceive things. In the study, behavioural change goes far beyond environmental awareness, which cannot be compared to or an alternative to Environmental Education in the sense that merely knowing something does not mean that people will be able to act. The study further argues that behavioural change can result in people knowing that caring for the environment is good, and this can mostly be achieved once people's attitudes and values have been changed so that they can attain a good and clean environment. Various environmental challenges threaten environmental sustainability in many ways, and many of these problems are rooted in human behaviour. Behaviour change is viewed as the process of modifying an individual's actions, attitudes and habits to improve their performance, productivity, and overall well-being. The ultimate goal of behavioural change for people in any society is to create an environment that fosters growth, innovation and success for all citizens. Overall, the change hoped for can include alterations in actions, emotions and the way people think. The approach to behavioural change may be construed differently depending on where an individual may be found. However, Amoah and Addoah (2020) claims that most of these severe environmental issues, which are mostly caused by human behaviour, affect developing nations, especially those in Sub-Saharan Africa. The importance of environmental issues is gradually drawing attention away from more conventional socio-economic and political issues like poverty, politics, and war. Globally and nationally, initiatives have been implemented in the form of policies and programmes to address the diverse environmental problems that the world faces. The explanation of behaviour change comes from the standpoint of pro-environmental behaviour, which holds that human behaviour is acceptable as long as it does not harm the environment but rather enhances or preserves it. Minimising the use of resources and energy, using eco-products, disposing of waste properly, cleaning up the environment, and lowering waste production are a few examples of pro-environmental behaviour. It is essential to comprehend the elements that lead to less damaging

behaviour towards the environment in order to promote pro-environmental behaviour among citizens.

5.2.3 Holistic Learning about Environment Sustainability

The study revealed that holistic learning about environmental sustainability is an important part of the concept of Environmental Education for society. The study showed that issues of environmental and sustainability are not new concepts. As indicated in Table 3, holistic learning about Environmental Education is sometimes referred to as environmental and sustainability education. Holistic learning involves talking about everything to do with the environment so that the environment can be sustained. These findings are similar to those of Deshmukh (2014), who contends that holistic learning about Environmental Education is also education through the environment, about the environment and about the environment. Holistic learning aims to call forth from people an intrinsic reverence for life and a passionate love of learning. The holistic learning approach differs from the usual education system around the world today, where learners are taught how to complete exams with a focus on content and memorization, alluding the opportunity to develop holistically. On the other hand, holistic learning is defined by Miseliunaite *et al.* (2022) as a postmodern, transformative, ecological, cosmic, and spiritual kind of education that addresses global issues. The goal of holistic learning is to question the fragmented and reductionist presumptions of mainstream culture and education rather than to offer a model of education. The three guiding concepts of holistic learning, balance, inclusivity, and connectedness, are designed to help realize this goal. The goal of holistic learning is to strike a balance between the individual and the group, between processes and educational content, between knowledge and imagination, between logic and intuition, between quantitative and qualitative assessment, and between competition and teamwork. On the contrary, the Association for the Development of Education in Africa (ADEA) (2012) postulates that reorienting education so that it becomes relevant, not only in imparting subject matter knowledge but also developing life skills and the skills required for contributing towards creating a sustainable society, is urgent. This is important given the myriad of interconnected economic, environmental, social and cultural issues that have created more poverty and more vulnerability. There are various challenges and risks posed by climate change, deforestation, desertification, and increased risks associated with diseases such as HIV/AIDS, malaria, and in 2014, the outbreak of Ebola. In the Second Decade of Education for Africa (2006–2015) and in the Science, Technology Innovation Strategy for Africa 2024, the African Union envisioned that it was through education and the development

and application of science and technology that issues such as these could be tackled to achieve sustainable development.

5.2.4 Learning about the Ecosystem

The study acknowledges learning about ecosystems as a key element of the concept of Environmental Education to society. Table 1.3 describes learning about ecosystems as a process of educating individuals, communities or groups of living organisms that live in and interact with each other about the environment and the interdependence between humans and the natural world. Learning about ecosystems fosters awareness, knowledge and responsible behaviour towards environmental conservation and sustainability. Learning about ecosystems brings together a variety of stakeholders in a cooperative learning process that will produce outcomes that will benefit both humanity and all other life on Earth. People currently live in a time where the course of planetary and human systems is being significantly impacted by the effects of accelerating complex change and crisis. Some of these dynamics create enormous pressures that require our immediate attention. The primary motivation for studying ecosystems is that humankind is currently living outside of healthy "planetary boundaries" and beyond Earth's carrying capacity. However, UNEP (2011) contends that learning about the ecosystem helps to bridge the gap on how to achieve policy shifts in low-income countries in favour of green economic development where it becomes necessary to demonstrate the costs of the depletion of natural capital or, conversely, the benefits of securing and restoring natural capital so that the trade-offs made under different development paths can be fully appreciated. With the growing recognition of the important role of natural capital, there has been a steady shift in the global agenda from the notion of sustainable development to that of the green economy.

5.3 Importance of Environmental Education to Society

The study reviewed different perspectives regarding the importance of Environmental Education to society. In the present study, the importance of Environmental Education for society was thematically classified into dimensions of which capacity building for the management of environmental challenges equips society with regard on how to take care of the environment and its daily challenges. It is evident that this approach promotes positive thinking toward the management of the environment. The findings of the present study further revealed that Environmental Education complements other environmental management methods and approaches that aim to prevent citizens from destroying the present environment for future generations. Further evidence has shown that promoting sustainable development goals

(SDGs), a green economy and green growth are important undertakings that should work hand in hand to achieve the new economic development model. These findings agree with those of Fletcher (2023), who stresses that the goal of Environmental Education is to provide students with the knowledge they need to address, such as that of climate change, while providing a clear explanation of the mechanisms underlying global warming. As a result, they may feel more in control and develop deeper respect for the planet's resources. Additionally, Environmental Education can foster the development of communication, critical thinking, and problem-solving abilities. However, Milupi *et al* (2022) argues that environmental education is a crucial element because it raises people's awareness of the existence and reality of environmental issues. Without this kind of awareness, people won't be able to see why change is necessary, won't always support it, and might even be reluctant to take part in the process. Society needs to be aware of the risks posed by the environment and understand how important it is to take action to lessen or eliminate those risks. Raising awareness facilitates the development of environmental literacy in all areas and economic sectors. Environmental education helps people learn how to protect the environment and helps them stop engaging in behaviours that harm the environment. For a long time, most people were unaware of the extent of environmental degradation or the rate at which environmental issues were getting worse. For this reason, effective environmental education emphasises applying the material to one's own direct action, learning from personal and conveyed experience in real-world settings, and integrating the subject into the larger socio-political context. Human activity controls many ecosystems, and human influence permeates all of them.

5.3.1 Creation of the Capacity to Manage Environmental Challenges

The study underscores the role of Environmental Education in equipping individuals with values and attitudes to care for the environment. Kearns (2014) supports this by arguing that Environmental Education helps individuals develop a deeper understanding of their relationship with the natural world and fosters a sense of responsibility for environmental stewardship. Gough., and Gough. (2010) also reinforces this notion, highlighting the importance of nurturing a value system that prioritizes environmental conservation and sustainability. The findings show that the creation of the capacity to manage environmental challenges contributes to identifying the importance of Environmental Education. In the study, the creation of the capacity to manage environmental challenges equips members of any society with the required values and attitudes on how to care for the environment. Furthermore, the creation of the capacity to manage environmental challenges prepares citizens in various societies on how to address different

environmental issues. However, UNEP (2002) provided a comprehensive description of the capacity of buildings to manage environmental challenges. Environmental Education has an all-encompassing business that does a wide range of things. It entails developing the skills, connections, and moral principles that will help businesses, teams, and people reach their goals for growth and performance improvement. This approach entails bolstering the procedures, frameworks, and guidelines that impact both group and individual behaviour and output in all development initiatives. Enhancing people's technical proficiency and readiness to take on new developmental roles and adjust to changing circumstances are also necessary. Practically speaking, the UNEP works with developing nations and economies in transition to strengthen their environmental capacities in three main ways: by helping governments at the regional, sub regional, national, and local levels establish environmental institutions; by creating and evaluating environmental management tools in partnership with major organizations, the UN, and governmental and nongovernmental partners; and by encouraging public involvement in environmental management and improving access to environmental information.

5.3.2 Promotion of informed Decision-Making

The text rightly emphasizes that Environmental Education contributes to informed decision-making and sustainable practices. This is supported by Frisk and Larson (2011), who assert that Environmental Education can lead to the development of critical thinking and problem-solving skills that are essential for addressing environmental challenges. Brown (2015) further advocates for the role of Environmental Education in promoting proactive, rather than reactive, decision-making models, aligning with the text's assertion.

The findings further suggest that informed decision-making increases awareness, sustainable practices, economic benefits, health and well-being, community engagement and biodiversity conservation. The study in Table 1.4 assumes that environmental challenges start with an unsustainable mindset and that these unsustainable mindsets drive people toward unsustainable actions, which eventually leads to negative effects. Making informed decisions about Environmental Education is advantageous because it provides the required behavioural change for environmental sustainability and can help remodel the current mainstream decision-making models, which are reactive in nature. These findings differ slightly from those of the Next Generation Science Standards (NGSS Lead States, 2013), which emphasize the importance of integrating divergent thinking, which is in line with interdisciplinary approaches to democratic informed decision-making (Johnson and Adams, 2011). These methods entail various ways of communicating, thinking, and handling problems. Students gain experience through organizing,

analysing, evaluating, and presenting their work using a variety of technologies. Along with learning about the concepts and procedures of creative design, they also acquire critical reasoning and thinking skills that are necessary for success in and out of the classroom. Due to the widespread use of the Internet, education has become more interactive in recent years. Schools are now responsible for creating active learning programs that prioritize interaction over content alone (Anderson, 2004).

5.3.3 Complementing Environmental Management and Sustainability Initiatives

The text emphasizes that Environmental Education provides the necessary skills and concepts for managing the environment, thus preventing environmental degradation. This aligns with Frisk and Larson's (2011) argument, as they emphasize the role of Environmental Education in equipping individuals with the knowledge and competencies needed for effective environmental management. Furthermore, Callaghan (2012) argues that an environmentally informed citizenry can accelerate the formulation and implementation of programs aimed at addressing environmental challenges, supporting the text's assertion regarding the speed of program development.

Environmental management affects all aspects of human endeavours. The views in the study differ from those of Saha (2010), who views environmental management through the lens of the tools that are most important in helping organizations manage their environmental issues. Despite their short history, the popularity of these plants has been growing quickly. Despite not being sustainable management tools, these tools have a significant impact on strengthening environmental management in a strategic and robust manner when used in conjunction with the fundamental definition of sustainability. Their organizational framework offers a thorough foundational framework to begin with sustainability. However, Barrow (2002) states that there is no concise universal definition of environmental management. This is understandable, given the very broad scope and diversity of specialisms involved. Furthermore, he defines environmental management as the process of creating a style that is more adaptable and considerate than natural resource management. To determine the best course of action, a situation must be assessed, with a focus on stewardship as opposed to exploitation. In this context, stewardship refers to managing something for its long-term, careful use and sustainable benefit. This kind of environmental management has a multidisciplinary, interdisciplinary, or holistic focus, with a precautionary and participatory style. Environmental management is a field of study dedicated to understanding human-environment interactions and the application of science and common sense to solving problems.

