

BINDURA UNIVERSITY OF SCIENCE EDUCATION

DEVELOPING A MODEL FOR IMPROVING ENVIRONMENTAL ENTREPRENEURSHIP IN SOLID WASTE MANAGEMENT IN THE CITY OF HARARE.

BY

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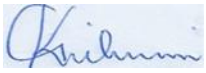
A DISSERTATION SUBMITTED TO THE BINDURA UNIVERSITY OF SCIENCE EDUCATION IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR A MASTER OF SCIENCE DEGREE IN ENTREPRENEURSHIP AND INNOVATION, GRADUATE SCHOOL OF BUSINESS

BINDURA, ZIMBABWE

APRIL, 2025

APPROVAL FORM

The undersigned certify that they have read and recommended to Bindura University of Science Education (BUSE) for acceptance a Dissertation entitled **"**Developing a Model for Improving Environmental Entrepreneurship in Solid Waste Management in the City of Harare**"** by Kaguna Phillip in partial fulfillment of the requirements for the degree of Master of Science Entrepreneurship and Innovation.

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YEAR DEGREE AWARDED: 2025

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DECLARATION

I, Kaguna Phillip Student Reg Number B1749312, do hereby declare that this dissertation is a result of my own investigation and research, except to the extent indicated in the acknowledgments, bibliography, references, and comments included in the body of the report, and that it has not been submitted in part or in full for any other degree to any other university.

STUDENT SIGNATURE:**DATE: 16.04.2025**

DEDICATION

The dissertation is dedicated to my wife Senitar, and children.

ACKNOWLEDGEMENTS

I would like to thank Dr. G. Kichini, my supervisor who provided consistent, enthusiastic and invaluable encouragement during the course of this study even when I went under pressure. Thank you for helping me rise to the challenge and assisting me realize my potential in developing a concept to this project magnitude.

To all the participants who made contributions to this research work, which could not have been possible and this includes your insights and cooperation during field work.

To my loving and supportive wife, Senitar thank you. Thank you for believing in me the foreseeable. My children, thank you for the time you sacrificed without my presence and attention. Special mention goes to my study friends, Kabasa Kuda, and Masocha M for the unconditional and unwavering support and understanding during the time I devoted to this research.

To my fellow classmates at Bindura University of Science Education, gratitude to you all for the time we shared and the knowledge I acquired during our study groups. Thank you for all your contributions, they really added value to this paper.

My utmost gratitude goes to the Almighty God for without His grace, nothing would have been possible.

ABSTRACT

This study set out to develop an integrated framework for enhancing environmental entrepreneurship in solid waste management in the City of Harare, Zimbabwe. It sought to describe current state of environmental entrepreneurship, assess its effectiveness in managing urban solid waste, and propose a strategic framework for its integration with sustainable waste management strategies. The research was motivated by the pressing urban waste challenges in Harare characterized by inadequate infrastructure, weak regulatory frameworks, and a growing informal waste sector, which have been insufficiently addressed by conventional municipal approaches. Despite the emergence of environmental entrepreneurship as a global response to waste and resource sustainability, limited empirical attention has been given to its role within African urban settings, particularly in Zimbabwe. To bridge this gap, a mixed-method research design was adopted, combining qualitative and quantitative approaches within a pragmatist paradigm. A concurrent triangulation strategy was employed, where structured questionnaires were administered to 72 managers or owners of solid waste recycling enterprises, while semi-structured interviews were conducted with 13 purposively selected key informants, including city officials, residents' associations, and regulatory agencies. The study also reviewed relevant documentary evidence. Quantitative data were analysed using descriptive statistics (means and standard deviations), while qualitative data underwent thematic analysis to extract patterns and stakeholder perspectives. The reliability and validity of instruments were ensured through a pilot study, triangulation of methods, and expert review. Findings revealed that environmental entrepreneurship in Harare is at a nascent stage, characterized by low public awareness, minimal stakeholder coordination, and limited institutional support. Although community-based and informal initiatives exist, they remain fragmented and under-resourced, with inadequate linkages to formal waste governance systems. Mean scores for impact indicators such as waste reduction (2.6), technology use (2.4), and policy support (2.2) fell below neutral, underscoring widespread stakeholder dissatisfaction with the current state of affairs. Interviews further confirmed that existing environmental entrepreneurship activities were marginally effective in addressing solid waste accumulation, employment creation, or technological innovation. Notably, while the informal sector plays a significant role in waste recovery, its exclusion from formal policy and funding structures has constrained its effectiveness and scalability. In response to these findings, the study developed an integrated framework that comprises six interrelated components: governance and policy reform, resource mobilization, technological innovation, community engagement, operational infrastructure, and implementation mechanisms. The proposed framework recommends the creation of a dedicated Environmental Entrepreneurship Policy, the establishment of a Waste Management Coordination Council, the launch of school-based awareness campaigns, and the integration of informal waste workers into formal systems. Financing strategies such as levies and donor partnerships are also embedded in the model to enhance viability and sustainability. The study contributes a context-specific, evidence-based model to guide policymakers, entrepreneurs, and stakeholders in transforming Harare's fragmented waste ecosystem into a coordinated, inclusive, and resilient system driven by green innovation. It underscores the need for policy coherence, targeted funding, community participation, and technological investment to mainstream environmental entrepreneurship in urban waste management. The findings offer practical insights for replication in other African cities facing similar environmental and institutional challenges, and provide a foundation for future longitudinal and comparative research on green entrepreneurship and sustainable urban development.

Keywords: City of Harare, Waste Management Coordination Council, environmental entrepreneurship, management strategies, Zimbabwe

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CHAPTER ONE

INTRODUCTION

1.1 Introduction

The global challenge of solid waste management has become increasingly pressing in recent decades, particularly in rapidly urbanizing areas of developing countries. As cities grow and consumption patterns evolve, the volume and complexity of waste generated have outpaced the capacity of traditional waste management systems .This situation has given rise to a critical need for innovative, sustainable approaches to waste management that can address environmental concerns while also creating economic opportunities. In developing countries such as Zimbabwe, these issues are compounded by limited resources, inadequate infrastructure, and ineffective policies. Environmental entrepreneurship offers a promising solution to these challenges by fostering innovative and sustainable approaches to waste management that benefit both the environment and the economy. The chapter is organised into sub-headings such as background of the study, statement of the problem, objectives of the study, research questions, and significance of the study, limitations of the study, delimitation of the study, research assumptions, research hypothesis and the summary.

1.2 Background of the Study

At the global level, solid waste management has emerged as a significant environmental and public health issue (Kwenda et al., 2023). The World Bank estimates that global waste generation will increase from 2.01 billion tonnes in 2016 to 3.40 billion tonnes by 2050 (Kwenda, 2021). This dramatic increase poses substantial challenges for waste management infrastructure and systems worldwide. Moreover, improper waste management contributes significantly to climate change, with landfills alone accounting for about 5% of global greenhouse gas emissions (UNEP, 2015). In response to these challenges, there has been a growing recognition of the potential for environmental entrepreneurship to play a crucial role in addressing waste management issues (Xiao et al., 2020). Environmental entrepreneurship,

defined as the process of identifying, evaluating, and exploiting entrepreneurial opportunities that create value through environmental improvements, has gained traction as a means of combining economic development with environmental stewardship (Kauser & Muhammad, 2020).

Solid waste management refers to the systematic control, collection, transportation, processing, recycling, and disposal of solid waste materials generated by human activities (Rafew & Rafizul, 2021). It encompasses various strategies and practices aimed at minimizing the environmental and health impacts of solid waste while promoting resource recovery and sustainable waste management practices (Mandpe et al., 2023). The concept of circular economy has also gained prominence in global waste management discourse. This approach aims to minimize waste and maximize resource efficiency by keeping products, components, and materials at their highest utility and value at all times (Mondal et al., 2023). The integration of circular economy principles with environmental entrepreneurship offers promising avenues for innovative waste management solutions.

In Africa, the challenges of solid waste management are particularly acute (Chihanga et al., 2020). Rapid urbanization, population growth, and changing consumption patterns have led to increased waste generation, while many cities lack adequate infrastructure and resources for effective waste management (Chinyama & Toma, 2018). The United Nations Environment Programme (UNEP) reports that in sub-Saharan Africa, only about 44% of waste is collected, and most of this ends up in uncontrolled dumpsites or is burned in the open (UNEP, 2018). Despite these challenges, there are emerging opportunities for environmental entrepreneurship in the African waste management sector. Innovative approaches such as waste-to-energy projects, recycling initiatives, and upcycling enterprises have shown promise in various African countries (Pasipanodya et al., 2019). However, these efforts often face significant barriers, including limited access to finance, inadequate policy support, and technical capacity constraints. The African Union's Agenda 2063 recognizes the importance of sustainable waste management and circular economy principles in achieving the continent's development goals (Zvigadza et al., 2019). This policy framework provides a potential foundation for promoting environmental entrepreneurship in the waste sector across Africa.

Zimbabwe, like many developing countries, faces significant challenges in solid waste management (Mavhunga, 2020). The country's economic difficulties over the past two decades have exacerbated these problems, leading to inadequate waste collection services, limited recycling infrastructure, and widespread illegal dumping (Munyoro et al., 2021). However, Zimbabwe has also seen the emergence of grassroots initiatives and small-scale enterprises addressing waste management issues. These include community-based recycling projects, waste pickers' associations, and small-scale composting operations (Mushambi et al., 2018). The government has recognized the potential of these initiatives and has begun to develop policies to support environmental entrepreneurship in the waste sector (Chihanga et al., 2020). The Environmental Management Act of 2002 and the subsequent National Environmental Policy provide a legal and policy framework for waste management in Zimbabwe (Mandaza et al., 2021). However, implementation and enforcement of these policies have been inconsistent, creating both challenges and opportunities for environmental entrepreneurs (Mavhunga, 2020).

Harare as the capital and largest city of Zimbabwe, epitomizes many of the waste management challenges faced by rapidly growing African cities. The city generates an estimated 1,000 tonnes of waste daily, but only about 50% is collected due to inadequate resources and infrastructure (Chinyama & Toma, 2018). This has resulted in widespread illegal dumping, environmental degradation, and public health risks (Mavhunga, 2020). The Harare City Council has struggled to provide effective waste management services, leading to a proliferation of informal waste pickers and small-scale recycling operations (Munyoro et al., 2021). While these informal actors play a crucial role in waste recovery and recycling, they often operate in precarious conditions with limited recognition and support (Mushambi et al., 2018). Recent years have seen some promising developments in Harare's waste management landscape. The city has piloted source separation programs in some neighborhoods and has partnered with private companies for waste collection in certain areas (Chihanga et al., 2020).

However, these efforts remain limited in scale and have not yet led to a comprehensive, sustainable waste management system for the city. The potential for environmental

entrepreneurship in Harare's waste sector is significant. Opportunities exist in areas such as recycling, composting, waste-to-energy projects, and innovative waste collection services.

While there is a growing body of literature on solid waste management in developing countries and on environmental entrepreneurship more broadly, there is a notable gap in research that integrates these two areas in the context of African cities. Specifically, there is a lack of comprehensive frameworks that can guide the development and implementation of environmental entrepreneurship initiatives in the solid waste sector of rapidly growing urban areas like Harare. This research aimed to address this gap by developing an integrated framework that combines insights from waste management, environmental entrepreneurship, and circular economy literature. By focusing on Harare as a case study, the research provided valuable insights into the specific challenges and opportunities for environmental entrepreneurship in the context of a major African city grappling with waste management issues.

1.3 Statement of the Problem

Solid waste management in Harare, Zimbabwe, faces significant challenges due to inadequate infrastructure, insufficient financial resources, and weak regulatory frameworks (Kwenda et al., 2023). Despite efforts by EMA and local authorities, waste collection remains inefficient, unregulated dumpsites persist, and recycling initiatives are minimal (Chinyama & Toma, 2018). Rapid urbanization and population growth further strain waste management systems, increasing environmental and public health risks (Mavhunga, 2020). A major issue is the lack of coordination among stakeholders, including government agencies, private sector players, and local communities, leading to inefficiencies and missed opportunities for sustainable solutions (Pasipanodya et al., 2019). The informal waste sector plays a vital role in resource recovery but lacks support and operates under precarious conditions (Munyoro et al., 2021). Limited private sector engagement, regulatory uncertainties, and financial constraints further hinder progress (Chihanga et al., 2020). Additionally, low public awareness, technological limitations, and economic challenges exacerbate the situation (Mushambi et al., 2018).

The consequences include environmental degradation, public health risks, economic losses, and social inequalities. However, these challenges present opportunities for innovative solutions

through environmental entrepreneurship. The absence of a comprehensive framework integrating environmental entrepreneurship with sustainable waste management strategies impedes progress. This research seeks to develop an integrated framework to guide policymakers, entrepreneurs, and stakeholders in enhancing environmental entrepreneurship in Harare's waste management sector, aiming to create a more efficient, sustainable, and economically viable system while addressing environmental and social challenges.

1.4 Aim of the Study

The study sought to develop a model for improving environmental entrepreneurship in solid waste management in City of Harare

1.5 Objectives of the Study

The following are the specific objectives of the study:

1. To describe the current state of environmental entrepreneurship in City of Harare.
2. To evaluate the effectiveness of environmental entrepreneurship in managing solid waste in City of Harare.
3. To develop a framework for integrating environmental entrepreneurship with sustainable waste management strategies for City of Harare

1.6 Research Questions

The following are the specific research questions of the study:

1. What is the current state of environmental entrepreneurship in the City of Harare?
2. How effective is environmental entrepreneurship in managing solid waste in the City of Harare?
3. What framework can be developed to integrate environmental entrepreneurship with sustainable waste management strategies in the City of Harare?

1.7 Hypothesis

(H_0): Environmental entrepreneurship has no significant effect on the effectiveness of solid waste management in the City of Harare.

(H_1): Environmental entrepreneurship has a significant effect on the effectiveness of solid waste management in the City of Harare.

1.8 Assumptions

This study is based on several key assumptions to ensure the validity and applicability of its findings. First, it is assumed that the data collected from various sources, including interviews, surveys, and document analysis, is accurate and reliable. Participants are expected to provide honest and detailed responses, while existing records are assumed to be thorough and up-to-date. Second, the study assumes that all relevant stakeholders, such as government officials, environmental entrepreneurs, waste management professionals, and community leaders will cooperate and actively participate in the research. Their insights are crucial for developing a comprehensive understanding of solid waste management in Harare.