5.3.4 Promoting the Implementation of a Green Economy, Growth and the SDGs

The study showed that promoting the implementation of green economy, green growth and sustainable development goals is highly important. The findings further underscore the foundational role of Environmental Education in achieving green growth, a green economy, and sustainable development goals. This is corroborated by Kearns (2014), who highlights the interconnectedness of Environmental Education with sustainable development, as well as the attainment of the SDGs. Gough., and Gough. (2010) also emphasizes the pivotal role of Environmental Education in promoting sustainable development and notes its potential to contribute to the achievement of various SDGs. The notion that Environmental Education can effectively underpin the accomplishment of all 17 SDGs aligns with the ideas of Erkal *et al.* (2011), who emphasize the far-reaching impact of Environmental Education on sustainable development efforts.

The study is the foundation of all 17 sustainable development goals and focuses on SDG 4. Inclusive and quality education is a good platform for ensuring that Environmental Education fits well. Environmental Education can effectively help achieve all 17 SDGs, and if it fails on that point, then citizens will fail to reach all the other SDGs, and there will be no targets that can be met by 2030. The UEP green economy report (2011) describes the green economy as an economy that is low carbon, resource efficient, and socially inclusive. This is an economy that is fueled by its need to protect the environment and safeguard the natural resources available. It is an economy that addresses and tries to effectively solve its social issues while trying to achieve economic growth. The scope of the term is not limited to addressing environmental concerns; rather, it covers a vast area of social, economic and political challenges (UNEP Global Ministerial Environment Forum, 2010). It further encompasses the terms sustainable development and poverty eradication (UN General Assembly, 2010).

One of the most widely quoted definitions of a green economy was proposed by the United Nations Environment Programme, which defines the green economy as one that results in "increased human well-being and social equity while reducing environmental risks and ecological shortages" (Barbier, 2013). At the core of the green economy concept is the conviction that economic development is structurally linked to policies that protect natural resources and the quality of the natural environment (UNEP, 2011).

5.3.5 Promotion of Green Environments

The findings further stress that Environmental Education contributes to the creation of a clean and green environment, fostering sustainable practices. The findings of the researcher resonate with Brown's (2015) argument, that Environmental Education can instill a sense of environmental responsibility, leading to the adoption of eco-friendly behaviours and the promotion of environmental sustainability.

The study further revealed that Environmental Education leads to public awareness and knowledge about the environment through instilling respect for nature, promoting a healthy lifestyle, and personal growth. Environmental Education helps people attack the problem from the root cause as opposed to other approaches that speak to symptoms and not the root cause. The perceptions in the study are similar to those of Jing Li *et al.* (2022), who define the Green Environment (GE) as economic activities associated with the creation, transfer, and consumption of goods and services that help to reduce ecological damage and major environmental risks to improve human well-being in the long run for future generations. It is concerned with preserving the environment and promoting sustainable wellness, which includes investing in renewable energy, sustainable energy, and informed consumers. Park (2013) agrees with other scholars by indicating that the preservation of the environment and enhancing its quality are linked to the green environment. This entails encouraging behaviours such as responsible consumption, conservation efforts, and the use of renewable energy sources. He further states that by acknowledging the delicate balance that exists between humans and different natural ecosystems, citizens hope to set an example by modifying their own behaviour, public policies, and practices to rekindle and revitalize people's relationships with nature.

5.3.6 Cost-Effectiveness and Long-Term Impact

The text posits that while Environmental Education may be initially costly, its long-term impact lies in reorienting people's mindsets, attitudes, and values, thereby leading to behaviour change. Erkal *et al*. (2011) support this perspective by highlighting the cost-effectiveness of Environmental Education in shaping sustainable behaviours and reducing the financial burden of environmental degradation. According to Callaghan (2012), investing in Environmental Education can yield long-term benefits, making it a viable intervention for promoting sustainable development.

Generally, the findings effectively highlight the multifaceted importance of Environmental Education, and cross-referencing with the works of Kearns (2014), Gough (2016), Frisk and

Larson (2011), Brown (2015), Erkal *et al*. (2011), and Callaghan (2012) serves to validate and reinforce the key points raised. Environmental Education emerges as a fundamental tool for instigating behavioural change, nurturing sustainable practices, and fostering a collective commitment to environmental stewardship, ultimately contributing to the attainment of overarching sustainability goals. However, this study notes that, without political will and commitment, it may be difficult to realize all the benefits that Environmental Education may offer.

5.4 How Environmental Education may support Zambia's Green Economy and Growth Agenda through Promoting the Efficient Use of Natural Resources

This section contextually discusses the first objective, which provides an interpretation of the efficient use of natural resources from the lens of Environmental Education, and then discusses how Environmental Education may support Zambia's green economy and growth agenda through promoting the efficient use of natural resources.

5.4.1 Interpretation of the Efficient use of Natural Resources through the Lens of Environmental Education

Some scholars (Thomas 2005; Bansard and Schröder, 2021) have interpreted the efficient use of natural resources in various ways. One emerging perspective is the sustainable use of natural resources, which involves preserving them for present and future generations, recognizing that resources serve as capital for economic development. This study also examined the promotion of regeneration to achieve maximum long-term benefits through natural regrowth or artificial methods. Thomas (2005) emphasizes that Environmental Education aims to help learners change their behaviour and actions by focusing on using environmental resources wisely at both the individual and group levels. Environmental Education is the process of educating people and communities to develop a society that understands environmental issues, is aware of potential solutions, and is driven to find them. Bansard and Schröder (2021) describe the economical use of natural resources in alignment with the principles of the Stockholm Declaration. This declaration emphasizes maintaining, restoring, or improving the Earth's capacity to produce vital renewable resources, safeguarding natural resources for the benefit of present and future generations, and using non-renewable resources in a manner that guards against future exhaustion while ensuring shared benefits for all humankind. These are similar perspectives that emerged from the study but with a strong emphasis on the importance of contextual application of the concept. However, the Zambian perspective approaches efficient natural resource by creating many initiatives that are environmentally sound and

developmental in nature; the initiative started as early as 1985 when the Zambian cabinet adopted the National Conservation Strategy (NCS) as a pioneer mainstreaming process whose aim was to handle issues of conservation and development. The main focus of this strategy was, among other things, to promote the environment as a positive foundation for development. Previous environmental initiatives tended to focus on preserving nature from the impacts of development. in Zambia efficient natural resource involves an early multisector, multidisciplinary assessment and planning process, such as drawing on government-wide consultation and placing business, NGO and scientific inputs on an equal footing with the government. In the past, multisector work has been restricted mainly to the planning of national development. The ground-breaking World Conservation Strategy from 1980, created by the UNEP, WWF, and IUCN, was incorporated into the strategy as one of the first national conservation strategies in the world, translating its principles into Zambia-specific plans and policies. The issues surrounding national development policy had not previously been brought up to the level of environmental group concern. NCSs contributed to the promotion of the three ecological development principles of biodiversity protection, ecological process preservation, and sustainable use of natural resources (Aongola *et al.* 2009).

5.4.2 How Environmental Education can be used to Achieve the Efficient use of Natural Resources as one of the Pillars of the Green Economy

The study findings thematically focused on education and awareness, behavioral change, innovation, production and consumption, skills and capacities, bonding with nature, and equity and justice, emphasizing the significant role of Environmental Education in promoting responsible management of natural resources and fostering sustainable behaviors.

5.4.2.1 Education, Awareness and Behaviour Change

The findings underscore the crucial aspect of educating individuals about the value of natural resources, the impacts of overexploitation, and the significance of conservation. This aligns with the emphasis on raising awareness and promoting understanding of sustainable practices found in earlier studies by UNESCO (2014) and Curtis (2003). These findings highlight the need for comprehensive and widespread educational initiatives both within formal educational institutions and in broader society to promote a culture of sustainability and responsible resource management.

Promoting sustainable behaviors that minimize waste and maximize the efficient use of natural resources is a common theme in these findings and is in line with UNESCO's (2014) and DAFF's (2010) emphasis on encouraging responsible consumption patterns and waste reduction practices.

The consistent focus on fostering a culture of sustainability and environmental stewardship aligns with earlier studies' recognition of the importance of individual and community-level behavioral change for sustainable resource management. The study further highlighted raising awareness about the finite nature of resources such as water, energy, and ecosystems and fostering a greater appreciation for the need to use resources efficiently and sustainably. Kluczowe. *et al* (2017) defines education and raising awareness as a collection of various activities aimed at a particular target group and scheduled for a given period of time with the goal of increasing knowledge and bringing about behavioural and mental changes regarding a particular social problem. Raising awareness and educating people use social campaign tools and commercial marketing advertising strategies. They consist of advertising on radio, television, the internet, and print media. Although the focal point of a well-planned social campaign intervention is not usually crucial in this context, it does have a significant impact on public perception and brings this issue to the attention of a large audience. Education and raising awareness apply social campaign tools and advertising techniques associated with commercial marketing. These media include advertising through different types of media, such as television, radio, the internet and print. This is not usually the main component of a well-prepared social campaign (very important in this regard is also intervention); rather, it plays an important role in terms of its public perception and draws the attention of a wide audience to the problem. Zambia embraces environmental education through activities, such as the formation of clubs in schools such as the Chipembele and Chongololo clubs on world life-related issues as well as the Mundawanga Botanical Gardens, where people are free to go and learn more about Environmental Education, constitute another commitment toward the protection of the environment. Although not directly referred to as environment education at the primary level in schools, Environmental Education does exist where pupils learn about environment-related issues in science and social studies. At the high school level, environmental issues are taught in geography and biology. At the university and college levels, the University of Zambia main campus currently offers environmental courses in the School of Natural Sciences, Department of Geography and School of Education, which have designed a special program that concentrates on Environmental Education with the hope of increasing environmental awareness programs in the country (Chipatu 2011).

5.4.2.2 Innovative use of Resources through Sustainable Production and Consumption

The findings underscore the role of Environmental Education in inspiring innovation and creativity in finding resource-efficient solutions, echoing UNESCO's (2014) call for the provision of knowledge about sustainable technologies and the adoption of eco-friendly practices. This

emphasis on nurturing a mindset of innovation in sustainable resource management is consistent with the broader goal of driving the development and adoption of resource-efficient technologies and practices highlighted in earlier studies. The importance of responsible production and consumption patterns that prioritize resource efficiency is highlighted in the findings, aligning with UNESCO (2014) and DAFF's (2010) recognition of the need to educate individuals about the impacts of their choices as consumers. The emphasis on encouraging the adoption of sustainable production methods and eco-friendly products and services is consistent with earlier studies' focus on promoting environmentally conscious consumption and production practices. The study further revealed that by fostering a culture of sustainability, Environmental Education can contribute to the efficient utilization of natural resources at the individual and community levels. Tapia-Fonllem *et al.* (2016) further outline sustainable behaviours as a collection of intentional and successful acts that lead to the preservation of social and natural resources; these behaviours include actions that are pro-ecological, economical, charitable, and fair. Their first contribution to improving quality of life is that these actions enable the preservation of the natural environment and the defense of social integrity. Furthermore, people who engage in sustainable behaviours often experience positive psychological outcomes, including satisfaction, self-efficacy, psychological wellbeing and restoration, happiness, and even pleasure. These effects are the subjective aspects of quality of life that ought to be included in the list of advantages of sustainable behaviour. The findings agree with Zambia's keep Zambia Clean and Green Campaigns is an initiative in line with issues related to waste management which are considered matters of priority. Citizens are educated through these programs on the need to live in a clean and green environment, subsequently leading to sustainable living. Although the time allocated to these programs is limited, the difference can be seen as compared to when the program was introduced. Environmental articles in print media and environmental programs aired on radio and television during news times where a segment of environmental awareness has been spared on national television are part of the country's commitment to Environmental Education.

5.4.2.3 Skills and Capacities to bond with Nature and Equitable use of Resources

According to Franks (2015), justice and equity are not completely synonymous ideas. Legally speaking, there are some notable distinctions. To put it simply, equity places more of an emphasis on recognizing and balancing the rights and interests of various stakeholders, such as inclusion, which typically implies an emphasis on the rights and interests of social groups that have been excluded due to gender, ethnicity, poverty, and/or other social factors, than justice does on recognizing and upholding rights as defined by international and national law. All three terms

equity, justice, and inclusion can be thought of as variations on the theme of fairness in everyday language. In essence, there are three imaging dimensions, recognition, procedure, and distribution, that can be used to understand the ideas of equity and justice. "Procedure" refers to the inclusiveness of decision-making processes, whereas "distribution" refers to the costs and benefits that impact human wellbeing. Although it has not received as much attention as it once did, the concept of "recognition" is becoming increasingly important. It states that acknowledging the rights, interests, concerns, and grievances of stakeholders is crucial for establishing procedural equity as well as influencing public perceptions of equity.

These findings stress the importance of building the skills and capacities needed for the sustainable management of natural resources, resonating with earlier studies by Duke and Holt (2023) emphasizing training and education in areas such as sustainable agriculture, water conservation, and ecosystem stewardship. This common focus underscores the ongoing importance of equipping individuals and communities with the necessary knowledge and skills for efficient resource utilization. Fostering a sense of connection to the natural world and promoting environmental stewardship align with earlier studies' recognition of the interdependence between human activities and natural systems and the importance of inspiring individuals to take action to protect and responsibly manage natural resources. The study further analyses the promotion of environmental stewardship and provides a deep understanding of the interdependence between human activities and natural systems, which results in the appreciation of the efficient use of natural resources. This is contrary to Duke and Holt (2023), who claim that a person's connection to the natural world, whether conscious or not, is "innate," implying that this connection stems from the fact that humans have an evolutionary history and have depended on these natural systems both past and present for survival. A person's relationship with nature can be characterized by a multidimensional construct called "connection," which is often focused on specific places or landscapes and includes emotional, cognitive, and behavioural characteristics. Furthermore, a number of behaviours that affect public policy and human interest have been found to be predicted by a connection to nature. Adherence to sustainable practices has been associated with a stronger sense of connection to the natural world, indicating that people with stronger ties to the natural world take greater care of it and work to preserve it.

The emphasis on encouraging people to support initiatives that promote efficient resource use echoes the broader goal of instilling a deep understanding of and connection with the natural environment. These findings emphasize the need to increase awareness of the unequal distribution of and access to natural resources, which is consistent with UNESCO's (2014) and

DAFF's (2010) recognition of the need to promote environmental justice and inclusivity. The shared emphasis on ensuring that the efficient use of natural resources benefits all members of society aligns with earlier studies' acknowledgement of the social and environmental implications of resource exploitation and the need for equitable and just resource management.

The findings presented complement and extend the insights provided by earlier studies by emphasizing the multifaceted role of Environmental Education in promoting sustainable resource management. By highlighting the importance of education and awareness, behavioral change, innovation, production and consumption, skills and capacities, bonding with nature, and equity and justice, these findings underscore the enduring relevance of Environmental Education in addressing contemporary challenges related to natural resource management and sustainability. These findings are consistent with earlier studies by UNESCO (2014), DAFF (2010), Curtis (2003), Woods (1983), Martin and Woodhill (1995), and Bryon and Curtis (2002), highlighting the persistent relevance and importance of Environmental Education across various contexts. Unlike cross-referenced studies, this study revealed that Environmental Education can be used to achieve the efficient use of natural resources as one of the pillars of the green economy by raising awareness, fostering responsible attitudes, and promoting sustainable practices that provide a pathway to achieving the efficient use of natural resources. The study showed that the integration of Environmental Education through formal education curricula, vocation training programs, community outreach initiatives, and corporate sustainability efforts is important for achieving the efficient use of natural resources in a green economy. The study further argued that by embedding Environmental Education across various sectors, a wide audience can reach and drive meaningful change toward resource efficiency and conservation. Collaboration between governments, educational institutions, civil society organizations, businesses, and communities is essential for scaling up Environmental Education efforts and maximizing their impact. The study highlighted that by working together, stakeholders can develop comprehensive strategies, share best practices, and mobilize resources to advance Environmental Education as a key enabler of efficient resource use in a green economy. The overall perspective from the study is that Environmental Education serves as a fundamental catalyst for transforming attitudes, behaviours, and systems towards sustainability, thereby contributing to the efficient use of natural resources in a green economy. The study revealed that empowering individuals with the knowledge, skills, and motivation to embrace resource-efficient practices can drive the transition toward a more environmentally responsible and resource-conscious society.

5.4.2.4 Encouraging Innovation for the Efficient Use of Natural Resources

The study revealed that innovations play a vital role in the efficient use of natural resources. Through Environmental Education, individuals are encouraged to go an extra mile in bringing innovations that can help in the efficient use of natural resources. Table 1.5 in the previous chapter shows that Environmental Education inspires innovation and creativity in finding natural resource-efficient solutions. The study showed that providing knowledge about sustainable technologies, circular economic principles, and eco-friendly practices is one way of encouraging innovations or new ideas for the efficient use of natural resources. Furthermore, the study reviewed that nurturing mindsets are part of innovations that are able to drive the developmental agenda and adoption of resource-efficient technologies and practices. Kuczmarksi, (2003). Innovation is the process of developing novel concepts, items, gadgets, or ideas. It is a mindset, an approach to looking forward and past the here and now. Innovations hold great significance for businesses, and when employed effectively, they can function as a process, strategy, or management technique. Undoubtedly, individuals are living in a highly innovative era marked by both rapid technological advancement and significant shifts in the way markets are liberalized and how trade and cultural exchanges are conducted globally. The key to maintaining a competitive edge and ensuring future prosperity in this new economy will be the creative application of knowledge to produce high-value goods and services. However, it is not guaranteed that innovation in and of itself will improve the environment.

5.4.2.5 Fostering Responsible Production and Consumption for Efficient Use of Natural Resources

This study revealed that fostering responsible production and consumption for the efficient use of natural resources through Environmental Education is key. Table 5 in the previous chapter stresses that Environmental Education emphasis is on the importance of responsible production and consumption patterns that prioritize resource efficiency. Furthermore, the study points toward the importance of educating individuals about the impacts of their choices as consumers and of their practices as businesses and encourages the adoption of sustainable production methods and the selection of eco-friendly products and services. According to UNEP (2015), production and consumption are defined as "the use of services and related products which respond to basic needs and bring a better quality of life while minimizing the use of natural resources and toxic materials as well as the emission of waste and pollutants over the life cycle of the service or product so as not to jeopardize the needs of future generations." This definition is widely used and was cited by ISSD (1994). Production and consumption are defined in a variety of ways, but what matters is that their fundamental tenets emphasize raising the standard of living while

preventing environmental damage and protecting future generations' access to resources. Among the 17 global goals that make up the 2030 Agenda for Sustainable Development, one of the main aims set forth by the United Nations (UN) is the Sustainable Development Goal (SDG 12). With a focus on "responsible consumption and production", this goal aims to promote socially and environmentally responsible behaviour at the individual and corporate levels, promoting both the long-term preservation of the environment and the welfare of people. SDG 12's first target emphasizes the implementation of a 10-year framework of programmes on sustainable consumption and production. All these countries are expected to take action, with developed countries leading the way while taking developing countries' capacities and development into account (UNEP 2018).

5.4.2.6 Building skills and Capacities for the Efficient use of Natural Resources

The study revealed that building skills and capacities through Environmental Education is vital for ensuring the efficient use of natural resources. Table 5 indicates that building the skills and capacities needed for the sustainable management of natural resources and providing training and education in areas such as sustainable agriculture, water conservation, energy management, and ecosystem stewardship ensure that individuals and communities are equipped to utilize natural resources efficiently. According to the UNEP (2002), capacity building has no universally accepted definition. Thus, capacity building should be characterized as an all-encompassing, multifaceted enterprise. It entails developing the skills, connections, and moral principles that will help businesses, teams, and people reach their goals for growth and performance improvement. This approach entails bolstering the procedures, frameworks, and guidelines that impact both group and individual behaviour and output in all development initiatives. Building capacity refers to improving people's technical proficiency and readiness to take on new roles in their development and adjust to changing circumstances. However, without the most recent data, expertise, resources, and abilities to address these different problems, environmental considerations cannot be fully understood. Considering this, capacity building ought to be at the forefront of the sustainable development agenda to meet the needs of the present generation without compromising the ability of future generations to meet their own needs. According to Agenda 21 chapter 37, a nation's capacity to pursue sustainable development pathways is largely based on the capabilities of its institutions and people as well as its physical and ecological attributes. Building the nation's human, scientific, technological, organizational, institutional, and resource capacities is specifically included in capacity-building. Enhancing the capacity to assess and respond to important questions about policy decisions and modes of implementation among

development options, based on an understanding of environmental potentials and limitations as well as needs as perceived by the national populace, is a fundamental goal of capacity building. Therefore, all nations have a shared need to strengthen their national capacities.

5.5 How Environmental Education may be used to influence Social Inclusivity within the Green Economy and Growth Agenda in Zambia

Developing an inclusive Environmental Education that reflects diverse cultural, social, and historical perspectives has been a topic of interest in several studies, including those by Silver (2015), Dugatova (2015), Davis and Benn (2019), Heimlich and Ardoin (2008), Johnson and Stevenson (2017), O'Toole and Castillo (2016), Mikkelsen (2015), Zelezny, Chua, and Aldrich (2000), and Chawla (2015).

The emerging perspectives from the study show that incorporating environmental knowledge from different cultures and communities can promote a sense of belonging and respect for diverse ways of knowing and interacting with the environment. By doing so, educators can engage learners from various backgrounds and help them connect with environmental issues on a personal and cultural level. This approach aligns with the findings of Heimlich and Ardoin (2008) and Davis and Benn (2019), who stress the importance of recognizing and incorporating diverse perspectives in Environmental Education to foster a more holistic understanding of environmental issues. Including topics such as environmental justice, indigenous knowledge, and community-based conservation approaches is crucial for helping students see the relevance of environmental issues to their own lives and experiences, as emphasized in the studies by Johnson and Stevenson (2017) and O'Toole and Castillo (2016). The study showed that environmental educators can highlight the interconnectedness of environmental issues with social and cultural dynamics, making the subject matter more relatable and engaging for learners from various backgrounds, which may promote collaborative work toward achieving a green economy. Highlighting diverse environmental leaders, role models, and professionals from various backgrounds can serve as an inspiration for underrepresented groups to engage with environmental issues and pursue careers in environmental fields. This partly aligns with the findings of Mikkelsen (2015) and Zelezny but differs from the findings of Chua and Aldrich (2000), who argue that representation by key figures may not necessarily inspire and empower individuals from diverse backgrounds to actively participate in environmental initiatives and advocate for environmental sustainability.