Additionally, it is assumed that the findings from Harare's case study will be generalizable to other urban areas in Zimbabwe and similar African cities, considering that broader principles and strategies can be applied beyond local specifics. Another assumption is the stability of the policy and regulatory environment during the research period, as major shifts in waste management policies could impact the relevance of the proposed framework. Economic stability is also assumed, as severe downturns could hinder the availability of capital and resources for environmental entrepreneurship. Lastly, the study assumes that the environmental impact of waste management practices can be consistently measured over time, with reliable metrics available to assess the effectiveness of different strategies. These assumptions are essential to facilitate the research process and ensure that the study's findings and recommendations remain practical and actionable in addressing Harare's waste management challenges.

1.9 Justification of the Study

Solid waste management poses significant environmental, health, and economic challenges globally, and these issues are particularly pronounced in developing countries like Zimbabwe. Harare, the capital city, exemplifies these challenges with its inefficient waste collection

services, unregulated dumpsites, and minimal recycling initiatives. Addressing these problems is crucial for sustainable urban development and public health.

1.9.1 Relevance to Sustainable Development

This study will contribute to the broader goals of sustainable development by promoting environmental sustainability, economic growth, and social equity. By integrating environmental entrepreneurship into solid waste management, the study aims to develop innovative solutions that reduce waste, conserve resources, and create economic opportunities. This aligns with global sustainability frameworks, such as the United Nations Sustainable Development Goals (SDGs), particularly Goal 11 (Sustainable Cities and Communities) and Goal 12 (Responsible Consumption and Production).

1.9.2 Policy and Practice Implications

The findings of this study will provide valuable insights for policymakers, environmental entrepreneurs, and waste management professionals. By identifying the challenges and opportunities within Harare's waste management sector, the study will inform the development of targeted policies and strategies that support environmental entrepreneurship. This, in turn, can lead to more effective and sustainable waste management practices, benefiting both the environment and the economy.

1.9.3 Economic and Social Impact

Environmental entrepreneurship has the potential to drive economic growth by creating new businesses and jobs in the waste management sector. This is particularly important in Zimbabwe, where economic challenges have led to high unemployment rates and limited economic opportunities. By fostering a culture of innovation and entrepreneurship, the study will contribute to economic resilience and improved livelihoods for local communities.

1.9.4 Environmental Benefits

Improving solid waste management practices through environmental entrepreneurship will have significant environmental benefits, including reduced pollution, conservation of natural

resources, and mitigation of greenhouse gas emissions. These outcomes are critical for addressing the environmental degradation currently experienced in Harare and for contributing to global efforts to combat climate change.

1.9.5 Local and Global Significance

While the study focuses on Harare, its findings and recommendations will have broader applicability. Many cities in Zimbabwe and across Africa face similar waste management challenges. The integrated framework developed in this study can serve as a model for other urban areas, providing practical solutions that can be adapted to different contexts. This will enhance the study's impact, contributing to improved waste management practices on a regional and potentially global scale.

1.9.6 Academic Contribution

This study will add to the body of knowledge on environmental entrepreneurship and sustainable waste management. It could provide empirical evidence and theoretical insights that can inform future research and practice in these fields. By bridging the gap between theory and practice, the study will enhance understanding of how entrepreneurial approaches can address complex environmental challenges.

In conclusion, this study is justified by its potential to address critical waste management issues in Harare, promote sustainable development, and provide valuable insights for policymakers, practitioners, and researchers. By fostering environmental entrepreneurship, the study aims to create a positive impact on the environment, economy, and society, both locally and globally.

1.9 Delimitations

This study was geographically confined to Harare, Zimbabwe, with a primary focus on the city's solid waste management challenges. While the findings and recommendations may have broader applicability to other urban areas in Zimbabwe and similar African contexts, the study did not extend to rural areas or other cities. In terms of sectoral focus, the research specifically examined solid waste management and environmental entrepreneurship, excluding other forms of waste

management such as hazardous or electronic waste. Additionally, broader environmental issues beyond waste management were not within the study's scope. The study concentrated on the roles and contributions of both formal and informal actors involved in Harare's solid waste management sector. This included policymakers, government agencies, environmental entrepreneurs, waste management companies, and local communities. However, it did not extend to actors outside this sector or industries unrelated to waste management. Furthermore, the research was conducted over a six-month period, limiting data collection, pilot program implementation, and evaluations to this timeframe. Long-term impacts and changes beyond this period were not assessed. These delimitations were necessary to maintain a clear and manageable research scope while ensuring that the study's objectives were effectively addressed within the given constraints.

1.11 Limitations

The following are the study limitations that where considered for the study.

1.11.1 Data Collection Constraints

One of the key challenges in this study was obtaining reliable and comprehensive data on solid waste management practices and the activities of informal actors in Harare. Some stakeholders were reluctant to share detailed information, while existing records were often incomplete or inconsistent. To mitigate this, the study employed triangulation by using multiple data sources, including interviews, surveys, and document analysis, to cross-verify information. Additionally, efforts were made to build trust with respondents through clear communication of research objectives and assurances of confidentiality.

Another limitation was the availability and willingness of key stakeholders such as government officials, environmental entrepreneurs, and community leaders to participate in interviews and surveys. This variation in participation could have restricted the depth and breadth of data collected. To address this, the study used flexible scheduling, follow-up communications, and multiple engagement methods (such as online surveys and phone interviews) to maximize stakeholder participation.

1.11.2 Generalizability

The study's findings and recommendations are primarily context-specific to Harare and may not be directly transferable to other cities or regions without significant adaptations. Harare's unique socio-economic, cultural, and regulatory environment could limit generalizability. To mitigate this, the study emphasized broader principles and strategies that could be adapted to similar urban contexts, while also highlighting specific local factors that may require adjustment in other settings.

1.11.3 Policy and Regulatory Environment

Potential changes in waste management policies and regulations during the research period posed a risk to the study's findings and recommendations. Unforeseen policy shifts could alter the feasibility and relevance of the proposed integrated framework. To mitigate this, the study continuously monitored regulatory updates and engaged with policymakers to ensure that recommendations remained aligned with current and anticipated policy directions. Additionally, flexibility was incorporated into the proposed framework to allow for adaptation to evolving regulatory landscapes.

1.12 Definition of Key Terms

Solid Waste Management (SWM): The systematic administration of activities that provide for the collection, transportation, processing, recycling, and disposal of solid waste in a manner that is environmentally and economically sustainable (Xiao et al., 2020).

Environmental Entrepreneurship: The practice of developing and implementing business models that address environmental challenges, such as waste management, while generating economic value (Kauser & Muhammad, 2020).

Informal Waste Sector: A network of unregulated individuals or small enterprises engaged in waste collection, sorting, and recycling activities, often operating outside formal waste management systems (Rafew & Rafizul, 2021).

Sustainable Waste Management: A waste management approach that minimizes environmental impact by promoting waste reduction, recycling, and responsible disposal while ensuring economic and social sustainability (Xiao et al., 2020).

Circular Economy: An economic system that promotes resource efficiency by designing products and processes to reduce waste, reuse materials, and recycle resources, ensuring long-term environmental and economic benefits (Rafew & Rafizul, 2021).

1.13 Organization of the study

The study is structured into five chapters. Chapter One introduces the research, outlining the background, problem statement, objectives, research questions, hypothesis, and justification. Chapter Two presents a literature review on solid waste management and environmental entrepreneurship. Chapter Three details the research methodology. Chapter Four analyses findings and discusses results. Chapter Five concludes with recommendations, policy implications, and areas for further research.

1.14 Chapter Summary

Chapter One introduces the study, highlighting the global and local challenges of solid waste management, particularly in Harare, Zimbabwe. It presents the background, problem statement, research objectives, questions, and hypothesis, assumptions, and study justification. The chapter emphasizes the role of environmental entrepreneurship in sustainable waste management. Additionally, it outlines the study's delimitations and limitations, setting the foundation for the subsequent chapters.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction.

This chapter examined the related literature in line with the research on developing an integrated framework for enhancing environmental entrepreneurship in solid waste management. The chapter first covered the theoretical and conceptual frameworks of the study. Furthermore, it explored relevant literature in alignment with the study objectives.

2.2 Conceptual Framework

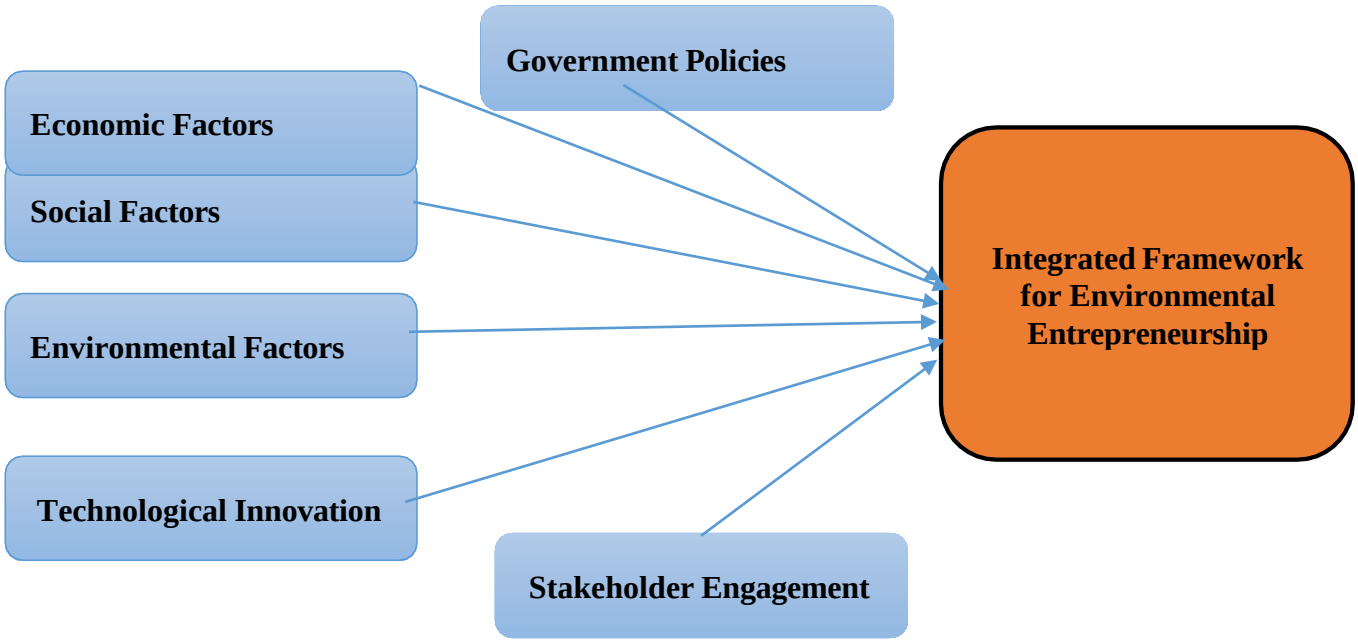


Figure 2. 1: **Conceptual Framework**

The conceptual framework depicted in the diagram illustrates the interconnected factors that enhance environmental entrepreneurship in solid waste management. Here's a detailed description of the relationships in the diagram:

1. **Economic Factors**: Economic factors such as funding, investment opportunities, and market demand are crucial for fostering environmental entrepreneurship. These factors provide the necessary financial resources and economic incentives that encourage entrepreneurs to develop and implement sustainable waste management solutions.
2. **Government Policies**: Government policies, including regulations, incentives, and support programs, play a significant role in shaping the environment for environmental entrepreneurship. Effective policies can promote innovation, ensure compliance with environmental standards, and provide support for startups and established businesses engaged in sustainable practices.
3. **Social Factors**: Social factors, including community attitudes, cultural values, and public awareness, influence the acceptance and success of environmental entrepreneurship. High levels of public awareness and positive community attitudes towards sustainability can drive demand for environmentally-friendly products and services, encouraging entrepreneurs to innovate in waste management.
4. **Technological Innovation**: Technological innovation is a key driver of environmental entrepreneurship. Advances in technology can lead to more efficient waste management practices, improved recycling processes, and the development of new products from waste materials. Entrepreneurs leveraging innovative technologies can gain a competitive edge and contribute to environmental sustainability.
5. **Environmental Factors**: Environmental factors, such as the availability of natural resources, environmental degradation, and climate change, impact the need and urgency for sustainable waste management solutions. Entrepreneurs responding to these environmental challenges can develop innovative approaches to mitigate negative impacts and promote environmental stewardship.
6. **Stakeholder Engagement**: Engaging stakeholders, including government agencies, private sector companies, non-governmental organizations, and the community, is crucial for the success of environmental entrepreneurship. Collaborative efforts and partnerships can provide the necessary support, resources, and legitimacy for entrepreneurial initiatives in solid waste management.

2.3 Theoretical Framework

The study was informed by Environmental Entrepreneurship Theory and Systems Theory.

2.3.1 Environmental Entrepreneurship Theory

Environmental Entrepreneurship Theory is built on the foundations laid by various scholars and practitioners in the fields of entrepreneurship and environmental management. Key contributors include Geoffery L. Archer, who explored the intersection of entrepreneurship and environmental sustainability, and Peter H. West, who emphasized the role of innovation in addressing environmental challenges. Additionally, scholars like Dean and McMullen (2007) have significantly contributed to the formalization of this theory by examining how entrepreneurial actions can address environmental degradation and resource constraints (Dean & McMullen, 2007).

The core tenets of Environmental Entrepreneurship Theory include innovation and creativity, sustainability orientation, opportunity recognition, and risk management. Environmental entrepreneurs are characterized by their ability to innovate and develop creative solutions to environmental problems, involving new products, services, or processes that reduce environmental impact (Schaltegger & Wagner, 2011). They prioritize environmental sustainability alongside economic objectives, designing ventures that balance profit-making with the preservation and enhancement of natural resources (Cohen & Winn, 2007). These entrepreneurs possess a keen ability to identify and exploit opportunities that arise from environmental challenges, leveraging their understanding of ecological issues to create business opportunities that offer environmental benefits (Dean & McMullen, 2007). Moreover, operating at the intersection of business and the environment, they often navigate higher levels of risk, requiring effective risk management strategies to ensure the viability and sustainability of their ventures.