Showcasing diverse perspectives and experiences within Environmental Education can challenge stereotypes and promote inclusivity within the environmental movement. Chawla (2015) noted

this point earlier and highlighted the significance of including diverse voices and experiences to create a more inclusive and representative Environmental Education curriculum. Moreover, workshops, seminars, and guest speaker events featuring diverse environmental voices can provide students with a broader understanding of the environment and the potential for making a difference regardless of their background. This aligns with the findings of several studies emphasizing the importance of exposure to diverse environmental perspectives and voices in enriching the educational experience and broadening students' perspectives. Further study findings further indicated that community involvement is also a critical aspect of inclusive processes toward achieving a green economy. Engaging communities in participatory decision-making processes related to environmental issues, involving diverse community members in local environmental initiatives, projects, and advocacy efforts, and empowering individuals to address environmental challenges collectively are identified as essential steps toward promoting inclusivity toward the green economy (Chawla, 2015). These aspects are consistent with the findings of several studies emphasizing the importance of community engagement and participation in fostering a sense of ownership and responsibility toward environmental issues.

Recognizing the intersections between environmental issues and social justice concerns is crucial for promoting inclusivity in Environmental Education, as highlighted in the studies by Johnson and Stevenson (2017) and Heimlich and Ardoin (2008). The study findings acknowledge how environmental challenges disproportionately impact marginalized communities, and educators can facilitate discussions on the interconnectedness of environmental and social issues, leading to a more comprehensive and empathetic understanding of the complex relationships between race, class, gender, and environmental justice. Creating accessible and culturally relevant Environmental Education materials and resources can ensure that individuals from diverse backgrounds have equal opportunities to engage with environmental learning. Strategies such as providing translations, incorporating multimedia formats, and tailoring educational materials to different cultural contexts, as suggested by several studies, can help make Environmental Education more inclusive and accessible, reaching a wider audience and promoting a more equitable understanding of environmental issues.

Generally, the study, in line with the insights of earlier studies, notes that developing an inclusive social space for greening the economy reflects diverse cultural, social, and historical perspectives and is essential for engaging both young and adult learners from various backgrounds. Incorporating environmental knowledge from different cultures, highlighting diverse perspectives, involving community members, and addressing social justice concerns are all key

elements of inclusive environmental processes related to green economic development. By embracing these principles, educators can promote a more equitable understanding of environmental issues and inspire individuals from diverse backgrounds to actively participate in environmental initiatives and advocate for sustainability as well as green transitioning of the economy. In Zambia, studies in line with social inclusivity have proven to be difficult, it is the studies by Namafe and Muchanga (2019); Muchanga and Nakazwe (2015); that have advocated for inclusion of environmental education, ESD and green concepts into the formal and informal settings. Research in Zambia has focused on sustainable development and social inclusivity in various sectors, such as agriculture, energy, and natural resource management. These studies emphasize the importance of social inclusivity in achieving sustainable development goals and addressing social justice issues. For example, Chomba and Bond (2020) explored the challenges and opportunities of social inclusivity in Zambia's agriculture sector. They highlighted the need for inclusive agricultural policies and practices that promote the active participation and empowerment of small-scale farmers and marginalized groups. Furthermore, the findings contradicted with Muzumi and Chonde (2019) who through examining the role of community-based natural resource management in Zambia, highlighted the need for inclusive decision-making processes and equitable benefit-sharing to ensure social inclusivity. In the context of sustainable energy access, research in Zambia explores social inclusivity by examining the barriers faced by marginalized communities.

5.6 How Environmental Education may integrate the Low-Carbon Economy into the Green Economy and Growth Agenda in Lusaka, Zambia

Comparing different studies on Environmental Education and its role in achieving a low-carbon green economy reveals several common and divergent themes and findings.

5.6.1 Raising people's Understanding and Awareness of the Importance of a Low-Carbon Economy

Lysgaard *et al.* (2017) argue that people are likely to practice what they fully understand rather than what they are not. Similarly, the current study stresses the value of Environmental Education in helping society understand the importance of a low-carbon economy, the impacts of overexploitation, and the need for conservation. This aligns with the findings of various scholars who have also highlighted the significance of Environmental Education in creating awareness about sustainability and conservation efforts. Studies by Pujol *et al.* (2015), Sterling (2011), and McLain *et al.* (2017) also emphasize the role of Environmental Education in helping individuals understand the value of natural resources, the need for conservation and the achievement of low

carbon. While earlier studies still seem to only lightly regard Environmental Education as a catalyst for low carbon emissions, this study underscores the role of Environmental Education in promoting awareness of the impacts of carbon emissions on the environment and climate change. This aligns with the findings of Rickinson *et al*. (2004), who emphasized the importance of Environmental Education in addressing climate change and its impacts. However, a study by Scally *et al*. (2019) argues that Environmental Education can only manifest its full potential in raising awareness about the causes and consequences of high carbon emissions if policy makers embrace it across all formal and informal institutions for public understanding of climate change issues. This is perhaps the most ubiquitous challenge for a country such as Zambia, where policy and law makers have yet to fully understand the role of Environmental Education in addressing diverse environmental challenges. The findings of the study agree with Mwape and Kabali (2012) whose emphasis is on the importance of creating awareness about carbon emissions and promoting the adoption of carbon-efficient practices among individuals and communities in Zambia. Successful initiatives and providing recommendations for future strategies stresses the need for environmental education. However, Kambole and Mulenga (2015), discovered that the influence of education on the adoption of carbon-efficient practices in rural areas of Zambia was strong among individuals who had received environmental education and where more likely to adopt practices such as energy-saving measures and sustainable agricultural techniques than individuals who did not. These approaches, where similar to Banda and Ngoma (2018) who examined the impact of environmental education initiatives, such as workshops and community outreach programs, on carbon efficiency in urban areas of Zambia. They noted that these initiatives significantly influenced individuals' behavior, leading to the adoption of carbon-efficient practices in their daily lives.

5.6.2 Building advocacy Capacity for Low-Carbon Policies and Innovation

The text also emphasizes the importance of empowering individuals to make informed choices and advocate for sustainable policies and practices. This finding aligns with the findings of several scholars, including Wals and Jickling (2002), who have highlighted the role of Environmental Education in empowering individuals to adopt sustainable behaviours and advocate for environmental and low-carbon policies. The study noted that Environmental Education can equip individuals with the knowledge and skills to engage in policy discussions and advocate for sustainable initiatives, but with caution from other studies (Rickinson *et al*.; 2004; Scally *et al*., 2019) that this is only possible in the presence of political will. For example, at the time this study was performed, the Zambian government established a ministry dedicated to

the green economy and the environment. While this was deemed to be a positive move, it would require a strong will to embrace Environmental Education as a tool to promote low carbon. Moreover, the study underscores the role of Environmental Education in inspiring innovation and creativity in finding low-carbon solutions. This point is also supported by the works of Sterling (2001) and Wals and Jickling (2002), who highlighted the role of Environmental Education in fostering creativity and innovation in addressing environmental challenges such as high carbon emissions. The idea of promoting energy conservation, waste reduction, sustainable transportation, and responsible consumption patterns, as found in this study, is in line with the findings of various scholars, such as Scally *et al.* (2019), who have emphasized the importance of Environmental Education in promoting sustainable behaviours and practices that promote a green economy. However, Radhika Perrot and Maruf Sanni (2018) contends that no nation or region especially in Africa can follow a single, uncontested route to switch from fossil fuels to low-carbon energy sources. Rather, as historical evidence suggests, there are numerous ways to accomplish the goals of a low-carbon energy system transition. These results are often obtained in the framework of national systems of innovation (NSIs), which are networks of actors (e.g., companies, universities, research institutes, government agencies, and non-governmental organisations) that form and collaborate to support innovation processes like those involved in technology development, transfer, and market adoption.

5.6.3 Building an Environmentally Educated workforce for Green Transitioning and a sense of Agency

Generally, an environmentally educated society is a prerequisite for a stable green economy and a low-carbon society. The study highlights the potential of Environmental Education for building a skilled workforce capable of driving the transition to a low-carbon economy. These findings align with those of Pujol *et al.* (2015) and McLain *et al.* (2017), who highlighted the role of Environmental Education in providing training and education related to sustainable technologies, environmental management, and green business practices. The idea of Environmental Education empowering people to participate in decision-making processes and advocate for policies that support the transition to a green economy was strongly supported by the current study. In addition, decision makers must harness the principles of Environmental Education to effectively achieve this goal. The study further notes that Environmental Education can foster a sense of connection to the natural world and promote environmental stewardship, which can eventually lead to a low-carbon economy. Unlike Sterling (2001), who seems to partly emphasize the role of technology in nurturing a sense of responsibility toward the environment and promoting

environmental stewardship, this study noted that some challenges with the environment require behavioural change first, which may lead to impactful adoption of technologies that promote low carbon. Synoptically, the critical analysis of these findings in comparison with the findings of Lysgaard et al., 2017; Wals and Jickling, 2002; McLain *et al.*, 2017; Pujol *et al*., 2015; Sterling, 2001; Rickinson et al., 2004; and Scally *et al*., 2019 highlights the multifaceted role of Environmental Education in addressing carbon emissions and promoting sustainability. The collective findings underscore the importance of Environmental Education in creating awareness, inspiring action, fostering innovation, and empowering individuals to drive the transition toward a low-carbon economy and a more sustainable future. However, Africa Environmental Education and Training Action Plan (2015–2024) argues that people's productivity and quality of life, environmental education and training promotes self-understanding of ecosystem services and functions. This leads to behavioural shifts, technological advancements, and environmentally responsible entrepreneurship. Environmental risks and issues, as well as their causes, must be understood by the public. In order to guarantee ecological sustainability, human well-being, and sustainable development, they also need to acquire the values and action competencies required to react to problems, create new ones, and alter current practices. For this reason, environmental education and training are essential to achieving the larger objective of education for sustainable development.

5.7 Reflective Theoretical implications of the Findings

Environmental education plays a crucial role in promoting efficient use of natural resources, social inclusivity, and the adoption of low carbon practices. The key findings from this study provides important theoretical implications that align with transformative learning theory and the philosophy of Hermeneutics. Transformative learning theory posits that education has the power to transform individuals' perspectives and behaviours, leading to personal and societal change. The findings that individuals who received environmental education were more likely to adopt carbon-efficient practices demonstrate the transformative effects of education. By providing individuals with knowledge and awareness about the impact of their actions on the environment, environmental education empowers them to make more sustainable choices. This aligns with the key assumption of transformative learning theory that education should create a critical reflection on one's individual choices and lead to transformative change.

Furthermore, the philosophy of Hermeneutics emphasizes the interpretation and understanding of various perspectives and contexts. In the context of environmental education, this philosophy highlights the importance of diverse narratives and inclusive dialogue. This study which focused

on understanding the role of environmental education initiatives on carbon efficiency, exemplifies the inclusive nature of environmental education in addressing many overlooked challenges around green transitioning. By engaging communities through workshops and community outreach programs, these initiatives bring together individuals from different backgrounds and enable them to exchange ideas and interpret the environmental issues they face. This aligns with the philosophy of Hermeneutics, where understanding the environment and the need for sustainable practices requires an inclusive and collective interpretation of diverse viewpoints.