Environmental Entrepreneurship Theory was highly relevant to the study on developing an integrated framework for enhancing environmental entrepreneurship in solid waste management in Harare. This theory provided a foundational understanding of how entrepreneurial innovation could address the city's waste management challenges. By focusing on innovation and

sustainability, the theory guided the identification of new and creative solutions that could transform waste management practices in Harare. The emphasis on opportunity recognition helped pinpoint specific areas within the waste management sector where entrepreneurial activities could be most impactful. Furthermore, the theory's focus on balancing economic and environmental goals aligned with the study's objective to promote sustainable business practices that not only addressed waste management issues but also contributed to economic growth. By applying Environmental Entrepreneurship Theory, the study developed strategies that supported and enhanced the capabilities of environmental entrepreneurs, ultimately leading to more effective and sustainable solid waste management in Harare.

2.3.2 Systems Theory

Systems Theory originated from the works of Ludwig von Bertalanffy, a biologist who introduced the concept of General Systems Theory in the 1940s. Bertalanffy's ideas were later expanded upon by other scholars such as Kenneth Boulding and Jay Forrester. Bertalanffy (1968) proposed that systems are composed of interrelated and interdependent parts that work together to achieve a common goal. Boulding (1956) emphasized the hierarchical structure of systems, while Forrester (1961) introduced system dynamics to understand complex systems' behaviour over time.

The core tenets of Systems Theory include interdependence, feedback loops, homeostasis, and adaptability. Interdependence refers to the idea that all components of a system are interconnected, and changes in one part affect the entire system. Feedback loops are processes where the system's output is fed back into the system as input, which can be either positive (reinforcing) or negative (balancing). Homeostasis is the system's ability to maintain stability through self-regulation despite external changes. Adaptability is the capacity of a system to change and evolve in response to external and internal stimuli, ensuring its survival and effectiveness over time (Bertalanffy, 1968; Forrester, 1961).

Systems Theory was highly pertinent to the study on developing an integrated framework for enhancing environmental entrepreneurship in solid waste management in Harare. This theory provided a comprehensive lens to understand the complex, interrelated components of the waste

management system in Harare. By recognizing the interdependence of various stakeholders, such as recycling companies, municipal authorities, residents, and regulatory bodies, the study identified how changes in one part of the system affected the whole. The concept of feedback loops was crucial for understanding the dynamic interactions within the waste management system. For instance, improvements in recycling practices led to better waste management outcomes, which, in turn, influenced policy decisions and community behaviors. Systems Theory's emphasis on homeostasis and adaptability helped in designing a framework that not only stabilized the current waste management practices but also adapted to future challenges and opportunities.

Moreover, Systems Theory's holistic approach aligned with the study's objective to develop a comprehensive and integrated framework. It ensured that all relevant factors, economic, environmental, social, and technological were considered in devising strategies for enhancing environmental entrepreneurship. By applying Systems Theory, the study created a robust framework that addressed the complexities of solid waste management, promoting sustainability and resilience in Harare's waste management practices.

2.4 The Current State of Environmental (Solid Waste Management) Entrepreneurship in Cities

The global rise in urbanization has led to unprecedented challenges in SWM, particularly in cities (Chinyama & Toma, 2018). With rapid population growth and industrialization, the volume of solid waste generated daily continues to escalate, posing significant environmental, social, and economic concerns (Baloch et al., 2023). SWM is no longer just a municipal responsibility but an opportunity for entrepreneurship (Aftab et al., 2022). This section reviews the current state of environmental entrepreneurship in the context of SWM in urban areas, analyzing scholarly contributions and empirical studies that highlight the role of entrepreneurs in addressing this critical issue.

Environmental entrepreneurship refers to the creation of value through innovative solutions aimed at mitigating environmental degradation while generating economic benefits (Andeobu et al., 2022). In the realm of SWM, entrepreneurs play a pivotal role by developing sustainable

practices and technologies that transform waste into resources (Sharma et al., 2021). According to Schumpeter's theory of creative destruction, entrepreneurs drive innovation by disrupting traditional systems, leading to more efficient and environmentally friendly processes (934). Moreover, the concept of the circular economy underpins much of the entrepreneurial activity in SWM. Unlike the linear model of "take-make-dispose," the circular economy emphasizes recycling, reusing, and reducing waste to minimize resource consumption and environmental impact (Salmenperä et al., 2021). Entrepreneurs are instrumental in facilitating this transition by introducing business models that align with circular principles, such as waste-to-energy conversion and material recovery facilities (Ahmad et al., 2021).

2.4.1 Conceptualizing Environmental Entrepreneurship in SWM

Environmental entrepreneurship in SWM operates at the intersection of ecological sustainability and economic innovation (Kauser & Muhammad, 2020). Kwenda et al. (2023) emphasize that such ventures prioritize “eco-innovation,” integrating waste valorization, circular economy principles, and community engagement. Tsai et al. (2021) argue that market failures in waste externalities create opportunities for entrepreneurs to monetize undervalued resources, such as recycled plastics or organic compost. However, conceptual boundaries remain contested. While some scholars frame environmental entrepreneurship as profit-driven models capitalizing on green markets (Mandpe et al., 2023), others highlight the role of social entrepreneurship in empowering marginalized waste-picker communities through inclusive economic participation (Kwenda, 2021). This duality reflects the sector’s heterogeneity, which complicates standardized assessments of its maturity.

The diversity of activities within SWM entrepreneurship further illustrates this complexity. Upcycling ventures, for instance, transform waste into higher-value products, such as recycled textiles or repurposed construction materials (Azevedo et al., 2021). Waste-to-energy systems, including biogas generation from organic waste, represent another key domain, particularly in cities grappling with landfill saturation (Eterigho et al., 2021). Digital platforms, such as route-optimization apps for waste collection, exemplify how technology is reshaping traditional waste management practices (Suryawan & Lee, 2023). These varied approaches underscore the need for context-specific analyses to evaluate the field’s progress and scalability.

2.4.2 Drivers of SWM Entrepreneurship

Regulatory pressures play a pivotal role in shaping entrepreneurial opportunities. The Porter Hypothesis posits that stringent environmental regulations spur innovation by creating demand for compliant technologies (Mandaza et al., 2021). For example, the European Union's Landfill Directive (1999), which mandates reductions in biodegradable waste disposal, has driven startups to develop alternatives such as anaerobic digestion facilities (Sharma et al., 2021). However, regulatory impacts are uneven. In low-income cities, weak enforcement of waste management laws allows informal sectors to dominate collection and recycling, often crowding out formal entrepreneurial ventures (Chihanga et al., 2020). This disparity highlights the interplay between policy frameworks and local economic conditions in enabling or constraining entrepreneurship.

Market opportunities also serve as significant drivers. The global circular economy, valued at $1.3 trillion, incentivizes ventures that recover materials from urban waste streams (Yadav et al., 2022). Startups like San Francisco's Recology thrive in cities with high recycling rates, leveraging municipal contracts to scale operations (Baloch et al., 2023). Emerging markets offer untapped potential, particularly in regions where waste volumes outpace institutional capacity (Kwenda, 2021). Mandevere & Jerie (2018) identify the "bottom of the pyramid" in India as a fertile ground for innovation, where startups such as Saahas repurpose urban waste into affordable building materials. These examples reveal how market demand, coupled with resource scarcity, catalyzes entrepreneurial activity.

Social and cultural shifts further propel the growth of SWM entrepreneurship (Aulia et al., 2023). Urban consumers' growing environmental consciousness has spurred demand for zero-waste solutions (Salmenperä et al., 2021). Startups like Loop, which offers reusable packaging systems, have gained traction in cities like New York and Paris, where millennials prioritize sustainability (Andeobu et al., 2022). Grassroots movements, including "plastic-free cities" campaigns, amplify public awareness and legitimize entrepreneurs as agents of ecological change (Chirisa et al., 2017). However, the influence of cultural factors varies by region; in cities with entrenched informal waste economies, social acceptance of formal ventures often hinges on their ability to integrate existing informal networks (Chihanga et al., 2020).

2.4.3 Challenges and Barriers

Financial constraints remain a critical barrier to scaling SWM entrepreneurship (Goyal et al., 2021). In high-income cities, ventures often attract impact investors, such as Closed Loop Partners, which fund technologies like AI-driven waste sorting systems (Kurniawan et al., 2023). By contrast, startups in developing economies frequently rely on microfinancing or grants, which offer limited scalability (Mondal et al., 2023). High upfront costs for advanced technologies exacerbate risks, particularly in regions where municipal partnerships are unstable or prone to corruption (Munyoro et al., 2021). These financial hurdles underscore the need for blended financing models that combine public subsidies, private equity, and philanthropic capital.

Regulatory ambiguity further complicates entrepreneurial efforts. In Lagos, Nigeria, frequent changes in waste management contracts deter long-term investments, as entrepreneurs face uncertainty over policy continuity (Pasipanodya et al., 2019). Conversely, overregulation in cities like Singapore stifles innovation by favouring state-linked incumbents with entrenched monopolies (Filimonau, 2021). Such regulatory extremes, ranging from lax enforcement to excessive control, reveal the delicate balance required to foster entrepreneurial ecosystems (Zvigadza et al., 2019).

Technological and infrastructural gaps also hinder progress. In Bangalore, India, biogas startups struggle with inconsistent organic waste segregation at the household level, which compromises feedstock quality and system efficiency (Islam et al., 2022). Meanwhile, patent barriers restrict small and medium enterprises (SMEs) from accessing advanced recycling technologies dominated by multinational corporations (Wang & You, 2021). These challenges highlight the interdependence of technological innovation, public infrastructure, and community participation in SWM systems.

2.4.4 Empirical Insights from Urban Case Studies

Several empirical studies have examined the role of entrepreneurship in SWM within various urban contexts. A case study conducted in Bangalore, India, by (Munyoro et al., 2021) highlighted the effectiveness of community-based waste management initiatives led by local

entrepreneurs. These initiatives utilized low-cost, scalable technologies to address waste challenges specific to densely populated neighbourhoods.

Curitiba, Brazil, offers a notable example of synergy between policy and entrepreneurship. The city's integrated SWM system, developed in the 1980s, partners with waste-picker cooperatives to recycle 70% of its municipal waste (Mavhunga, 2020). Programs like the "Green Exchange," where residents trade recyclables for food, demonstrate how municipal support can enable social enterprises to thrive (Munyoro et al., 2021). However, recent funding cuts to these programs reveal vulnerabilities in over-reliance on public-sector alliances, as reduced subsidies threaten the viability of cooperative models (Urbaniec et al., 2022).

In Lagos, Nigeria, informal-formal sector dynamics shape entrepreneurial outcomes. The city generates 10,000 tons of waste daily, 40% of which remains uncollected due to infrastructural deficits (Nemadire et al., 2017). Ventures like Wecyclers use mobile apps to incentivize household recycling, offering redeemable points for waste deposits. Yet, these startups compete with informal waste pickers who dominate collection networks. Collaborative models, such as Lagos's inclusion of informal workers in municipal contracts, suggest potential for hybrid systems that balance efficiency with social equity (Pasipanodya et al., 2019).

San Francisco's market-led circular economy exemplifies the role of regulatory certainty. The city's 2009 Zero Waste Ordinance, which aims for 100% landfill diversion by 2030, has created a lucrative market for startups (Filimonau, 2021). Recology, a key player, operates franchised collection services and partners with tech firms like Compology to deploy smart waste bins with real-time monitoring (Kurniawan et al., 2023). Critics, however, note that high service costs exclude low-income neighborhoods from participating, raising concerns about equitable access to waste management innovations (Mondal et al., 2023).

Contrastingly, research in developed countries such as Germany and Sweden demonstrated the importance of public-private partnerships in advancing SWM entrepreneurship. Government support in the form of grants, tax incentives, and regulatory reforms facilitated the growth of innovative waste management solutions (Rafew & Rafizul, 2021). However, the reliance on

formal structures in these contexts contrasts sharply with the informal nature of SWM entrepreneurship in developing nations. Another comparative analysis by (Xiao et al., 2020) explored the differences in entrepreneurial approaches between Asian megacities. While Tokyo emphasized high-tech waste-to-energy facilities, Bangkok focused on decentralized composting systems tailored to its agricultural needs. These variations underscore the significance of contextual factors in shaping entrepreneurial strategies.

2.5 Effectiveness of Environmental Entrepreneurship in Managing Urban Solid Waste

Effectiveness in environmental entrepreneurship is a multidimensional construct, encompassing environmental, economic, and social metrics (Mondal et al., 2023). Ecologically, success is measured through waste diversion rates, reductions in landfill dependence, and resource recovery efficiency (Mavhunga, 2020). Economically, ventures must demonstrate financial sustainability, scalability, and job creation (Goyal et al., 2021). Socially, equity considerations such as inclusivity of informal waste workers and accessibility for marginalized communities are critical (Mushambi et al., 2018). The triple bottom line framework (Kurniawan et al., 2023) underpins this holistic evaluation, though scholars disagree on prioritization. For instance, profit-centric models prioritize market scalability (Zvigadza et al., 2019), while social enterprises emphasize participatory governance (Goyal et al., 2021).

2.5.1 Economic Impact of Environmental Entrepreneurship in SWM

Entrepreneurial ventures in SWM often aim to create economic value by transforming waste into marketable products or services. For instance, waste-to-energy (WtE) technologies enable the conversion of non-recyclable materials into electricity, heat, or fuel, generating revenue streams for businesses while alleviating disposal burdens (Mandaza et al., 2021). Similarly, recycling enterprises extract valuable materials from discarded items, such as plastics, metals, and paper, which can be sold to manufacturers (Kwenda et al., 2023). A study conducted in Bangalore, India, demonstrated the economic viability of decentralized composting units operated by local entrepreneurs (Suryawan & Lee, 2023). These units converted organic waste into nutrient-rich fertilizers, catering to urban farmers and gardeners. The initiative not only reduced landfill usage but also provided livelihood opportunities for marginalized communities (Munyoro et al., 2021).

Such examples highlight the potential for environmental entrepreneurship to address both economic and environmental concerns simultaneously.

However, financial constraints remain a significant barrier to scaling up such ventures. Start-up costs for advanced waste processing technologies can be prohibitive, deterring investment even when long-term profits are anticipated (Aftab et al., 2022). Moreover, revenue generation in the initial stages may be insufficient to cover operational expenses, necessitating external funding or subsidies. Policymakers must therefore consider mechanisms like green bonds, tax incentives, and public-private partnerships to support financially viable SWM projects (Ahmad et al., 2021).