Moreover, the findings also have theoretical implications for the efficient use of natural resources. The key assumption underlying this notion is that environmental education can create awareness about the limited availability of natural resources and the need for their sustainable management. By fostering a deeper understanding of the ecological systems and the interconnections between human activities and the environment, environmental education can promote the efficient use of natural resources. The study conducted among smallholder farmers in Zambia further highlights the importance of climate change knowledge in adopting resource-efficient techniques. This suggests that environmental education can equip individuals with the necessary knowledge and skills to adapt to changing environmental conditions, thus promoting sustainability in resource use. Generally, the key findings on the role of environmental education in promoting efficient use of natural resources, social inclusivity, and adoption of low carbon practices have significant theoretical implications. These findings align with transformative learning theory, emphasizing the potential of education to bring about transformative change in individual perspectives and behaviors. The philosophy of Hermeneutics also supports these findings by highlighting the significance of inclusive dialogue and diverse interpretations in environmental education. By fostering awareness, understanding, and critical thinking, environmental education can contribute to a more sustainable and inclusive future by promoting the efficient use of natural resources and the adoption of low carbon practices.

5.8 Chapter Summary

Chapter five dealt with the discussion of the research findings. The study discussed that environmental education is a complete lifelong learning process meant to build the capacity for environmental sustainability that will develop responsible people who are able to explore and recognize environmental problems, solve them, and take appropriate action to protect the environment and are well placed to promote behavioural change. The study discussed different perspectives regarding the importance of environmental education to society which stresses that

the promotion of capacity building for the management of environmental challenges equips society with regard on how to take care of the environment and its daily challenges. The study discussed that one emerging perspective of efficient use of natural resources, involves preserving them for present and future generations, recognizing that resources serve as capital for economic development. The study also discussed the promotion of regeneration to achieve maximum long-term benefits through natural regrowth or artificial methods. The study also discussed the need to focus on education and awareness, behavioral change, innovation, production and consumption, skills and capacities, bonding with nature, and equity and justice, emphasizing the significant role of environmental education in promoting responsible management of natural resources and fostering sustainable behaviors. The study further discussed that developing an inclusive environmental education that reflects diverse cultural, social, and historical perspectives should be a topic of interest in several studies. The study also discussed that the emerging perspectives should show that incorporating environmental knowledge from different cultures and communities can promote a sense of belonging and respect for diverse ways of knowing and interacting with the environment. The study also discussed how comparing different studies on environmental education and its role in achieving a low-carbon green economy reveals several common and divergent themes and findings.

CHAPTER SIX: CONCLUSION AND RECOMMENDATIONS

6.1 Overview

This chapter presents the conclusion and recommendations drawn from the findings of the study. It also attempts to show that the questions raised in this research were adequately addressed and recommendations presented. The chapter endeavours to fill the gap that has been explicitly exposed regarding contextualizing Environmental Education within the Green Economy and Growth agenda in Lusaka, Zambia. It begins with a conclusion followed by the recommendations.

6.2 Conclusion

In conclusion, this study has shed light on the importance of contextualizing Environmental Education within the green economy and growth agenda in Zambia. The findings underscore the critical need for interdisciplinary approaches that integrate Environmental Education into economic development policies and practices. By emphasizing the interconnectedness of environmental, social, and economic systems, Zambia can better address sustainability challenges while fostering inclusive and equitable development. The study has highlighted that Environmental Education plays a pivotal role in promoting a deeper understanding of the interdependencies among efficient use of natural resources, economic activities that are carbon efficient, as well as social inclusivity and human well-being. By integrating Environmental Education into the green economy and growth agenda, Zambia can empower individuals and communities to make informed decisions that support sustainable development. This approach can enhance environmental stewardship, promote resource efficiency, and mitigate the adverse impacts of economic activities on ecosystems and biodiversity.

Moreover, the study has emphasized that integrating Environmental Education into the green economy and growth agenda can contribute to building a skilled and knowledgeable workforce. By equipping individuals with the necessary environmental literacy and competencies, Zambia can foster innovation, entrepreneurship, and the adoption of sustainable technologies. This can enable the country to capitalize on green growth opportunities, create green jobs, and enhance its competitiveness in the global green economy. Furthermore, the study has underscored the significance of fostering partnerships and collaboration among diverse stakeholders, including government agencies, educational institutions, civil society organizations, and the private sector. By working together, these actors can collectively design and implement effective Environmental Education initiatives that align with the principles of the green economy and growth agenda. This collaborative approach can help leverage

resources, share best practices, and maximize the impact of Environmental Education efforts across various sectors of society.

The study has also emphasized the importance of integrating indigenous knowledge and local perspectives into Environmental Education initiatives. By recognizing the wisdom embedded in traditional ecological knowledge and cultural practices, Zambia can enrich its educational programs and policies with context-specific insights. This can enhance the relevance and effectiveness of Environmental Education, as well as promote respect for diverse worldviews and values related to sustainable living and stewardship of natural resources. Moreover, the study has drawn attention to the significance of monitoring and evaluation mechanisms to assess the impact of Environmental Education within the green economy and growth agenda. By systematically measuring the effectiveness of educational interventions, Zambia can identify areas for improvement, refine strategies, and ensure the meaningful integration of Environmental Education into sustainable development efforts. This evidence-based approach can help inform policy decisions, allocate resources efficiently, and enhance the long-term sustainability of Environmental Education initiatives.

Generally, this study presents a case that shows that, by embracing a holistic and inclusive approach, Zambia can harness the transformative power of education to foster sustainable development, promote green innovation, and build a resilient society. Through concerted efforts to integrate Environmental Education into national policies, curricula, and community engagement, Zambia can nurture a generation of environmentally conscious citizens who are equipped to contribute to a thriving green economy and a healthier planet. Moving forward, it is imperative for stakeholders to prioritize the integration of Environmental Education into the broader sustainability agenda, thereby laying the foundation for a more harmonious and prosperous future for Zambia and its people.

6.3 Recommendations

Based on how analytic engagement with the study findings on contextualizing Environmental Education in green economy and growth agenda in Zambia, the study makes the following recommendations, which if implemented, can significantly contribute to promoting the efficient use of natural resources, low carbon technologies, and social inclusivity through effective Environmental Education initiatives across various sectors of society:

i. Given the general recognition of the significant role that environmental education can play in green economy transition and growth agenda, it is recommended that

Environmental Education be integrated by the government and other stake holders into various formal settings that deal with green economy issues, focusing on the efficient use of natural resources, low carbon technologies, and social inclusivity. This will ensure that environmental principles are embedded in the practical experiences of various institutions, fostering a culture of sustainability and social responsibility.

ii. The results of the study showed that Environmental Education is key in building the needed capacity for implementation of green economy and growth agenda. The study recommends that relevant authorities such the Ministry of green economy and environment to provide training and capacity-building programs for resource efficiency and low carbon technologies to stakeholders across various sectors, including industry, agriculture, and manufacturing. By equipping individuals and organizations with the knowledge and skills to minimize resource consumption and emissions, Environmental Education can drive tangible improvements in sustainability practices.

iii. There is also need by the Zambian government to implement community outreach and engagement programs that raise awareness about the efficient use of natural resources and low carbon solutions, while ensuring inclusivity across diverse social groups. These programs can empower communities to adopt sustainable practices and participate in the transition to a low carbon economy, fostering social equity and inclusion.

iv. The MoGEE must start promoting the adoption of sustainable technologies through educational initiatives that highlight the economic, environmental, and social benefits of low carbon solutions. By demonstrating the potential for innovation and economic growth in sustainable technology sectors, Environmental Education can inspire individuals and businesses to embrace resource-efficient practices.

v. In collaboration with academia, the government must develop educational programmes that encourage entrepreneurship in green and low carbon sectors, fostering economic opportunities while promoting the efficient use of natural resources. By nurturing a new generation of environmentally conscious entrepreneurs, Environmental Education can drive innovation and job creation in sustainable industries, contributing to social inclusivity and economic development.

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APPENDICES

Appendix One: Letter of consent

Dear Respondent,

My name is (Charles Mumba Mukosha- Student Number ED 2200134) a post graduate student of Environmental Education and Management at the University of Zambia. I am carrying out an educational research on contextualizing Environmental Education within the Green Economy and Growth agenda in Zambia. You have been selected to be a participant on this significant undertaking because I do believe and trust that your contribution towards this research will achieve the information hoped for. May I take this opportunity to thank you in advance for accepting to be part of this important under taking.

Participant's signature……

Appendix Two: The semi-structured interview schedule for the participants.

This semi-structured interview schedule on "Contextualizing Environmental Education within the Green Economy and Growth agenda in Zambia" seeks to gather information, which could be useful on how Environmental Education can play a role towards the Green Economy and Growth agenda in general and how Environmental Education is able to specifically support Zambia's Green Economy and Growth agenda through promoting the efficient use of natural resources, specifically establish how Environmental Education can be used to influence social inclusivity within the Green Economy and Growth agenda in Zambia and to specifically determine how Environmental Education can integrate the low-carbon economy into the Green Economy and Growth agenda in Zambia. The findings will not only be for academic purpose but will contribute towards the broad knowledge foundation of Environmental Education, policy formulation, help in the strengthening of other policy documents that are already in existence and may also entice the private sector to invest in green business.

The information you are going to provide in this interview will be treated with a high degree of confidentiality thus; you are not supposed to indicate your name anywhere except for your signature. In this regard, you are kindly requested to answer the questions honestly.

Contextualizing Environmental Education within the Green Economy and Growth agenda in Zambia.

1. (a) Explain briefly what you understand by the word Environmental Education?.....
   .....
   .....

   (b) What are the advantages of using Environmental Education to any society?.....
   .....
   .....

   (c) Can Environmental Education influence any changes towards economic development of our country……..

   ……
   ……
   ……...

2. Briefly explain what you understand by the word Green Economy?.....

……

……

3. What is Green Growth……..

……..

……

4. (a) What is climate change…….

……

……...

(b) What are causes of climate change…….

……

……

……

(c) What are the disadvantages of climate change……

……..

……...

5. What do you understand by efficient use of natural resources…….

……

……...

6. What is Social inclusivity…….

……

……..

7. Explain briefly what you understand by the word Low carbon economy……

……

……

……

8. Do you know of any country in Africa that are using Environmental Education to attain Green Economy……?

   ……
   ……
   …….

9. In you own opinion how best can education in general be used to help the country achieve its economic development ……..

10. What do you understand by the word sustainable development……...

    ……
    ……
    ……...

Participant's signature……

Thank you for participating in this study.

Appendix Three: Focus group guide/ schedule

Introduction

My name is Charles Mumba Mukosha, a post graduate student at the University of Zambia (UNZA), conducting a research on contextualizing Environmental Education within the Green Economy and Growth in Zambia. It is in this vein, that studies of this nature should be conducted for in-depth understanding on how economic advancement can be achieve whilst implementing mitigation measures to try and resuscitate our fragile planet earth from various environmental issues such as climate change. You have been selected to be one of the participants to this very important study. You are also assured that the information you will provide will be treated confidential and also strictly be for academic purposes. You are also requested to be as frank and truthful as possible in giving your discussion.

The guide

1. Discuss what you understand by Environmental Education, Green Economy and Growth?
2. Discuss what you understand the role of Environmental Education in Green Economy and Growth agenda.
3. What challenges are people facing in acquiring environmental knowledge in communities?
4. Explain environmental challenges been experienced in communities today and discuss what should be done to reduce them.
5. Discuss the availability of environmental awareness programs in communities.
6. Discuss other sources of environmental awareness information apart from school programs and what should be done to make them sustainable?
7. Discuss environmental awareness programs initiated by government in communities?
8. What do you recommend should be done in various communities in as far as environmental awareness is concerned?