2.5.2 Social Contributions of Environmental Entrepreneurship

Beyond economic benefits, environmental entrepreneurship fosters social change by engaging communities in waste management efforts. Education and awareness campaigns initiated by entrepreneurs play a crucial role in altering consumer behaviour and promoting responsible waste disposal practices (Kwenda, 2021). A case in point is the work of informal sector entrepreneurs in Lagos, Nigeria, who collaborate with residents to collect recyclables and educate them about proper waste segregation (Chinyama & Toma, 2018). Community-based initiatives also empower individuals by providing employment opportunities (Chihanga et al., 2020). In many developing countries, informal waste pickers form the backbone of SWM systems, collecting, sorting, and selling recyclables to formal recycling companies (Mushambi et al., 2018). While their contributions are invaluable, they often operate under precarious conditions without legal recognition or adequate compensation (Nemadire et al., 2017). Formalizing these roles through entrepreneurial ventures could improve working conditions and ensure fair wages (Munyoro et al., 2021).

Furthermore, technological innovations introduced by entrepreneurs enhance accessibility and convenience for urban dwellers (Goyal et al., 2021). Mobile applications designed for waste tracking, collection scheduling, and reward systems incentivize participation in recycling programs (Mandevere & Jerie, 2018). For example, a study in Tokyo highlighted the success of gamified platforms that encourage households to separate waste correctly by offering points redeemable for discounts or gifts (Mandpe et al., 2023). Such approaches demonstrate the

potential of combining technology with behavioural science to drive societal transformation (Sharma et al., 2021).

2.5.3 Environmental Outcomes of Environmental Entrepreneurship

The most compelling argument for environmental entrepreneurship lies in its capacity to deliver tangible environmental benefits. By adopting circular economy principles, entrepreneurs design systems that minimize waste generation and maximize resource recovery (Tsai et al., 2021). Recycling and upcycling activities, for instance, divert materials from landfills, conserving space and reducing methane emissions, a potent greenhouse gas released during decomposition (Yadav et al., 2022).

Waste-to-energy facilities represent another environmentally friendly solution, particularly in cities where landfill capacity is limited. Incineration plants equipped with advanced filtration systems can produce clean energy while eliminating harmful pollutants (Mandza et al., 2021). However, critics argue that WtE technologies might discourage recycling efforts if improperly implemented, leading to increased incineration of recyclable materials (Baloch et al., 2023). Balancing competing priorities requires careful planning and regulation to ensure alignment with broader sustainability objectives (Wang & You, 2021).

Additionally, entrepreneurs contribute to biodiversity conservation by preventing hazardous substances from entering ecosystems (Filimonau, 2021). For example, e-waste management startups specialize in dismantling electronic devices to recover precious metals and safely dispose of toxic components (Zvigadza et al., 2019). These efforts protect water bodies, soil quality, and wildlife habitats from contamination caused by improper disposal practices (Suryawan & Lee, 2023).

Curitiba's SWM system, lauded for recycling 70% of waste, integrates cooperatives through programs like "Green Exchange," where recyclables are traded for food (Mafume et al., 2016). However, austerity-driven funding cuts since 2015 have eroded cooperative viability, underscoring the fragility of public-sector dependencies (Kauser & Muhammad, 2020). Rotterdam's "living labs" provide startups with municipal funding and testing grounds for

innovations like water-based waste transport systems. These PPPs reduce financial risks and accelerate scalability, though critics argue they favor tech-centric solutions over social equity (Kwenda, 2021). Startups like Hasiru Dala collaborate with waste pickers to formalize collection routes, improving waste coverage by 30% in informal settlements (Chirisa et al., 2017). Such models, however, face resistance from municipalities hesitant to control to non-state actors (Chinyama & Toma, 2018).

In developed nations like Germany and Sweden, strong regulatory support and access to capital facilitate the proliferation of high-tech SWM solutions. Public-private partnerships have proven instrumental in scaling innovative ventures, enabling widespread adoption of best practices (Azevedo et al., 2021). Conversely, in developing regions, informal sector entrepreneurs dominate the landscape, compensating for inadequate infrastructure and limited government intervention (Chihanga et al., 2020). Their grassroots approach ensures localized problem-solving but faces challenges related to scalability and sustainability (Aftab et al., 2022).

Suryawan and Lee (2023) study in Bangalore showcased the efficacy of low-cost, community-driven initiatives in tackling waste issues specific to densely populated areas. Meanwhile, Kwenda et al. (2023) compared SWM strategies in Asian megacities, noting distinct differences in entrepreneurial approaches. Tokyo prioritized centralized WtE facilities, whereas Bangkok focused on decentralized composting systems aligned with agricultural needs. These variations underscore the importance of tailoring solutions to regional contexts rather than adopting one-size-fits-all models.

2.6 Research Gap

Despite the growing recognition of environmental entrepreneurship as a viable solution to urban SWM challenges, there remains a significant gap in understanding its application and effectiveness within specific urban contexts, particularly in developing cities like Harare. While global literature (Suryawan & Lee, 2023; Azevedo et al., 2021; Mandza et al., 2021; Tsai et al., 2021) highlights the potential of entrepreneurial ventures to transform waste into valuable resources, little attention has been devoted to analysing how these initiatives can be tailored to

address the unique socio-economic, institutional, and environmental conditions prevalent in African cities. This research aims to fill this critical gap by focusing on Harare, Zimbabwe, where SWM is fraught with numerous challenges that require innovative and context-specific solutions.

Harare city faces severe SWM issues exacerbated by rapid urbanization, economic instability, and inadequate infrastructure. According to Mafume et al. (2016), approximately 70% of the city's waste ends up in open dumpsites or uncontrolled landfills, posing serious health and environmental risks. In response to these challenges, informal sector entrepreneurs have emerged as key players in SWM, collecting recyclables such as plastics, metals, and paper for resale. However, their activities remain largely unregulated, fragmented, and under-resourced, limiting their overall impact (Kwenda et al., 2023). While studies have examined SWM challenges in Harare (Chihanga et al., 2020; Munyoro et al., 2021; Mushambi et al., 2018), they predominantly focus on municipal responsibilities rather than exploring the role of environmental entrepreneurship. Consequently, there is a lack of comprehensive data on the current state of entrepreneurial activities in SWM, including their scope, scale, and contributions to addressing waste-related problems.

2.7 Chapter Summary

This chapter reviewed literature relevant to the study on developing an integrated framework for enhancing environmental entrepreneurship in solid waste management. It discussed the theoretical framework, focusing on Environmental Entrepreneurship Theory and Systems Theory, which provided insights into innovation, sustainability, stakeholder interdependence, and systemic waste management approaches. The conceptual framework highlighted key factors such as economic, social, technological, and environmental influences on environmental entrepreneurship. Additionally, the chapter examined the current state, drivers, challenges, and effectiveness of environmental entrepreneurship in solid waste management. The research gap was identified, emphasizing the need for a context-specific framework.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

The section covered the research methodology that was used by the researcher and involved the research design, the research population and sample size, the sampling procedures, and the research instruments that were used to collect the data. It also examined the validity and reliability of the research instruments as well as data analysis.

3.2 Research Philosophy

The study utilized the pragmatism research philosophy. Pragmatism is a research philosophy that emphasizes the practical application of ideas and theories to solve real-world problems (Creswell & Inoue, 2025). It was based on the notion that concepts and hypotheses should be evaluated through their practical consequences and effects. Pragmatists believed that reality is constantly changing, and knowledge is derived from active problem-solving and inquiry. This philosophy supported a pluralistic approach, combining qualitative and quantitative methods to provide a comprehensive understanding of research problems (Creswell et al., 2018).

The study on developing an integrated framework for enhancing environmental entrepreneurship in solid waste management in Harare, Zimbabwe, adopted the pragmatism research philosophy due to its suitability in addressing complex, real-world issues. Pragmatism's focus on practical outcomes aligned perfectly with the study’s aim to provide actionable solutions to the city's waste management challenges. The study required a comprehensive evaluation of the current waste management practices in Harare, involving various stakeholders, including government officials, environmental entrepreneurs, and community leaders. Pragmatism allowed the flexibility to employ both qualitative and quantitative research methods, ensuring a holistic understanding of the situation. Qualitative methods, such as interviews and focus groups, provided in-depth insights into the experiences and perspectives of stakeholders, while

quantitative methods, like surveys and statistical analysis, offered measurable data to support the findings.

Additionally, pragmatism was appropriate for the study's goal of developing a practical framework that could be implemented in Harare. This philosophy emphasized the importance of theories and concepts that worked in practice, which was crucial for creating effective and sustainable waste management solutions. By focusing on the practical implications of environmental entrepreneurship, the study ensured that the proposed framework was not only theoretically sound but also feasible and beneficial in real-world applications. Pragmatism supported an iterative process of inquiry, which was essential for validating the integrated framework through pilot programs. The iterative approach allowed for continuous refinement based on feedback and observed outcomes, ensuring the framework remained adaptable and effective in addressing the evolving challenges of waste management in Harare.

3.3 Research Strategy

The study applied the survey research strategy. Survey research strategy involved systematically collecting data from a sample of individuals to gain insights into a particular population (Emon, 2024). It typically used structured questionnaires or interviews to gather quantitative and sometimes qualitative information on respondents' attitudes, behaviours, characteristics, or experiences (Fetters, 2020). This approach allowed researchers to obtain a broad understanding of trends, patterns, and relationships within a population, making it a versatile and widely used method in social sciences and other fields (Fetters et al., 2019).

The study on developing an integrated framework for enhancing environmental entrepreneurship in solid waste management in Harare, Zimbabwe, utilized the survey research strategy due to its effectiveness in capturing comprehensive data from a diverse group of stakeholders. This strategy aligned with the study's objectives to evaluate the current state of waste management, identify challenges and opportunities for environmental entrepreneurship, and develop a practical framework for implementation. Using surveys, the study systematically collected data from various stakeholders, including government officials, environmental entrepreneurs, waste

management professionals, and community members. This approach enabled the research to gather a wide range of perspectives and experiences, providing a holistic understanding of the current waste management practices in Harare. Structured questionnaires ensured that consistent and comparable data was collected, facilitating robust analysis and accurate conclusions (Gillespie et al., 2024).

The survey research strategy was particularly suitable for this study as it allowed for the collection of both quantitative and qualitative data. Quantitative data provided measurable insights into key indicators such as waste generation rates, recycling practices, and economic impacts. Qualitative data, obtained through open-ended questions, offered deeper insights into the challenges faced by environmental entrepreneurs and the potential opportunities for innovation in waste management (Mulisa, 2022). Additionally, the use of surveys enabled the study to reach a large number of respondents efficiently, ensuring that the data collected was representative of the broader population. This was crucial for developing a framework that was both comprehensive and applicable to the diverse contexts within Harare. The ability to analyse trends and patterns across different respondent groups also helped in identifying specific areas where targeted interventions were needed (Ningi, 2022).

3.3.1 Research Design

The study adopted a mixed-method research design (concurrent triangulation). A mixed-method research design involved the integration of both qualitative and quantitative research approaches to provide a more comprehensive understanding of a research problem. Concurrent triangulation was a specific type of mixed-method design where qualitative and quantitative data were collected simultaneously but analysed separately, and the results were then compared and interpreted together to cross-validate and corroborate the findings (Rose & Johnson, 2020).

The study on developing an integrated framework for enhancing environmental entrepreneurship in solid waste management in Harare, Zimbabwe, adopted a mixed-method research design, specifically concurrent triangulation, to leverage the strengths of both qualitative and quantitative approaches. This design was particularly suitable for addressing the complex and multifaceted nature of the research problem. The concurrent triangulation design enabled the study to collect

quantitative data through surveys and qualitative data through interviews and focus groups simultaneously. This approach ensured a comprehensive analysis by capturing both numerical trends and in-depth insights from various stakeholders involved in waste management, including government officials, environmental entrepreneurs, waste management professionals, and community members (Ruslin et al., 2022).

Using quantitative methods, the study gathered measurable data on key indicators such as waste generation rates, recycling practices, and economic impacts. This data provided a broad understanding of the current state of solid waste management in Harare and highlighted the statistical relationships between different variables (Sürücü & Maslakci, 2020). Quantitative analysis allowed for the identification of patterns and trends that were crucial for developing an effective framework. Simultaneously, qualitative methods offered a deeper exploration of the experiences, perceptions, and challenges faced by stakeholders. Through interviews and focus groups, the study collected rich, contextual data that uncovered underlying issues and opportunities that were not easily captured through quantitative measures. This qualitative data was essential for understanding the nuances of environmental entrepreneurship in the waste sector and for developing tailored interventions (Yin, 2009).

The concurrent triangulation design enhanced the validity and reliability of the study by allowing for cross-validation of the findings from both qualitative and quantitative data. By comparing and integrating these findings, the study provided a more robust and nuanced understanding of the research problem, ensuring that the proposed framework was both theoretically sound and practically feasible (Creswell & Inoue, 2025). In summary, adopting a mixed-method research design with concurrent triangulation enabled the study to comprehensively address the complex challenges of solid waste management in Harare. This approach ensured that the integrated framework developed was well-informed by both statistical trends and deep, contextual insights, ultimately leading to more effective and sustainable solutions for enhancing environmental entrepreneurship in the city.

3.4 Sampling

3.4.1 Target Population

The study population referred to the entire group of individuals or entities that met the criteria for inclusion in the research study (Emon, 2024). It was from this population that a sample was drawn for the purpose of conducting the research. The study population encompassed all potential subjects who shared specific characteristics relevant to the research question. In this study, the researcher focused on all the solid waste recycling companies (87) in Harare registered by the municipality, Harare Municipality Councillors (74) and Heads of Departments (21), the Mayor (1), Residents Association officials (10), Ministry of Local Government officials (7), and Environmental Management Agency (EMA) officials (4).

3.4.1.1 Justification for the Use of Each Component of the Population

Solid Waste Recycling Companies

The study included all solid waste recycling companies in Harare that were registered by the municipality. These companies were integral to the waste management ecosystem as they were directly involved in the processes of waste collection, sorting, recycling, and disposal. Their insights provided valuable information on operational challenges, opportunities for innovation, and the economic aspects of environmental entrepreneurship in the waste sector. Understanding their practices, constraints, and needs was essential for developing a framework that enhanced their efficiency and sustainability.

Harare Municipality Councillors and Heads of Departments

Harare Municipality Councillors and Heads of Departments were responsible for policy formulation, implementation, and oversight of waste management strategies within the city. Their perspectives were crucial in understanding the regulatory environment, the effectiveness of current policies, and the institutional challenges faced in managing solid waste. Their input helped identify gaps in policy and infrastructure that needed to be addressed to support environmental entrepreneurship. Additionally, their cooperation was necessary for the successful implementation of any proposed framework.

Mayor of Harare

The Mayor of Harare held a pivotal leadership role in the city's administration. Engaging with the Mayor provided strategic insights into the city's vision and priorities concerning waste management and environmental sustainability. The Mayor's support was essential for the political and administrative endorsement of the proposed integrated framework. Moreover, the Mayor could influence public opinion and mobilize resources, making their participation crucial for the study's success.

Residents Association Officials

Residents Association officials represented the voices and concerns of the local communities. Their inclusion in the study ensured that the framework addressed the needs and expectations of the residents who were directly affected by waste management practices. They provided ground-level insights into the public's perception of waste management services, community engagement in recycling initiatives, and the socio-cultural factors that influenced waste management behaviours. Their involvement was vital for fostering community participation and ensuring the social acceptability of the proposed solutions.

Ministry of Local Government Officials

Officials from the Ministry of Local Government oversaw the governance and administrative functions of local authorities, including waste management policies and practices. Their participation provided a broader governmental perspective on the challenges and opportunities in the waste management sector. They offered insights into national policies, funding mechanisms, and intergovernmental collaborations that could support environmental entrepreneurship. Their input helped align the framework with national strategies and ensured compliance with regulatory standards.

Environmental Management Agency (EMA) Officials

EMA officials were responsible for enforcing environmental regulations and promoting sustainable practices in Zimbabwe. Their expertise and regulatory oversight were crucial for understanding the environmental impact of current waste management practices and the compliance requirements for new initiatives. Engaging with EMA officials helped identify

regulatory barriers and opportunities for promoting environmental entrepreneurship within the legal framework. Their involvement was essential for ensuring that the proposed framework met environmental standards and contributed to the country's sustainability goals.

3.4.2 Sampling Methods and Sample size

Purposive sampling was applied to identify officials from organizations that interacted with solid waste management (key informants) and possessed comprehensive knowledge. Simultaneously, simple random sampling was employed to select participants from solid waste recycling companies.

The study applied Slovin's formula to select participants (solid waste recycling companies) for quantitative data gathering. The formula was as follows:

n = N / (1 + Ne^2), Where: n = Sample size; N = Population size; e = Margin of error;

Sample size for participants for quantitative data gathering from SMEs will be follows:

n = 87 / (1 + 87* 0.05^2) = 72

Key informants (Harare Municipality Councilors, Heads of Departments, Mayor, Residents Association officials, Ministry of Local Government officials, and EMA officials) were identified using a purposive sampling technique, and the results are shown in the table below.

Table 3. 1: Sample Size Matrix

Target Population: Category	**Sample size**	**Sampling technique**	**Data Collection Method & Instrument**
Solid waste recycling companies managers/owners	72	Simple random sampling	self-administering Structured questionnaire
Officials	13	Purposive Sampling	Interview guide

3.5 Data Collection

Data collection methods refer to the systematic approaches and tools used to gather information from participants or sources relevant to a research study (Fetters, 2020). This study employed

structured questionnaires and semi-structured interviews as primary data collection methods, supplemented by a documentary search for secondary data (Almalki, 2022). These methods were aligned with the mixed-method research design and linked to the sampling strategies previously discussed.

3.5.1 Structured Questionnaires

Structured questionnaires were standardized instruments used to collect quantitative data (Gillespie et al., 2024). They consisted of pre-determined questions with fixed response options, ensuring consistency and comparability of responses. In this study, 72 structured self-completing research questionnaires were administered to solid waste recycling company managers/owners in Harare, selected through simple random sampling. This method was chosen to gather numerical data on operational efficiencies, financial performance, market dynamics, and challenges faced in the waste recycling industry. The inclusion of managers/owners was justified as they possessed firsthand knowledge of their business operations and marketing strategies, providing valuable insights into the quantitative aspects of the research question. This approach ensured that the data collected reflected the realities of the industry from those directly involved in its day-to-day management.

3.5.2 Semi-Structured Interviews

Semi-structured interviews were qualitative data collection tools that allowed for open-ended responses and in-depth exploration of specific topics (Mulisa, 2022). An interview guide was used to conduct semi-structured interviews with 13 key informants from the Harare Municipality Councillors, Heads of Departments, Mayor, Residents Association officials, Ministry of Local Government officials, and EMA officials. These key informants were selected through purposive sampling due to their comprehensive knowledge and interaction with solid waste management issues. The interviews aimed to gather qualitative insights into cultural factors, perceptions, experiences, and challenges related to digital marketing practices (Ningi, 2022). The flexibility of the interview guides enabled the researcher to probe deeper into emergent themes and obtain contextualized information necessary for developing an integrated framework for enhancing environmental entrepreneurship in solid waste management.

3.5.3 Documentary Search

A documentary search involved the systematic review and analysis of existing documents to gather secondary data (Mulisa, 2022). This method was used to supplement primary data by reviewing relevant literature, policies, reports, and official documents related to environmental entrepreneurship in solid waste management. The documentary search provided background information, contextual understanding, and empirical evidence to support the development of an integrated framework for enhancing environmental entrepreneurship in solid waste management.

By employing these data collection methods, the study ensured a comprehensive approach to gathering both quantitative and qualitative data. The structured questionnaires facilitated the collection of measurable data from a large sample, while the semi-structured interviews provided in-depth qualitative insights. The documentary search enriched the research with secondary data, grounding the findings in existing literature and policies. This triangulation of data sources enhanced the validity and reliability of the study.

3.5.4 Pilot Study

A pilot study was a small-scale preliminary study conducted before the main research to test the feasibility, time, cost, risk, and potential adverse events involved in a research project (Rose & Johnson, 2020). It was used to refine the research design and methodology, ensuring that the main study proceeded smoothly. By identifying and addressing potential issues, the pilot study helped improve the validity and reliability of the research instruments and procedures.

A pilot test was conducted on both the questionnaire and the interview guide. The purpose of the pilot test was to assess the clarity, appropriateness, and potential bias or misleading nature of the questions. This was crucial to ensure that the research instruments were effective in collecting accurate and relevant data from the study participants (Ningi, 2022).

Ten study participants were selected to fill out the questionnaires and provide feedback. This feedback focused on the length and design of the questionnaire, as well as whether the questions were understandable, appropriate, and potentially leading. This step was necessary to identify and correct any ambiguities or issues in the questionnaire, thereby enhancing its reliability and

validity (Ruslin et al., 2022). Additionally, two study participants were chosen to pilot the interview guide. These participants provided feedback on the clarity, appropriateness, and potential bias of the interview questions. Piloting the interview guide allowed the researcher to refine the questions and ensure that they elicited the desired qualitative data without leading or confusing the participants (Rose & Johnson, 2020). By conducting this pilot study, the researcher aimed to refine the data collection instruments and ensure that they effectively gathered the necessary data for the main study. This preparatory step was essential for enhancing the overall quality and credibility of the research.

3.5.5 Reliability and Validity

Reliability refers to the consistency and stability of measurement instruments over time, ensuring that they produced dependable and repeatable results (Ruslin et al., 2022). To ensure reliability in this study, several steps were taken. Pilot testing of the interview guides and questionnaires was conducted to identify and address any inconsistencies or ambiguities in the questions, with feedback from pilot study participants helping refine the tools to enhance their clarity and consistency (Sürücü & Maslakci, 2020). Standardized procedures were employed during the data collection process to ensure that each participant received the same instructions and conditions, minimizing variability caused by different environments. For qualitative data, inter-rater reliability was ensured by having multiple researchers or raters analyze the data independently and then comparing their interpretations to ensure consistency (Ruslin et al., 2022).

Validity, on the other hand, referred to the extent to which a research instrument measured what it was intended to measure, focusing on the accuracy and appropriateness of the measurement tools and procedures (Sürücü & Maslakci, 2020). To ensure validity, expert input was sought from specialists in the field, including the research supervisor, to review the interview guides and questionnaires. Their feedback helped to ensure that the questions were relevant, clear, and adequately covered the research objectives (Creswell & Inoue, 2025). The pilot testing of the tools contributed to both reliability and validity by assessing how well the questions captured the intended information, allowing the researcher to refine the tools to better align with the study's goals (Creswell et al., 2018).

Triangulation, which involved the use of multiple methods of data collection such as key informant interviews, structured questionnaires, and documentary research, ensured a more comprehensive and accurate understanding of the research problem, thereby enhancing both validity and reliability (Ruslin et al., 2022). Construct validity was ensured by thoroughly defining the constructs being measured and aligning the questions in the instruments to accurately reflect these constructs, confirming that the instruments measured the intended concepts (Creswell et al., 2018). By implementing these measures, the study aimed to achieve high reliability and validity in its research instruments, ensuring that the data collected was both consistent and accurate, thus enhancing the overall credibility of the study.

3.6 Data Analysis

Data analysis is the process of systematically applying statistical and logical techniques to describe, summarize, and evaluate data (Creswell et al., 2018). It involved examining, cleaning, transforming, and modeling data with the goal of discovering useful information, drawing conclusions, and supporting decision-making. The researcher employed both qualitative (thematic) and descriptive statistical data analysis methods.

For qualitative analysis, the researcher aimed to identify patterns or themes in the interview data. The qualitative data obtained from key informant interviews were transcribed verbatim into Microsoft Word to facilitate familiarity with the data. The initial step involved assigning preliminary codes to describe the content and begin organizing it into meaningful groups. The subsequent stages included searching for themes, reviewing and refining them, and finally defining and naming the themes. These themes provided a descriptive and engaging way to present the findings in the report. The main objective was to identify patterns and experiences from the collected data. Thematic analysis involved applying codes to the data to determine recurring patterns in the respondents' responses. A comprehensive discussion was developed by linking the identified themes with relevant literature. By reviewing the related literature, the researcher drew inferences and provided insights based on the interviews conducted. The conclusion was drawn by integrating the findings with theoretical literature.

Regarding descriptive analysis, the researcher assessed the completeness of the questionnaires and performed editing, coding, and data cleaning. The collected data were analysed using the Statistical Package for Social Sciences (SPSS Version 25.0) and Microsoft Excel to generate reports. The mean and standard deviation were utilized to determine the level of agreement or disagreement among respondents regarding the statements under each variable. The research findings were presented using word summaries, tables, annexes, and diagrams. Quantitative data were presented using tables, pie charts, and bar graphs generated through SPSS Version 25.0, while qualitative data were summarized in word format, presenting the identified themes.

3.7 Research Ethics

In conducting this research on developing an integrated framework for enhancing environmental entrepreneurship in solid waste management in Harare, Zimbabwe, the researcher ensured adherence to the highest ethical standards. The following ethical considerations were addressed:

Informed Consent: Participants were fully informed about the purpose, nature, and procedures of the study. Consent was obtained through a detailed consent form that explained the study's objectives, the role of participants, and any potential risks and benefits. Participants were required to sign the consent form before participating in the study, ensuring their voluntary participation.

Confidentiality and Anonymity: The confidentiality and anonymity of participants were strictly maintained. Personal identifiers were removed from all data, and unique codes were used instead. Data were securely stored and accessible only to the researcher. Any published results did not contain information that could identify individual participants.

Privacy: The privacy of participants was respected throughout the research process. Interviews and surveys were conducted at times and locations that were convenient and comfortable for the participants. Sensitive information was handled with care to protect participants' privacy.

Right to Withdraw: Participants were informed of their right to withdraw from the study at any point without any penalty or negative consequences. This right was clearly stated in the consent form and reiterated throughout the study.

Minimization of Harm: The researcher took all necessary steps to minimize any potential harm or discomfort to participants. This included ensuring that the questions asked during interviews and surveys were not intrusive or distressing. If any participant felt uncomfortable, they had the option to skip questions or stop their participation.

Ethical Approval: The study obtained ethical approval from the relevant institutional review board or ethics committee. This involved submitting a detailed research proposal outlining the study's aims, methods, and ethical considerations to ensure compliance with ethical standards.

Transparency and Honesty: The researcher maintained transparency and honesty throughout the research process. This included accurately reporting data, findings, and any potential conflicts of interest. Misrepresentation of data or results was strictly avoided.

Beneficence and Non-Maleficence: The researcher ensured that the study benefited the participants and the broader community while avoiding any actions that could cause harm. The potential benefits of the research, such as improved waste management practices and enhanced environmental entrepreneurship, were communicated to participants and stakeholders.

Respect for Persons: The researcher respected the autonomy and dignity of all participants, recognizing their right to make informed decisions about their participation. This principle guided all interactions with participants, ensuring that their rights and well-being were prioritized. By adhering to these ethical considerations, the researcher ensured that the study was conducted responsibly, respecting the rights and dignity of all participants, and contributing positively to the field of environmental entrepreneurship and solid waste management.

3.8 Chapter Summary

This chapter outlined the research methodology, highlighting the use of a concurrent mixed-method design for the study on creating an integrated framework to improve environmental

entrepreneurship in solid waste management in Harare, Zimbabwe. It covered the target population, sampling strategies, data collection methods (including structured questionnaires and interviews), and analytical techniques. The chapter also emphasized steps taken to ensure reliability, validity, and adherence to ethical standards, offering a comprehensive approach to addressing the research problem.

CHAPTER FOUR

DATA ANALYSIS, PRESENTATION AND INTERPRETATION

4.1 Introduction

The chapter presents the study's findings on the development of a model aimed at enhancing environmental entrepreneurship in solid waste management within the City of Harare. The results are structured according to the study's research objectives. To ensure clarity and ease of interpretation, the data is illustrated using visual tools including tables, pie charts, and bar graphs. The analysis combines both thematic approaches and descriptive statistical techniques.

4.2 Response Rate of Research Instruments

The study involved the distribution of 72 structured questionnaires and the conduction of 13key informant interviews. A summary of the overall response rate is presented in Table 4.1.