Thank you very much for participating in this discussion. God bless you.

Appendix Four: Responses from the participants.

Explain briefly what you understand of the concept of Environmental Education?

Participants ID	Timestamp	Responses
#1	09/11/2023 3:42:38 pm	Environmental Education is basically an educational approach that can equip different classes of communities with skills that can help them care for the broad environment and be able to deal with environmental issues that are mostly caused by natural and anthropogenic actives.
#2	09/11/2023 3:53:43 pm	This is the acquisition of knowledge and skills both formally and informally in environmental matters which can be used and applied to foster a clean and green environment
#3	09/11/2023 8:33:20 pm	It is a kind of education that creates awareness among the citizenry in relation to how human activities negatively impact the environment and how they can develop skills and knowledge to address those challenges and problems.
#4	11/11/2023 7:49:15 am	Is a field or a discipline that looks at education and awareness of the environment. It can also be called environmental and sustainability education. The reason that we are talking about sustainability education is in the sense that whatever we are talking about in the environment, the environment must be sustained. So it is the focus when we talk about the environment we are talking about from the sustainability point of view. It will give you the skills and concepts to go about managing the environment.
#5	11/11/2023 8:20:56 am	Is a learning process that increases people's knowledge and awareness about the environment and its associated challenges.
#6	12/11/2023 8:55:50 am	EE is construed differently depending on where you are, but I would love to give it a more Zambian context by saying that environmental education is actually the process of acquiring values, attitudes, knowledge, and skills that promote behavioral change for the sustainability of the environment.

		So critical in the definition are values, attitudes, knowledge, and skills because the values and attitudes are the ones that are going to influence the actions that one is going to take towards the environment, and if you go around, most people are mistaking environmental awareness for environmental education. But environmental awareness ends with knowledge, so it cannot be compared to or be an alternative to environmental education in the sense that merely knowing something doesn't mean you are going to act. People know that caring for the environment is good, but do they have the attitudes and values to act so that there is a good environment? So that process of learning the values, attitudes, knowledge, and skills for behavioral change sustainability is what we call environmental
#7	12/11/2023 10:52:44 am	In brief, it starts by first knowing what the environment means, where the environment entails a place where animals of all kinds live and operate. While education is a process of imparting knowledge to people, Therefore, environmental education means the process of imparting knowledge to the people about the place they live and operate from
#8	13/11/2023 9:38:15 am	Education concerning our surroundings in which we live. Things concerning living and non-living things.
#9	13/11/2023 9:58:30 am	in the learning process, that increases people's knowledge and awareness about the environment and to manage it.
#10	13/11/2023 10:49:38 am	the process of educating individuals about the environment, its ecosystem and the interdependence between human and natural world. It aims to foster awareness, knowledge and responsible behaviour towards the environmental conservation and sustainability.

What is the importance of environmental education to society

Participant ID	Timestamp	Responses
#1	09/11/2023 3:42:38 pm	Environmental education has a number of advantages that would accrue to any society. The following are some of the advantages; It equips members of any society with values and attitudes on how to care for the environment.
#2	09/11/2023 3:53:43 pm	It allows for positive and good practices for the environment. It creates a clean and green environment. It allows for sustainable environmental practices. It creates a positive mindset for environmental practices and attitudes
#3	09/11/2023 8:33:20 pm	i. When you have a citizenry that is well informed concerning environmental issues, it is very easy to implement programs that are aimed at addressing negative effects on the environment as a result of human activities. ii. It is important for the seek of the leaders, especially on the political will, that the leaders will actually increase their speed in terms of formulating programs that are aimed at addressing these environmental problems and challenges.
#4	11/11/2023 7:49:15 am	Is a field or a discipline that looks at education and awareness of the environment. It can also be called environmental and sustainability education. The reason that we are talking about sustainability education is in the sense that whatever we are talking about in the environment, the environment must be sustained. So it is the focus when we talk about the environment we are talking about from the sustainability point of view. It will give you the skills

		and concepts to go about managing the environment.
#5	11/11/2023 8:20:56 am	Increased public awareness and knowledge about the environment through instilling respect for nature, promoting a healthy lifestyle, and personal growth
#6	12/11/2023 8:55:50 am	Most, if not all, environmental problems are more behavioral than technical. Behavioral in the sense that they start with an unsustainable mindset, so sustainable mindsets are the ones that drive people into unsustainable actions and eventually the effects that we see. So environmental education is advantageous in the sense that it will provide the required behavioral change for environmental sustainability. Secondly, it helps attack the problem from the root cause; environmental awareness is not on the reactive side but speaks to symptoms and not the root cause. Thirdly, it is a cost-effective intervention in the long run because behavior re-orients people's mindset, actions, attitudes, and values. At the end of the day, it may be very expensive from inception, but in the long run, you are going to have citizens or a population that is behaviorally changed, and they are not engaged in activities that may be cost-effective to the government, for example. The government is spending thousands of kwachas to manage the waste that is available the solutions that we are seeing today are pay a heavy toll because the population is not environmentally educated and there is no environmental sustainability. There is no green economy without an environmentally educated society. So, an environmentally educated society is what is going to bring about green growth and a

		green economy; it is the one that is going to bring sustainable development, so at the base of all the 17 SDG's, the foundation is actually environmental education, and this environmental education can actually fit well in the SDG 4 quality, and inclusive environmental education is what can provide a good platform. Environmental education can actually effectively help to achieve all 17 SDGs and if we fail on that point, we would have failed on all other SDGs and there will be no targets that can meet by 2030
#7	12/11/2023 10:52:44am	Environmental education is important because it makes us people to be aware, realize were we are and where we are coming from. It further helps to sharpen our minds on how to relate to the environment. Environmental education provides the right direction for how the environment should be managed. Lack of environmental education has led to various forms of degradation, for example, solid waste such as the plastic population at "Chunga Dump Site ". We cannot speak about climate change without environmental education. Issues of floods and other disasters would not have occurred had we had environmentally educated citizens. Hence, knowledge is important because it keeps citizens well informed in advance
#8	13/11/2023 9:38:15 am	Helps to preserve our environment. Helps to sustain and be aware about our environment.
#9	13/11/2023 9:58:30 am	It makes people in society understand how their decisions and actions affects the environment.
#10	13/11/2023 10:49:38am	It increases awareness, informed decision-making, sustainable practices, economic benefited, health and

		well-being, community engagement and biodiversity conservation.

How Environmental Education may support Zambia's Green Economy and Growth through the efficient use of natural resources.

Participant ID	Timestamp	Responses
#1	09/11/2023 3:42:38 pm	This is an approach that focuses more on equity. It strives to include to improve the participation of everyone in society especially the disadvantaged groups
#2	09/11/2023 3:53:43 pm	This is the recognition of vulnerable and marginalized groups within our society and the deliberate inclusion of everyone within a society regardless of their social status
#3	09/11/2023 8:33:20 pm	I understand it as where you create conditions that ensure that the citizenry has access to national resources like loans, facilities like loans, and grants. So you could introduce a program, for example, on capacity building, where you teach the citizens skills on how to manage their finances so that when they are given these grants, they are able to put them to good use. You need every citizen to participate in national development.
#4	11/11/2023 7:49:15 am	This is when you consider the population in the budget and in your social planning. It involves what is needed socially, economically, health-wise, and naturally. In short, all spheres of life
#5	11/11/2023 8:20:56 am	Type of inclusion that includes the social aspect of society. When decision-making is done, people are included in policy and decision-making.

#6	12/11/2023 8:55:50 am	Is the process of bringing everyone on board, including their gender, race, tribal background, their region where they are coming from, in the process of decision-making, in the process of conserving the environment, and in the process of benefiting. The resources must be equitably shared.
#7	12/11/2023 10:52:44am	Every country is gifted with resources such as rivers, mines, trees, wild life and so on etc. this is the using of earth's finite resources in a sustainable manner while minimizing environment effects.
#8	13/11/2023 9:38:15 am	Avoid leading into causing climate change. A void leading in deforestation
#9	13/11/2023 9:58:30 am	This is the utilising of natural resources sustainably.
#10	13/11/2023 10:49:38am	the responsibility and sustainable management of earth's finite resources in a way that maximizes their benefits while minimizing waste, environmental impact and depletion. It involves using resources in a manner that meets current needs without compromising the ability of future generations to meet their own needs.

How environmental Education may be used to influence social inclusivity within the Green Economy and Growth agenda in Zambia.

Participant ID	Timestamp	Responses
#1	09/11/2023 3:42:38 pm	This is an approach that focuses more on equity. It strives to include to improve the participation of everyone in society especially the disadvantaged groups
#2	09/11/2023 3:53:43 pm	This is the recognition of vulnerable and marginalized groups within our society and the deliberate inclusion

		of everyone within a society regardless of their social status
#3	09/11/2023 8:33:20 pm	I understand it as where you create conditions that ensure that the citizenry has access to national resources like loans, facilities like loans, and grants. So you could introduce a program, for example, on capacity building, where you teach the citizens skills on how to manage their finances so that when they are given these grants, they are able to put them to good use. You need every citizen to participate in national development.
#4	11/11/2023 7:49:15 am	This is when you consider the population in the budget and in your social planning. It involves what is needed socially, economically, health-wise, and naturally. In short, all spheres of life
#5	11/11/2023 8:20:56 am	Type of inclusion that includes the social aspect of society. When decision-making is done, people are included in policy and decision-making
#6	12/11/2023 8:55:50 am	This is the process of bringing everyone on board, including their gender, race, tribal background, their region where they are coming from, in the process of decision-making, in the process of conserving the environment, and in the process of benefiting. The resources must be equitably shared.
#7	12/11/2023 10:52:44am	It is a process of encouraging participation in society, especially for disadvantaged people, by enhancing opportunities, respect for human rights, and access to resources. There are perspectives on being inclusive by relating to everyone (environmental ethics). It brings out issues of doing to others the way you expect them to do to you. There must be a strong relationship with

		nature.
#8	13/11/2023 9:38:15 am	Involvement of the community or public in decision making of all activities.
#9	13/11/2023 9:58:30 am	This is the process of incorporating everyone in what happens in society by participation.
#10	13/11/2023 10:49:38am	is a concept that refers to the practices of ensuring that all individuals, regardless of their background, identity or circumstances, have equal access to opportunities, resources and participate in society. It aims to create a more equitable and just society by recognizing and valuing the diversity of individuals and communities

How Environmental Education may integrate the low-carbon economy into the Green Economy and Growth agenda in Zambia.