Table 4. 1: Research Tools Response Rate

Research Tools	Frequency	Rate
Questionnaires administered	72	100%
Questionnaires returned	70	95%
Interviews Scheduled	13	100%
Interviews Conducted	12	88%

Source: *Primary Data 2025*

The data collection phase resulted in exceptionally high response rates across both research instruments. Out of the 72 questionnaires distributed, 70 were duly completed and returned, resulting in a 97% response rate, significantly surpassing the conventional benchmark of 20–30% (Gay, 2011). Additionally, 13 of the 12 planned key informant interviews were successfully conducted, achieving a 92% completion rate. These strong participation outcomes highlight the effectiveness of the fieldwork coordination, the relevance of the data collection approach, and

the successful engagement of respondents. The robust response rates enhance the credibility of the study and suggest that the findings are representative of the wider target population, thereby offering a solid foundation for valid interpretation and analysis.

4.3 Participant Demographics

The demographic characteristics of the respondents include gender, age, educational background, and duration of involvement in in waste management / environmental sector. Understanding these attributes is essential, as they can impact participants' viewpoints and actions, potentially influencing their responses and level of engagement in the study.

4.3.1 Gender of Participants

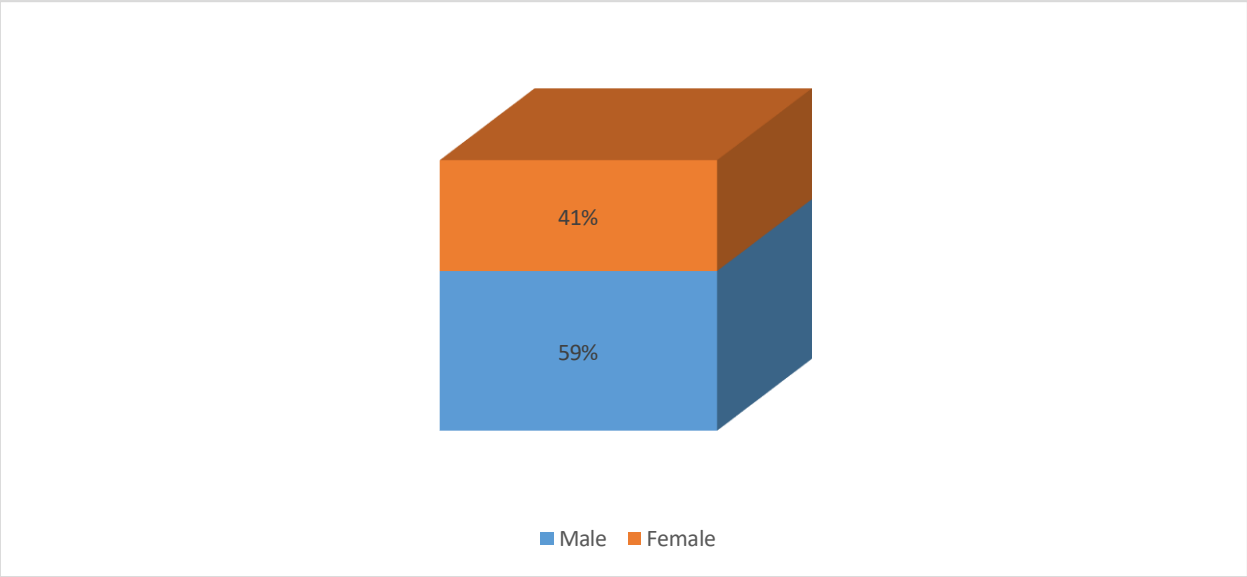


Figure 4. 1: Gender of Participants

Source: *Primary Data 2025*

The study revealed that the participant group comprised 41% female and 59% male artisanal miners. In the context of environmental entrepreneurship, this gender distribution is significant, as it highlights the need for inclusive approaches that empower both men and women to actively participate in sustainable waste management initiatives. Recognizing and addressing gender dynamics can enhance the effectiveness and equity of environmental entrepreneurship efforts.

4.3.2 Age Distribution

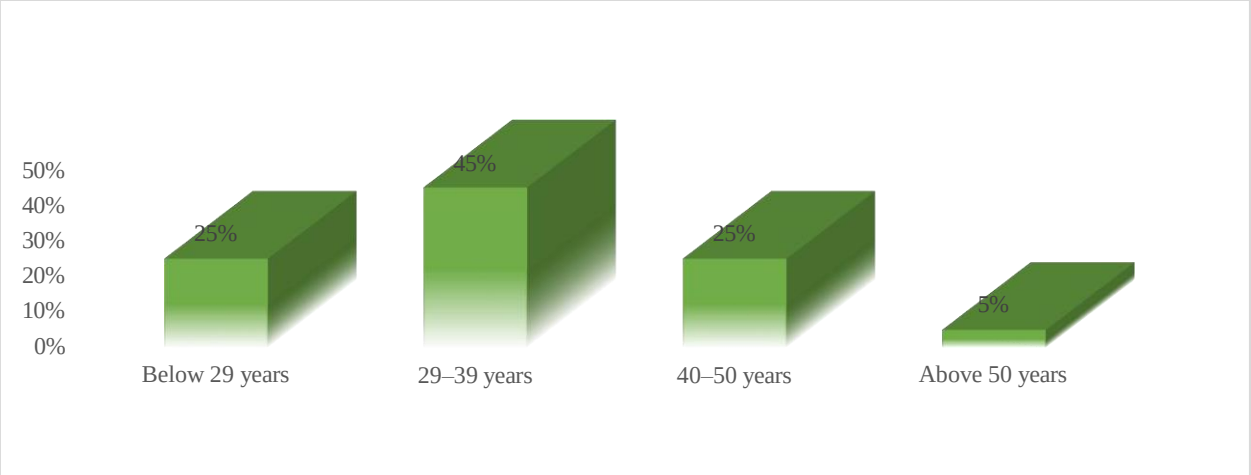


Figure 4. 2: **4.2 Age Distribution of Participants**

Source: *Primary Data 2025*

The findings in Figure 4.2 indicate that the majority of participants are within economically active age groups, with 25% under 29 years, 45% aged 29–39, 25% between 40–50, and only 5% above 50 years. This age distribution is particularly relevant to environmental entrepreneurship, as it suggests a strong potential workforce capable of driving innovative and sustainable waste management initiatives. The high proportion of youth and middle-aged participants reflects a demographic well-positioned to adopt new entrepreneurial models, engage in green enterprises, and contribute actively to the transition toward environmentally sustainable practices in the sector.

4.4.3 Education Levels

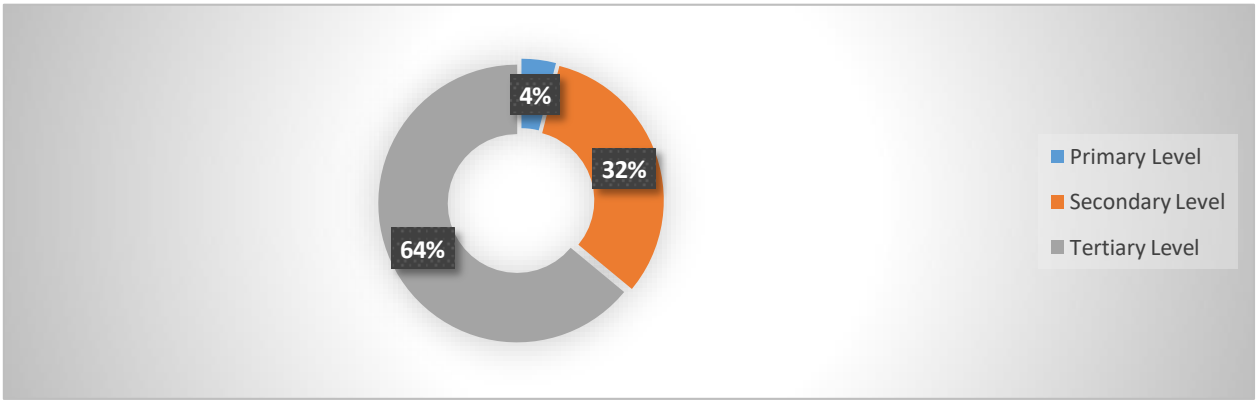


Figure 4. 3: **Education Levels of Participants**

Source: *Primary Data 2025*

The results illustrated in Figure 4.3 show that 64% of respondents have obtained tertiary education, 32% possess secondary-level qualifications, and 4% have primary education. This educational profile is highly relevant to environmental entrepreneurship, as a majority with higher education suggests a strong capacity for understanding, adopting, and innovating within sustainable waste management practices. Educated individuals are more likely to recognize the value of environmental initiatives, engage in green business models, and contribute to policy and technological solutions that support sustainable development in urban waste management systems.

4.4.4 Period of Involvement in in Waste Management / Environmental Sector

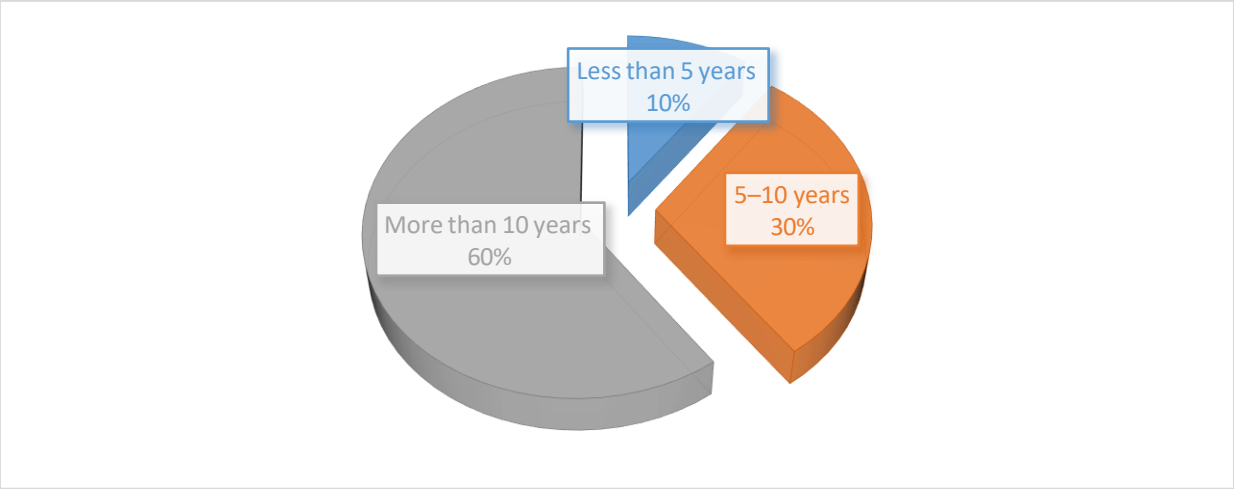


Figure 4. 4: **Period of Involvement**

Source: *Primary Data 2025*

The findings indicate that 10% of participants have less than five years of experience, while 60% have been involved in the sector for over ten years. In relation to environmental entrepreneurship, this distribution highlights the presence of a seasoned workforce with deep practical knowledge of waste-related challenges and opportunities. The extensive experience of the majority provides a strong foundation for mentoring new entrepreneurs and scaling up sustainable practices, while the newer entrants bring fresh perspectives and potential for innovation in environmentally focused business models.

4.5 The current state of environmental entrepreneurship in City of Harare

The study examines the current state of environmental entrepreneurship in City of Harare using descriptive statistics and the computed results on table 4.2.

Table 4. 2: State of environmental entrepreneurship

Statement	N	Mean	Std. Error	Std. Deviation
Environmental entrepreneurship initiatives are actively promoted in the City of Harare.	70	3.200	0.150	1.254
There is adequate awareness among the public about the role of environmental entrepreneurship in solid waste management.	70	2.800	0.140	1.174
Entrepreneurs in the City of Harare have access to funding and investment opportunities for waste management projects.	70	2.500	0.130	1.087
Government policies support the growth of environmental entrepreneurship in solid waste management.	70	2.700	0.135	1.129
Technological innovations are being utilized effectively in environmental entrepreneurship initiatives.	70	2.600	0.138	1.154
Community attitudes and cultural values support environmental entrepreneurship in solid waste management.	70	2.400	0.125	1.045
Stakeholder engagement (e.g., government, private sector, NGOs) is effective in promoting environmental entrepreneurship.	70	2.300	0.120	1.009
Valid N (listwise)	70			

Source: *SPSS version 28*

The findings on table 4.2 reflect a complex and underdeveloped landscape for environmental entrepreneurship in solid waste management within the City of Harare. The mean score of 3.200 for the statement on the active promotion of environmental entrepreneurship indicates a moderate level of agreement among respondents. This suggests that while such initiatives exist, their scale and impact may be limited. The corresponding standard deviation of 1.254 points to a relatively wide variation in responses, implying differing experiences or awareness levels among stakeholders some may have observed active initiatives, while others have seen little to none.

Public awareness about the role of environmental entrepreneurship scored a mean of 2.800, suggesting that respondents tend to disagree or remain neutral regarding the adequacy of public knowledge. The standard deviation of 1.174 indicates a high degree of variability in perceptions, perhaps influenced by disparities in access to information or uneven outreach efforts across communities. On the issue of funding access for entrepreneurs, the mean score was 2.500, reflecting general disagreement with the statement that adequate financial support is available. The standard deviation of 1.087, while slightly lower than others, still signifies considerable variation in opinion, possibly due to some entrepreneurs having better connections or access to informal funding channels than others.

Government policy support for environmental entrepreneurship was rated with a mean of 2.700. This indicates a prevailing view that current policies are insufficient or poorly implemented. A standard deviation of 1.129 reinforces the interpretation that experiences vary, perhaps depending on the respondent's role whether from civil society, government, or private sector and their proximity to policy-making processes. Technological innovation in environmental entrepreneurship received a mean score of 2.600, suggesting limited effective use of technology in the sector. The standard deviation of 1.154 shows a broad spread of responses, which could be explained by unequal access to innovations between urban and peri-urban communities, or by differing interpretations of what constitutes "effective utilization."

Community attitudes and cultural values supporting environmental entrepreneurship were rated the lowest in this cluster, with a mean of 2.400. This implies that social norms and traditional practices may hinder innovation in waste management. The standard deviation of 1.045, though slightly lower than others, still denotes significant variability in responses, indicating that while some communities may be supportive, others are resistant or indifferent. Finally, stakeholder engagement scored the lowest mean of 2.300, reflecting widespread dissatisfaction with the current state of collaboration among government, private sector, and NGOs in promoting environmental entrepreneurship. The standard deviation of 1.009, while being the smallest in this set, still reflects a moderate range of differing experiences some stakeholders may have observed effective partnerships, while others see fragmentation or disengagement.

4.5 1. Thematic Analysis on the Current State of Environmental Entrepreneurship in the City of Harare

Environmental entrepreneurship in the City of Harare is emerging but remains largely underdeveloped, as echoed by several key stakeholders. The interviews reveal both promise and persistent structural challenges affecting the sector. Five central themes were identified from the responses: policy framework and governance, community engagement, access to resources and technology, stakeholder collaboration, and operational challenges in implementation.

Policy and governance surfaced as a dominant theme. While some efforts have been initiated to support environmental initiatives, informants noted a lack of robust policy frameworks. A senior EMA official stated, "*We have general environmental regulations, but there is no specific policy dedicated to promoting environmental entrepreneurship*." Similarly, a City Council Department Head explained, "*Most of our strategies are reactive rather than proactive. There is no institutionalised system for nurturing green startups*."

Community engagement and awareness were reported as weak. According to a Residents Association representative, "*Most residents still see waste as garbage, not as a resource with business potential*." A Councillor emphasized, "*There's a lack of grassroots campaigns to educate people on how they can generate income through waste recycling or composting*."

Access to financial and technical resources emerged as a major barrier. As the Mayor put it, "*Entrepreneurs have brilliant ideas but no funding or technical support to scale them*." An official from the Ministry of Local Government added, "*Even at the ministry level, there are no dedicated funding schemes targeting waste-based enterprises*."

Stakeholder collaboration was described as fragmented. A respondent from the City Health Department noted, "*The private sector and NGOs are doing their part, but coordination is poor—we need a unified city-wide approach*." An EMA official echoed this, lamenting the "duplication of roles and missed synergies."

Lastly, operational and structural challenges such as corruption, poor infrastructure, and limited data access continue to constrain the effectiveness of environmental entrepreneurship. A City Council engineer observed, "*Illegal dump sites persist because we don't have an efficient waste collection system*," while another interviewee stated, "*Data on waste generation is scattered and outdated, making planning difficult*." In general, while environmental entrepreneurship holds potential in Harare, it remains limited by weak policy support, inadequate funding, fragmented stakeholder action, and low public engagement. Addressing these barriers is key to unlocking its full impact.

4.6 The effectiveness of environmental entrepreneurship in managing solid waste in City of Harare

The research assesses the effectiveness of environmental entrepreneurship in solid waste management in Harare, indicate a generally low perception of success across various dimensions.

Table 4. 3: **Effectiveness of environmental entrepreneurship**

Statement	N	Mean	Std. Error	Std. Deviation
Environmental entrepreneurship has significantly reduced solid waste accumulation in the City of Harare.	70	2.600	0.115	0.961
Entrepreneurs are effectively utilizing recycling and waste-to-resource technologies.	70	2.400	0.110	0.920
Environmental entrepreneurship has created employment opportunities in the waste management sector.	70	3.100	0.120	1.005
Entrepreneurs are addressing environmental challenges such as pollution and resource depletion.	70	2.700	0.118	0.987
The integration of environmental entrepreneurship with sustainable waste management strategies has improved public health.	70	2.500	0.112	0.938
Economic factors (e.g., funding, market demand) are adequately supporting environmental entrepreneurship.	70	2.300	0.105	0.879
Government policies and incentives are effectively encouraging entrepreneurs to innovate in waste management.	70	2.200	0.100	0.840
Valid N (listwise)	70			

Source: *SPSS version 28*

The findings in table 4.3 indicate that the mean scores for all statements are below 3.5, suggesting that respondents predominantly disagree or remain neutral about the effectiveness of current environmental entrepreneurship initiatives. The statement "Environmental entrepreneurship has significantly reduced solid waste accumulation in the City of Harare" has a mean score of 2.600 with a standard deviation of 0.961. This reflects a general disagreement among respondents regarding the impact of environmental entrepreneurship on reducing solid waste. The standard deviation indicates a moderate variability in responses, suggesting differing experiences or perceptions among the population.

Regarding the utilization of recycling and waste-to-resource technologies by entrepreneurs, the mean score is 2.400 with a standard deviation of 0.920. This suggests a prevalent perception that such technologies are not being effectively employed. The relatively low standard deviation implies a consensus among respondents on this issue. The creation of employment opportunities through environmental entrepreneurship scores a mean of 3.100 and a standard deviation of 1.005. This indicates a neutral to slightly positive perception, with some respondents acknowledging employment benefits, while others do not observe significant job creation.

In terms of addressing environmental challenges like pollution and resource depletion, the mean score is 2.700 with a standard deviation of 0.987. This reflects a general skepticism about the effectiveness of entrepreneurs in tackling these issues, with moderate variability in responses. The integration of environmental entrepreneurship with sustainable waste management strategies and its impact on public health has a mean score of 2.500 and a standard deviation of 0.938. This suggests that respondents do not perceive significant health improvements resulting from current initiatives, and there is some variation in opinions.

Economic support for environmental entrepreneurship, encompassing funding and market demand, is viewed as inadequate, with a mean score of 2.300 and a standard deviation of 0.879. This indicates a consensus on the lack of sufficient economic backing for such ventures. Finally, the effectiveness of government policies and incentives in encouraging innovation in waste management entrepreneurship is rated lowest, with a mean of 2.200 and a standard deviation of 0.840. This reflects a strong perception that governmental support is lacking, with relatively little

disagreement among respondents. In summary, the data suggests that environmental entrepreneurship in Harare's solid waste management sector faces significant obstacles, including limited impact on waste reduction, underutilization of recycling technologies, minimal employment generation, inadequate economic support, and insufficient government incentives. Addressing these challenges is crucial for enhancing the effectiveness of environmental entrepreneurship initiatives in the city.

4.6.1 Thematic Analysis on the Effectiveness of Environmental Entrepreneurship in Managing Solid Waste in Harare

Environmental entrepreneurship in Harare is increasingly recognized as a complementary strategy for improving waste management. However, the effectiveness of such initiatives remains constrained by systemic barriers and uneven implementation. From the interviews, five key themes emerged: localized impact, employment generation, technological integration, institutional barriers, and community participation.

Localized Impact was acknowledged by several stakeholders. While large-scale citywide results remain limited, community-level benefits have been observed. A City Council waste officer explained, "*In Mbare, we've seen youth-led composting and recycling projects that have reduced visible waste*," while the Mayor noted, "*Small pockets of success are emerging, but they aren't yet replicable at scale*."

Employment Creation is one of the more tangible outcomes. A Ministry of Local Government official remarked, "*Informal waste pickers have become entrepreneurs, especially in plastic recycling*," and a Councillor added, "Environmental entrepreneurship has empowered youth and women with small but growing income streams from waste."

Technological Adoption was reported as minimal. The Head of the Engineering Department stated, "*Most initiatives still rely on manual separation—there's little to no investment in*

advanced sorting or upcycling technologies," and an EMA official mentioned, "*Technological innovation is lacking due to both funding and training gaps*."

Institutional Challenges continue to impede progress. According to a Residents Association leader, "*Bureaucracy and unclear licensing procedures discourage potential entrepreneurs*," while another informant noted, "*We lack inter-departmental coordination—environmental units don't communicate with planning or finance*."

Community Participation remains low despite awareness efforts. A Councillor emphasized, "*Most residents still don't separate waste at source*," and a Local Government official added, "*Until environmental entrepreneurship is mainstreamed into public culture, its impact will be marginal*."

In general, while environmental entrepreneurship has begun to positively influence solid waste management in localized contexts, its broader effectiveness is undermined by low technological integration, weak institutional coordination, and limited community participation. Strategic investment, policy alignment, and public education are necessary to scale these efforts citywide.

4.7 Strengthen Policy and Institutional Frameworks

1. Governance and Policy Integration Layer

This foundational layer addresses the critical policy gaps identified in Harare's waste management ecosystem. It creates a supportive regulatory environment by establishing a dedicated Environmental Entrepreneurship Policy that legitimizes waste-based businesses. By streamlining licensing procedures and creating fiscal incentives like tax breaks and import duty exemptions, this layer removes administrative barriers that currently discourage entrepreneurs. The creation of a Waste Management Coordination Council brings together previously disconnected stakeholders addressing the fragmented collaboration identified in the research (mean: 2.300). This council ensures policy coherence while the designated liaison officers in each municipal department facilitate smoother bureaucratic processes, enabling entrepreneurs to navigate regulatory requirements more efficiently.

2. Resource Mobilization and Financial Sustainability Layer

This layer tackles the severe funding constraints (mean: 2.500) that limit entrepreneurial innovation in waste management. The Environmental Entrepreneurship Fund provides much-needed capital through a tiered structure that supports ventures at different growth stages grants for startups, low-interest loans for growing enterprises, and equity investments for established businesses. By implementing a waste management levy on businesses to partially fund these initiatives, the framework creates a sustainable financing mechanism. The formal waste material exchange platforms connect waste generators directly with recyclers, creating transparent market conditions and price stability. Certification standards for recycled products build consumer confidence, expanding market opportunities for waste-based products.

3. Technology and Innovation Layer

Addressing the limited technological innovation in the sector (mean: 2.600), this layer establishes a technology incubation centre where entrepreneurs can test and adapt waste management solutions. Technical support services help entrepreneur's select appropriate technologies, while international partnerships facilitate knowledge transfer. The integrated waste information system provides crucial data on generation, collection, and processing—addressing the "scattered and outdated" data problem identified in the interviews. GIS mapping of waste hotspots and collection routes helps entrepreneurs identify geographic opportunities, while the open data platform democratizes access to business intelligence, allowing new entrants to identify viable market niches.

4. Community Engagement and Behavioural Change Layer

This layer responds to the low public awareness (mean: 2.800) and weak community support (mean: 2.400) identified in the research. Ward-level waste separation campaigns build grassroots participation, while integration of environmental entrepreneurship concepts into school curricula cultivates future environmental entrepreneurs. Community waste management committees with decision-making authority empower residents to participate in governance, creating ownership and accountability. Formalized integration pathways for informal waste pickers acknowledge their role while creating opportunities for upskilling and business formalization. The gender-

responsive policies and youth entrepreneurship programs ensure inclusivity across demographic groups.

5. Operational Systems and Infrastructure Layer

This practical layer transforms how waste is physically managed in Harare. The decentralized collection system creates entrepreneurial opportunities at the neighbourhood level, addressing the operational challenges mentioned by key informants. Waste aggregation centres serve as collection hubs where materials can be sorted, creating economies of scale. Incentive systems for source segregation encourage behavioural change among residents, while designated zones for waste processing facilities with simplified approval processes reduce setup time for entrepreneurs. The material recovery facilities operated through performance-based contracts ensure accountability while maintaining service quality.

6. Implementation Framework

This layer provides the roadmap for execution, acknowledging that system transformation requires time and sequencing. The phased approach allows for learning and adaptation, starting with policy development and institutional coordination before moving to funding mechanisms and pilot projects. Comprehensive monitoring and evaluation ensures that interventions remain effective and can be adjusted based on results. The learning system documents best practices, creating a knowledge base that supports continuous improvement and innovation within Harare's waste management ecosystem.

4.8 Discussion of Results

4.8.1 The current state of environmental entrepreneurship in City of Harare

The current state of environmental entrepreneurship in Harare reflects a sector with emerging potential but facing significant systemic challenges. While initiatives exist, their scale and impact appear limited, and stakeholder experiences vary widely. Public awareness of environmental entrepreneurship's role in solid waste management is generally low, with disparities in information access and outreach efforts across communities. This aligns with findings by Suryawan and Lee (2023), who observed that public participation in environmental initiatives is

often constrained by knowledge gaps and weak civic education in Zimbabwean urban settings. Access to funding and investment opportunities for waste management projects is a significant barrier. Many entrepreneurs struggle to secure capital, often relying on personal savings or informal lenders. Kwenda et al. (2023) highlight that lack of access to capital remains a critical barrier for small-scale environmental entrepreneurs. The absence of dedicated funding mechanisms further exacerbates this issue (Chihanga et al., 2020). Government policies supporting the growth of environmental entrepreneurship are perceived as insufficient or poorly implemented. This perception is consistent with observations by Goyal et al (2021), who found that municipal efforts to support green entrepreneurship in African cities often lack structured frameworks and adequate institutional backing.

4.8.2 Effectiveness of Environmental Entrepreneurship in Managing Solid Waste in Harare

Technological innovations are not being effectively utilized in environmental entrepreneurship initiatives. Unequal access to innovations between urban and peri-urban communities, or differing interpretations of what constitutes effective utilization, may contribute to this issue. Community attitudes and cultural values do not strongly support environmental entrepreneurship in solid waste management. Social norms and traditional practices may hinder innovation in waste management, with some communities being supportive while others are resistant or indifferent (Aftab et al., 2022). Stakeholder engagement among government, private sector, and NGOs in promoting environmental entrepreneurship is perceived as ineffective. This fragmentation and lack of coordination among stakeholders are consistent with findings by Chinyama and Toma (2018), who argued that fragmented stakeholder relationships and weak community ownership severely limit the scalability of environmental interventions in Harare. In general, while environmental entrepreneurship holds potential in Harare, it remains limited by weak policy support, inadequate funding, fragmented stakeholder action, and low public engagement. Addressing these barriers is key to unlocking its full impact.

The evaluation of environmental entrepreneurship's effectiveness in managing solid waste in Harare reveals a sector grappling with significant challenges. Survey findings indicate that initiatives have had limited impact on reducing waste accumulation, with respondents expressing

skepticism about the effectiveness of current efforts. This aligns with observations by Kwenda (2021) who highlighted persistent issues such as illegal dumping and inadequate waste collection in Harare.

The utilization of recycling and waste-to-resource technologies by entrepreneurs appears minimal. This is consistent with findings by Suryawan and Lee (2023), who noted that most waste in Harare is managed through traditional methods like landfilling and burning, with limited adoption of advanced recycling techniques. The lack of technological integration hampers the potential for environmental entrepreneurship to contribute meaningfully to waste management (Mandaza et al., 2021). While some employment opportunities have emerged through environmental entrepreneurship, the scale remains limited. Informal waste pickers have transitioned into entrepreneurial roles, particularly in plastic recycling, providing income streams for youth and women (Mavhunga, 2020). However, the overall impact on job creation is modest, reflecting the need for more substantial support and scaling of such initiatives.