Participant ID	Timestamp	Responses
#1	09/11/2023 3:42:38 pm	This is an economy embedded on the reduction of the production of greenhouse gases. It focuses on sustainable development practices leaving the environment unharmed
#2	09/11/2023 3:53:43 pm	This is an economy that produces negligible amounts of Carbon emissions within its processes i.e. industrial, commercial, social etc.
#3	09/11/2023 8:33:20 pm	This is where you promote the use of resources or products that do not emit a lot of greenhouse gases (GHG) into the atmosphere. e.g., instead of using fuel with a high content of sulfur, you could use low-sulfur fuel (diesel), so to speak, this emits fewer greenhouse gases into the environment.
#4	11/11/2023 7:49:15 am	Manage the use of carbon where you are going to

		promote the carbon sinks or you promote facilities that are able to capture carbon and you are able to run the low use of carbon for example, promotion of electric cars, promotion of bio digesters instead of methane just escaping, you are able to capture it and utilize it just like that
#5	11/11/2023 8:20:56 am	Is one that has placed much emphasis on waste reduction, less consumption rate and does not allow pollution
#6	12/11/2023 8:55:50 am	This is the economy that uses new modes of processing and productivity but has a very minimal carbon footprint. Low-carbon-emitting economic processes involve smart technologies. Electric cars, solar industries, wind energy it is any economy where environmental education is main streamed across all industries
#7	12/11/2023 10:52:44am	This is any economy that produces fewer greenhouse gas emissions than the carbon-intensive economy of today. A low-carbon economy has come to replace the high carbon emissions the world is going through. Pollution has impacted negatively on the atmosphere. Pollution that is caused by activities such as the Chitemene system, plastics, car pollution, and many more low-carbon economies can be achieved through the replacement of biogas stoves in rural areas, the promotion of solar panels, and electrical cars.
#8	13/11/2023 9:38:15 am	Deals with industries or motor vehicles in reduction of carbon emissions
#9	13/11/2023 9:58:30 am	This is the economy that has minimum greenhouse gas emissions and minimized impact of human activities on climate.

#10	13/11/2023 10:49:38am	A law carbon economy is an economic system that aims to significantly reduce carbon dioxide and other greenhouse gas emissions associated with human activities, such as energy production, transportation, and industrial processes. The goal is to transition away from fossil fuel-based, high emission practices towards cleaner, more sustainable alternatives

Appendix Five: Responses from the Participants, Environmental Education Student Focus Group Discussion,

1.**Explain how EE can be used to achieve social Inclusivity as one of the pillars of Green Economy.**

Participant ID	Timestamp	Responses
1	29/11/2023 10:08:33 am	This can be achieved through awareness and skills training for marginalized groups like women and children
2	29/11/2023 4:03:45 pm	Environmental Education, when implemented effectively, can be a powerful tool in achieving social inclusivity as a pillar of the Green Economy. Additionally, EE aims to raise awareness and understanding about environmental issues and their impact on society. By promoting inclusive education, it ensures that all individuals, regardless of their background, have access to information and knowledge about environmental challenges. This creates a shared understanding of the need for sustainability and inclusivity. EE can also empower marginalized communities by providing them with the necessary knowledge and skills to actively contribute to the green economy. Through targeted programs, these communities can learn about sustainable practices, alternative energy sources, and green technologies, enabling them to participate in eco-friendly economic activities. Furthermore, EE encourages collaboration among diverse stakeholders, including government, civil society organizations, businesses, and communities. By bringing together individuals from different backgrounds, it also promotes dialogue
3	29/11/2023 5:54:58 pm	Incorporating environmental education (EE) in the Green Economy promotes social inclusivity by raising awareness about sustainable practices, fostering a sense of responsibility, and empowering diverse communities

		to actively participate in environmentally friendly initiatives
4	29/11/2023 6:17:41 pm	EE can achieve social inclusivity in the sense that it has an aspect of education where individuals are able to interact
5	29/11/2023 6:18:45 pm	EE can social inclusivity through incorporation of people from various fields and sectors. For example, inclusion of financial officers, demographers, health practitioners, local leaders and the public at large
6	29/11/2023 6:23:10 pm	1. **Renewable Energy Access: ** EE plays a crucial role in developing and implementing renewable energy technologies. By providing access to clean and sustainable energy sources, it ensures that marginalized communities have reliable power, fostering inclusivity. 2. **Smart Grids and Microgrids: ** Implementing smart grid technologies and microgrids helps distribute energy efficiently. This can benefit remote or underserved areas, promoting inclusivity by providing reliable electricity where traditional infrastructure might be lacking. 3. **Technological Literacy: ** EE initiatives can focus on enhancing technological literacy in communities. This empowers individuals with the skills to participate in a green economy, promoting social inclusivity through education and access to technology. 4. **Electrification of Transportation: ** EE contributes to the development of electric vehicles and charging infrastructure. Transitioning to electric transport can reduce environmental impact and provide affordable, accessible transportation options for a broader population. 5. **Decentralized Energy Systems: ** Implementing decentralized energy systems allows communities to have more control over their energy resources. This can

		empower local economies and create jobs, contributing to social inclusivity. 6. **Energy Efficiency Solutions: ** EE practices can be applied to existing infrastructure to improve energy efficiency. This not only reduces overall energy consumption but can also lower costs, making energy more affordable and accessible for a wider range of people.
7	29/11/2023 6:26:31 pm	By using the education people with environmental knowledge and education which will enable them have voice in environmental concerns and matters.
8	29/11/2023 6:34:47 pm	Environmental education can play a significant role in achieving social inclusivity as one of the pillars of the green economy. By promoting awareness, knowledge, and understanding of environmental issues among diverse communities, EE can empower individuals and groups that have historically been marginalized or excluded from environmental decision-making processes. EE can contribute to social inclusivity within the context of the green economy: Accessible and equitable education: EE can promote inclusive education systems by ensuring that environmental knowledge and learning opportunities are accessible to all members of society, regardless of their socio-economic background, ethnicity, gender, or physical abilities. This may involve designing educational materials and programs that are culturally sensitive, available in multiple languages, and tailored to different learning styles.
9	29/11/2023 6:37:59 pm	by promoting policies that ensure equitable access to resources and opportunities for all members of society.
10	29/11/2023 6:39:03 pm	Education is vital for promoting inclusivity in a green economy. When environmental education becomes a part

		of communities, it opens doors for everyone to engage in and gain from sustainable actions. This learning equips people with the tools to embrace eco-friendly practices, potentially resulting in fair economic chances, access to clean resources, and better living conditions for everyone. This integration ensures fairness in accessing the benefits of a green economy, fostering unity and inclusiveness in communities.
11	29/11/2023 6:47:50 pm	Incorporating Environmental Education (EE) into the framework of a Green Economy can foster social inclusivity by raising awareness about sustainable practices, promoting community engagement, and providing equitable access to green opportunities.
12	29/11/2023 6:49:21 pm	Environmental education serves as a catalyst for social inclusivity within the Green Economy through accessible learning platforms. By creating diverse and accessible educational resources enables participation regardless of socio-economic background, hence fostering inclusivity. Additionally, community engagement is vital for social Inclusivity reason being, engaging diverse communities in environmental initiatives builds understanding, breaks barriers and promotes collaboration towards sustainable practices. Above all, social Inclusivity promotes cultural integration. Highlighting the interconnectedness of environmental issues with cultural values promotes respect, understanding, and inclusivity among various societal groups.
13	29/11/2023 7:59:59 pm	EE encompasses a lot of issues, social issues being one of them. EE can be used to achieve social inclusivity by making people aware of environmental issues, advocating for the environment, providing training on how to solve environmental issues.

2. **Explain how EE can be used to achieve Low-Carbon as one of the pillars of Green Economy**

Participant ID	**Timestamp**	**Responses**
1	29/11/2023 10:08:33 am	Educating the common citizens of their daily activities that cause pollution and teaching them of skills that they can use to get their daily activities done sustainably, it is important that the citizens get to understand the environmental problems that they face and how they are related to the things they do
2	29/11/2023 4:03:45 pm	Environmental Education plays a crucial role in achieving low carbon as one of the pillars of a Green Economy. By focusing on imparting knowledge and creating awareness about environmental issues, it helps individuals and communities understand the impact of their actions on the environment and encourages them to make sustainable choices. Environmental Education helps people understand the causes and consequences of climate change and carbon emissions. It spreads awareness about the need to reduce carbon footprints and the benefits of adopting low-carbon practices. Environmental Education encourages individuals to adopt sustainable behaviors in their daily lives. By teaching them about energy conservation, renewable energy sources, waste management, and sustainable transportation options and EE equips individuals with the knowledge and skills needed to adopt sustainable practices in different sectors, such as agriculture, manufacturing.
3	29/11/2023 5:54:58 pm	EE facilitates the adoption of low-carbon practices in the Green Economy by educating individuals and communities on energy conservation, renewable alternatives, and carbon footprint reduction, thereby contributing to a more sustainable and low-carbon society.

4	29/11/2023 6:17:41 pm	Through education and awareness, this can be done by educating people diverting to sustainable means of transport such as riding to work by bicycle or through the use of public transport
5	29/11/2023 6:18:45 pm	EE programs should promote the use of green products and investment in Green businesses such as carbon trading
6	29/11/2023 6:23:10 pm	1. **Renewable Energy Integration: ** EE involves designing and implementing systems that harness energy from renewable sources like solar, wind, and hydropower. This shift from fossil fuels to renewable energy significantly reduces carbon emissions associated with electricity generation. 2. **Energy Storage Technologies: ** EE contributes to the development of efficient energy storage solutions. Batteries and other storage technologies enable the better integration of intermittent renewable sources, ensuring a consistent and reliable power supply while minimizing reliance on carbon-intensive backup sources. 3. **Smart Grids: ** EE advancements in smart grid technologies improve the efficiency of electricity distribution. Smart grids enable better management of energy demand and supply, reducing waste and optimizing the use of renewable energy resources. 4. **Energy-Efficient Technologies: ** EE focuses on developing energy-efficient devices and systems. From appliances to industrial processes, incorporating energy-efficient technologies helps reduce overall energy consumption and, consequently, carbon emissions. 5. **Electric Vehicles (EVs): ** The development of electric vehicles is a significant contribution of EE to low-carbon transportation. By promoting the adoption of EVs and supporting the infrastructure for their charging, EE

		helps decarbonize the transportation sector. 6. **Carbon Capture and Storage (CCS): ** EE can contribute to the design and implementation of technologies that capture and store carbon emissions from industrial processes and power plants, helping industries reduce their carbon footprint. 7. **Energy Management Systems: ** EE involves the design and implementation of sophisticated energy management systems for buildings, industries, and cities. These systems optimize energy usage, reduce waste, and contribute to lower carbon emissions.
7	29/11/2023 6:26:31 pm	By integrating EE in the education curriculum and ensuring it's effective enough to change people's lifestyles to greener ones and inevitably low carbon footprints.
8	29/11/2023 6:34:47 pm	Environmental education (EE) plays a crucial role in achieving low carbon emissions as one of the pillars of the green economy. By promoting awareness, knowledge, and understanding of climate change and sustainable practices, EE can empower individuals and communities to take actions that reduce carbon footprints and mitigate climate change. EE can contribute to achieving low carbon emissions within the green economy: Climate Change Education: EE can provide comprehensive education on climate change, including its causes, impacts, and potential solutions. By increasing climate literacy among individuals, EE can foster understanding of the importance of reducing carbon emissions and the consequences of climate change. This knowledge can drive behavior change and motivate individuals to adopt low carbon practices.
9	29/11/2023 6:37:59 pm	It provides a framework for analyzing the costs and benefits of environmental policies and regulations.
10	29/11/2023 6:39:03 pm	Environmental education is vital in achieving a low-carbon

		economy as part of a green economy. By raising awareness about environmental issues, it nurtures a mindset that values eco-friendly practices. This education helps people understand how their actions impact the environment and empower them to make informed choices that lower their carbon footprint. The knowledge from environmental education provides individuals with the abilities to embrace renewable energy, practice sustainable consumption, and adopt eco-friendly habits, all of which help cut down greenhouse gas emissions. Additionally, environmental education is crucial for encouraging the widespread adoption of low-carbon practices and for moving towards a more sustainable and eco-friendly economy.
11	29/11/2023 6:47:50 pm	It contributes to achieving low carbon by educating individuals and communities about the impact of carbon emissions
12	29/11/2023 6:49:21 pm	Environmental education plays a pivotal role in shaping a low-carbon Green Economy. By instilling knowledge, fostering awareness, and promoting sustainable practices, it catalyzes the transition towards a low-carbon society
13	29/11/2023 7:59:59 pm	EE can be used to achieve low carbon through education on clean energy source or alternative energy sources which are non carboninous, through advocating for electric cars over cars that use fossil fuels, through encouraging people to take up carbon trading

3. Explain how Environmental Education can be used to achieve Efficient use of Natural Resources as one of the pillars of Green Economy

Participant ID	Timestamp	Responses
1	29/11/2023 10:08:33 am	There is need to educate the population of sustainable practices when it comes to the use of water, energy and food. This can be achieved by raising awareness both in schools and outside the school set up
2	29/11/2023 4:03:45 pm	Environmental education plays a crucial role in promoting the efficient use of natural resources as part of the green economy. It helps individuals and communities understand the value of natural resources, and educates them on sustainable practices in their daily lives. Environmental education increases the awareness and knowledge of individuals regarding the importance of natural resources, including water, energy, land, and materials. It highlights the finite nature of these resources and the need to use them efficiently. Through environmental education, people are equipped with the information and skills necessary to adopt sustainable behaviors and practices. Which might include conserving water and energy, reducing waste, recycling, and choosing sustainable products.
3	29/11/2023 5:54:58 pm	EE promotes the efficient use of natural resources in the Green Economy by educating people about responsible consumption, sustainable harvesting practices, and the importance of preserving biodiversity, thereby fostering a mindset of resource conservation.
4	29/11/2023 6:17:41 pm	Individuals will have the knowledge of sustainable development through education
5	29/11/2023 6:18:45 pm	EE programs to stress on sustainability in the usage of resources to all age groups. Promote sustainable harvesting and consumption of resources
6	29/11/2023 6:23:10 pm	1. **Smart Grids and Demand Response: ** EE plays a

		crucial role in developing smart grids that optimize the distribution of electricity. By implementing demand response systems, these grids can adjust energy consumption based on real-time demand, ensuring efficient use of electricity and reducing the strain on natural resources. 2. **Energy-Efficient Appliances and Systems: ** EE focuses on designing energy-efficient devices and systems. From household appliances to industrial machinery, incorporating energy-efficient technologies minimizes energy consumption, leading to a more judicious use of natural resources. 3. **Renewable Energy Integration: ** EE facilitates the integration of renewable energy sources like solar and wind power. Harnessing these sources efficiently reduces reliance on finite fossil fuels, promoting the sustainable use of natural resources. 4. **Energy Storage Technologies: ** Efficient energy storage systems, developed through EE, help store excess energy generated from renewable sources. This stored energy can be used during periods of low renewable energy production, ensuring a consistent power supply without overreliance on non-renewable resources. 5. **Efficient Lighting Solutions: ** The development of energy-efficient lighting solutions, such as LED technology, is a contribution of EE. These solutions not only reduce electricity consumption but also extend the lifespan of lighting systems, minimizing the need for frequent replacements and conserving resources.

		6. **Optimized Industrial Processes: ** EE plays a role in optimizing industrial processes to reduce energy and resource consumption. Automation and control systems help industries operate more efficiently,
7	29/11/2023 6:26:31 pm	By making people environmentally literate and aware that natural resources are finite resources that need to be used sustainability. For instance, using environmental terms such as common poll resources etc
8	29/11/2023 6:34:47 pm	Sustainable Agriculture and Food Systems: EE can promote sustainable agricultural practices that optimize the use of water, land, and nutrients. It can educate individuals about organic farming, permaculture, agroforestry, and other practices that minimize resource inputs, prevent soil erosion, and protect biodiversity. Additionally, EE can raise awareness about the environmental impact of food choices and encourage sustainable diets that reduce the demand for resource-intensive foods.
9	29/11/2023 6:37:59 pm	By integrating economic, social, and environmental policies and innovations.
10	29/11/2023 6:39:03 pm	Environmental education is important in ensuring the efficient use of natural resources within the context of a green economy. By educating people about the importance and constraints of natural resources, it motivates both individuals and communities to adopt methods that minimize waste and optimize resource usage. This education equips people with insights into sustainable resource management, covering conservation methods, recycling practices, and responsible consumption. People with this knowledge, can make informed choices that decrease resource depletion, safeguard biodiversity, and ensure the enduring sustainability of natural resources. As a result, environmental education nurtures a mindset that

		esteems and actively pursues efficient resource utilization, crucial for constructing a more sustainable and robust green economy.
11	29/11/2023 6:47:50 pm	It raises awareness and educates people on the best practices that are environmentally friendly e.g. the use of paper bags and biodegradable plastics
12	29/11/2023 6:49:21 pm	Educating individuals about the finite nature of resources cultivates awareness. Highlighting the consequences of resource depletion encourages responsible consumption. Therefore, by imparting knowledge about recycling, reducing waste, and adopting renewable energy, environmental education influences behavior. People make informed choices that minimize resource depletion. Above all, informed citizens become advocates for policies supporting sustainable resource management. They influence governments and businesses to adopt practices that prioritize resource efficiency.
13	29/11/2023 7:59:59 pm	EE advocates for environmental protection and sustainability, so EE can be help achieve efficient use of natural resources through the education and awareness of the public on the importance of using natural resources sustainably. EE can provide alternatives to some common natural resources, by advocating for the reusing and recycling of resources.

Appendix Six: Workplan and time Schedule for the relevance of Achieving Green Economy and Environmental Sustainability.

		Year1 (2022)	Year 2 (2023)		
SL/No	**Activity**	**August to December**	**January to April**	**May to July**	**August to December**
1	Proposal identification				
2	Proposal development and planning styles				
3	Proposal peer reviewed and submission for examination				
4	Publication of first year results				
5	Proposal presented at critical friendship				
6	Proposal to be defended at departmental level				
7	Proceeding for data collection				
8	Compilation of data and submission of findings				

Appendix Seven: Approval of Study

THE UNIVERSITY OF ZAMBIA
DIRECTORATE OF RESEARCH AND GRADUATE STUDIES

Great East Road Campus | P.O. Box 32379 | Lusaka10101 | Tel: +260-211-290 258/291 777 **Fax**: (+260)-211-290 258/253 952 | E-**mail**: director.drgs@unza.zm | Website: www.unza.zm

APPROVAL OF STUDY

IORG No. 0005376
HSSREC IRB No. 00006464

6th August, 20223

REF NO. HSSREC-2023-JUL.-027

Mr. Charles Mumba Mukosha
The University of Zambia
School of Education,
P.O. Box 32379
LUSAKA

Dear Mr. Mukosha,

RE: "CONTEXTUALIZING ENVIRONMENTAL EDUCATION WITHIN THE GREEN ECONOMY AND GROWTH AGENDA: A CASE OF LUSAKA DISTRICT, ZAMBIA"

Reference is made to your submission of the protocol captioned above. The HSSREC resolved to approve this study and your participation as Principal Investigator for a period of one year.

REVIEW TYPE	**ORDINARY REVIEW**	**APPROVAL NO. HSSREC-2023-JUL-027**
Approval and Expiry Date	Approval Date: 6th August, 2023	Expiry Date: 5th August, 2024
Protocol Version and Date	Version - Nil.	5th August, 2024
Information Sheet, Consent Forms and Dates	□ English.	To be provided
Consent form ID and Date	Version - Nil	To be provided
Recruitment Materials	Nil	Nil
Other Study Documents	Questionnaire.	
Number of Participants Approved for Study		

Specific conditions will apply to this approval. As Principal Investigator it is your responsibility to ensure that the contents of this letter are adhered to. If these are not adhered to, the approval may be suspended. Should the study be suspended, study sponsors and other regulatory authorities will be informed.

CONDITIONS OF APPROVAL

- No participant may be involved in any study procedure prior to the study approval or after the expiration date.
- All unanticipated or Serious Adverse Events (SAEs) must be reported to HSSREC within 5 days.
- All protocol modifications must be approved by HSSREC prior to implementation unless they are intended to reduce risk (but must still be reported for approval). Modifications will include any change of investigator/s or site address.
- All protocol deviations must be reported to HSSREC within 5 working days.
- All recruitment materials must be approved by HSSREC prior to being used.
- Principal investigators are responsible for initiating Continuing Review proceedings. HSSREC will only approve a study for a period of 12 months.
- It is the responsibility of the PI to renew his/her ethics approval through a renewal application to HSSREC.
- Where the PI desires to extend the study after expiry of the study period, documents for study extension must be received by HSSREC at least 30 days before the expiry date. This is for the purpose of facilitating the review process. Documents received within 30 days after expiry will be labelled "late submissions" and will incur a penalty fee of K500.00. No study shall be renewed whose documents are submitted for renewal 30 days after expiry of the certificate.
- Every 6 (six) months a progress report form supplied by The University of Zambia Humanities and Social Sciences Research Ethics Committee as an IRB must be filled in and submitted to us. There is a penalty of K500.00 for failure to submit the report.
- When closing a project, the PI is responsible for notifying, in writing or using the Research Ethics and Management Online (REMO), both HSSREC and the National Health Research Authority (NHRA) when ethics certification is no longer required for a project.
- In order to close an approved study, a Closing Report must be submitted in writing or through the REMO system. A Closing Report should be filed when data collection has ended and the study team will no longer be using human participants or animals or secondary data or have any direct or indirect contact with the research participants or animals for the study.
- Filing a closing report (rather than just letting your approval lapse) is important as it assists HSSREC in efficiently tracking and reporting on projects. Note that some

funding agencies and sponsors require a notice of closure from the IRB which had approved the study and can only be generated after the Closing Report has been filed.

- A reprint of this letter shall be done at a fee.

- All protocol modifications must be approved by HSSREC by way of an application for an amendment prior to implementation unless they are intended to reduce risk (but must still be reported for approval). Modifications will include any change of investigator/s or site address or methodology and methods. Many modifications entail minimal risk adjustments to a protocol and/or consent form and can be made on an Expedited basis (via the IRB Chair). Some examples are: format changes, correcting spelling errors, adding key personnel, minor changes to questionnaires, recruiting and changes, and so forth. Other, more substantive changes, especially those that may alter the risk-benefit ratio, may require Full Board review. In all cases, except where noted above regarding subject safety, any changes to any protocol document or procedure must first be approved by HSSREC before they can be implemented.

Should you have any questions regarding anything indicated in this letter, please do not hesitate to get in touch with us at the above indicated address.

On behalf of HSSREC, we would like to wish you all the success as you carry out your study.

Yours faithfully,

Dr. J.I. Ziwa

DR. J. I. Ziwa

CHAIRPERSON
THE UNIVERSITY OF ZAMBIA HUMANITIES AND
SOCIAL SCIENCES RESEARCH ETHICS COMMITTEE - IRB

CC: Director, Directorate of Research and Graduate Studies
Assistant Director (Research), Directorate of Research and Graduate Studies
Assistant Registrar (Research), Directorate of Research and Graduate Studies