Addressing environmental challenges like pollution and resource depletion through entrepreneurship is still in its nascent stages. The integration of environmental entrepreneurship with sustainable waste management strategies has yet to yield significant public health improvements. This is indicative of the broader systemic issues affecting the sector. Economic factors, including funding and market demand, are inadequately supporting environmental entrepreneurship. Entrepreneurs face difficulties accessing capital and markets, limiting their capacity to innovate and expand. This financial constraint is a common barrier in developing countries, where environmental initiatives often struggle to secure necessary resources (Mondal et al., 2023).

Government policies and incentives are perceived as ineffective in encouraging innovation in waste management. The lack of a robust policy framework and institutional support undermines efforts to promote environmental entrepreneurship. This is further compounded by bureaucratic hurdles and insufficient coordination among relevant departments (Rafew & Rafizul, 2021). In summary, environmental entrepreneurship in Harare's solid waste management sector faces significant obstacles, including limited impact on waste reduction, underutilization of recycling

technologies, minimal employment generation, inadequate economic support, and insufficient government incentives. Addressing these challenges is crucial for enhancing the effectiveness of environmental entrepreneurship initiatives in the city.

4.9 Chapter Summary

The chapter presented and analysed the findings of the study on enhancing environmental entrepreneurship in solid waste management in Harare. Using both descriptive statistics and thematic analysis, the chapter examined the demographic profile of participants, the current state of environmental entrepreneurship, and its effectiveness in addressing waste challenges. The results indicated limited promotion, public awareness, funding access, and policy support for green entrepreneurship. While localized benefits such as employment creation were evident, systemic barriers including weak institutional frameworks, poor stakeholder coordination, and inadequate technology adoption hindered broader impact. A holistic integration framework was proposed to address these challenges.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

The chapter presents the summary, conclusions, and recommendations derived from the study on enhancing environmental entrepreneurship in solid waste management in the City of Harare. It synthesizes key research findings aligned with each objective, offers practical and policy-oriented recommendations, and proposes areas for further research to support the development of sustainable, inclusive, and innovation-driven waste management systems.

5.2 Summary of the research findings

Objective 1: To describe the current state of environmental entrepreneurship in the City of Harare

The findings reveal that environmental entrepreneurship in Harare is emerging but remains underdeveloped. Survey results indicated limited promotion, low public awareness, poor stakeholder engagement, and inadequate funding opportunities. Thematic insights from interviews underscored structural weaknesses, including fragmented stakeholder coordination, reactive policy approaches, and limited grassroots education. While some community-based initiatives exist, they are sporadic and lack scalability. The general perception is that environmental entrepreneurship has not yet been institutionalized or widely embraced, with public attitudes and policy frameworks lagging behind. These challenges must be addressed to unlock the sector's potential for sustainable waste management and economic innovation.

Objective 2: To evaluate the effectiveness of environmental entrepreneurship in managing solid waste in the City of Harare

The study found limited effectiveness of environmental entrepreneurship in reducing solid waste, enhancing recycling, or improving public health. Mean scores for impact indicators such as waste reduction (2.6), technology utilization (2.4), and policy support (2.2) all fell below neutral,

indicating stakeholder dissatisfaction. Although localized success stories exist, particularly in job creation through informal recycling, these are isolated. Interviews highlighted minimal technological adoption, institutional bottlenecks, and poor public participation. The findings suggest that while environmental entrepreneurship contributes marginally to waste management, systemic barriers particularly policy fragmentation and underfunding undermine broader effectiveness, warranting targeted interventions to enhance impact at scale.

Objective 3: To develop a framework for integrating environmental entrepreneurship with sustainable waste management strategies for the City of Harare

The proposed framework addresses key limitations identified in the study through six interlinked layers: governance and policy, resource mobilization, technological innovation, community engagement, operational infrastructure, and implementation mechanisms. It introduces institutional reforms such as a dedicated entrepreneurship policy and coordination council, while proposing innovative financing through levies and dedicated funds. The framework promotes data-driven decisions, decentralized waste systems, school-based awareness campaigns, and integration of informal workers. It is designed to enhance inclusivity, scalability, and resilience in Harare's waste management ecosystem. This integrated model offers a strategic pathway to transition from fragmented efforts to coordinated, sustainable environmental entrepreneurship.

5.3 Conclusion of the study

Objective 1: To describe the current state of environmental entrepreneurship in the City of Harare

The study concludes that environmental entrepreneurship in Harare remains in its infancy, with notable gaps in institutional support, public awareness, and stakeholder collaboration. Although some environmental initiatives exist, they lack coherence, scalability, and visibility. The current environment is characterized by fragmented governance, limited investment in environmental innovation, and inadequate public education on the value of waste-based enterprises. The findings suggest that despite an acknowledged potential for green entrepreneurship, systemic barriers, especially poor stakeholder coordination and lack of policy specificity have hindered the emergence of a robust environmental entrepreneurship ecosystem. As a result, existing

efforts have not matured into a structured movement capable of driving sustainable urban waste solutions.

Objective 2: To evaluate the effectiveness of environmental entrepreneurship in managing solid waste in the City of Harare

The study concludes that the overall effectiveness of environmental entrepreneurship in managing solid waste is limited. The surveyed stakeholders expressed skepticism about the actual impact of current initiatives on waste reduction, public health, and environmental protection. Recycling and waste-to-resource technologies are underutilized, and employment gains, while present, are not transformative. Structural inefficiencies such as lack of funding, minimal technological integration, and poor stakeholder engagement have prevented environmental entrepreneurship from becoming a powerful tool in Harare's waste management strategy. These weaknesses significantly reduce the scalability and sustainability of current efforts.

Objective 3: To develop a framework for integrating environmental entrepreneurship with sustainable waste management strategies

The study successfully developed a comprehensive framework that provides a practical roadmap for integrating environmental entrepreneurship into Harare's solid waste management system. It addresses identified barriers through institutional reforms, innovative financing, community engagement, and technology adoption. If implemented effectively, this framework could catalyse a paradigm shift toward inclusive, resilient, and sustainable waste management, positioning environmental entrepreneurship as a core pillar of urban environmental governance in Harare.

5.4 Recommendations of the Study

1. Strengthen Policy and Institutional Frameworks for integrating environmental entrepreneurship with sustainable waste management strategies for City of Harare

The study recommends the development and enforcement of a dedicated Environmental Entrepreneurship Policy to provide legal and institutional recognition to waste-based enterprises. This should be accompanied by the establishment of a Waste Management Coordination Council to enhance interdepartmental collaboration, reduce bureaucratic red tape, and improve coherence

among stakeholders including government agencies, NGOs, private sector actors, and communities. Streamlined licensing procedures and fiscal incentives such as tax breaks or subsidies should be introduced to create an enabling policy environment for environmental entrepreneurs.

The framework on figure 5.1 provides a holistic approach to fostering environmental entrepreneurship in Harare's solid waste management sector. It integrates policy, finance, innovation, community, and data systems into a structured path for achieving sustainability and environmental impact. The diagram below visually represents the framework components and their interconnections. The framework integrates environmental entrepreneurship with sustainable waste management through six interconnected layers



Figure 5. 1: **Framework for integrating environmental entrepreneurship**

2. Enhance Public Awareness and Community Engagement

There is a critical need to raise awareness about the value of environmental entrepreneurship in solid waste management. The study recommends launching ward-based awareness campaigns,

school curriculum integration on environmental sustainability, and public education programs on waste separation, recycling, and composting. Community Waste Management Committees should be formalized and empowered to play a decision-making role in local waste governance. These efforts can build a culture of environmental responsibility and increase public participation in sustainable waste initiatives.

3. Improve Access to Finance and Technical Resources

To address the funding gap, the study recommends the establishment of an Environmental Entrepreneurship Fund, financed through public-private partnerships, donor contributions, and municipal levies. This fund should support early-stage, growth-stage, and mature environmental enterprises through grants, concessional loans, and equity financing. Additionally, a technology incubation hub should be established to support entrepreneurs with access to modern waste processing technologies, technical training, and innovation labs for prototyping scalable solutions.

4. Formalize and Empower the Informal Sector

Recognizing the essential contributions of informal waste pickers, the study recommends their integration into formal waste management systems through structured engagement, upskilling programs, and support for business registration. This formalization process must be gender-sensitive and youth-inclusive to enhance equity and employment creation in the sector.

5. Adopt a Data-Driven and Phased Implementation Approach

The City of Harare should develop an Integrated Waste Information System to collect real-time data on waste generation, collection, and recycling. This will facilitate evidence-based planning, performance monitoring, and investment targeting. The implementation of the proposed framework should follow a phased approach, starting with policy reforms and pilot programs in selected wards before scaling up citywide. Continuous monitoring, evaluation, and stakeholder feedback must be institutionalized to ensure adaptive learning and long-term sustainability.

5.5 Recommendations for Further Studies

1. Future studies should conduct comparative analyses between Harare and other major cities in Zimbabwe or across Sub-Saharan Africa to understand how environmental entrepreneurship in solid waste management varies across different urban contexts. This would help determine the transferability of the proposed framework and highlight best practices, policy differences, and localized innovations that could inform regional integration efforts.
2. There is a need for longitudinal studies that track the long-term impact of environmental entrepreneurship on solid waste reduction, public health, and employment creation. Such studies would provide empirical data on the sustainability and scalability of green business models and the effectiveness of interventions like policy reforms, financing mechanisms, and technology adoption.
3. Emerging technologies such as artificial intelligence, blockchain, and Internet of Things (IoT) have the potential to revolutionize waste management systems. Future studies should investigate how digital tools can be integrated into environmental entrepreneurship to enhance operational efficiency, data collection, and citizen engagement.

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Appendices

Appendix 1: Research Instruments

My name is Kaguna Phillip; I am a postgraduate student at Bindura University of Science Education pursuing a Master's Degree in Entrepreneurship and Innovation. I am required to carry out a research project in partial fulfilment of the requirements for the degree. As such, I am conducting research on "*Developing a Model for Improving Environmental Entrepreneurship in Solid Waste Management in the City of Harare*. I kindly request your assistance as a respondent to this research by filling in the questionnaire. The responses you provide will be treated with utmost confidentiality and will be used solely for academic purposes. Your cooperation will be greatly appreciated.

Instructions:

- Please answer all the questions honestly.
- Indicate your answers by ticking (✓) where appropriate in the boxes or writing in the spaces provided.
- Your name or identity is not required.

SECTION A: GENERAL INFORMATION

1.1 Gender

☐ Male ☐ Female

1.2 Age of Respondent

☐ Below 29 ☐ 29-39 ☐ 40-50 ☐ Above 50

1.3 Period of Working Experience in Waste Management / Environmental Sector

☐ Less than 5 years ☐ 5-10 years ☐ More than 10 years

1.4 Highest Level of Education Attained

☐ Primary level ☐ Secondary level ☐ Tertiary level ☐ Other (Specify):…….

SECTION B: CURRENT STATE OF ENVIRONMENTAL ENTREPRENEURSHIP IN THE CITY OF HARARE

This section seeks to understand the current state of environmental entrepreneurship in solid waste management.

Indicate the extent to which you agree or disagree with the following statements:
Scale: Strongly Disagree = 1; Disagree = 2; Neutral = 3; Agree = 4; Strongly Agree = 5

	Practice	**1**	**2**	**3**	**4**	**5**
1	Environmental entrepreneurship initiatives are actively promoted in the City of Harare.					
2	There is adequate awareness among the public about the role of environmental entrepreneurship in solid waste management.					
3	Entrepreneurs in the City of Harare have access to funding and investment opportunities for waste management projects.					
4	Government policies support the growth of environmental entrepreneurship in solid waste management.					
5	Technological innovations are being utilized effectively in environmental entrepreneurship initiatives.					
6	Community attitudes and cultural values support environmental entrepreneurship in solid waste management.					
7	Stakeholder engagement (e.g., government, private sector, NGOs) is effective in promoting environmental entrepreneurship.					

SECTION C: EFFECTIVENESS OF ENVIRONMENTAL ENTREPRENEURSHIP IN SOLID WASTE MANAGEMENT

This section evaluates the effectiveness of environmental entrepreneurship in managing solid waste in the City of Harare.

Indicate the extent to which you agree or disagree with the following statements:
Scale: Strongly Disagree = 1; Disagree = 2; Neutral = 3; Agree = 4; Strongly Agree = 5

	Statement	**1**	**2**	**3**	**4**	**5**
1	Environmental entrepreneurship has significantly reduced solid waste accumulation in the City of Harare.					
2	Entrepreneurs are effectively utilizing recycling and waste-to-resource technologies.					
3	Environmental entrepreneurship has created employment opportunities in the waste management sector.					
4	Entrepreneurs are addressing environmental challenges such as pollution and resource depletion.					
5	The integration of environmental entrepreneurship with sustainable waste management strategies has improved public health.					
6	Economic factors (e.g., funding, market demand) are adequately supporting environmental entrepreneurship.					
7	Government policies and incentives are effectively encouraging entrepreneurs to innovate in waste management.					

Thank you for your time and participation in this research. Your input is invaluable to the success of this study.

End of Questionnaire

Appendix 2: Interview Guide For Key Informants

Date of Interview: ……

Interview Number: ……

Time: ……..……

<u>Participant Background Information.</u>

Academic Qualifications: ……

Years of involvement in Waste Management / Environmental Sector……

4. What do you think is the current state of environmental entrepreneurship in the City of Harare?
5. How effective is environmental entrepreneurship in managing solid waste in the City of Harare?
6. What framework can be developed to integrate environmental entrepreneurship with sustainable waste management strategies in the City of Harare?

Appendix 3: Approval letter

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GRADUATE SCHOOL OF BUSINESS

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6 March 2025

TO WHOM IT MAY CONCERN

REF: REQUEST TO CARRY OUT RESEARCH: MR KAGUNA PHILLIP (B1749312), MASTER OF ENTREPRENEURSHIP AND INNOVATION (MEI), PART 2.1 STUDENT

This letter serves to confirm that **KAGUNA PHILLIP (B1749312),** is a Master of Entrepreneurship and Innovation student in the Graduate School of Business at Bindura University of Science Education.

The student is the final stage of study which requires him to carry out a research. His dissertation is *titled "A working model towards improving environmental entrepreneurship in solid waste in Harare City."*

We would be grateful if you could give him any assistance he may require.

For more details, please do not hesitate to contact us.

Yours faithfully,

COORDINATOR
GRADUATE SCHOOL OF BUSINESS
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OFFICIAL

Dr. J. Mwenje
Director, Graduate School of Business