

**EXAMINING ENVIRONMENTAL SUSTAINABILITY OF PRACTICES OF
SELECTED SUPERMARKETS THROUGH ISO 14001 IN LUSAKA DISTRICT,
ZAMBIA.**

By

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A Dissertation Submitted to the University of Zambia in Partial Fulfillment of the
Requirement for the Award of Master of Education in Environmental Education.

University of Zambia
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DECLARATION

I, Bryan Sinyangwe, do solemnly declare that this dissertation presents my own work, except where otherwise acknowledged and that it has never been previously submitted for a degree at the University of Zambia or any other University.

Signature.....

Date.....

DEDICATION

To all the well-meaning and responsible citizens.

CERTIFICATE OF APPROVAL

This dissertation prepared by Bryan Sinyangwe is approved as fulfilling part of the requirements for the award of the degree of Master of Education (MEd) in Environmental Education by the University of Zambia.

Examiner..... Signature..... Date.....

Examiner..... Signature..... Date.....

Examiner..... Signature..... Date.....

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ABBREVIATIONS

| | |
|---------------|---|
| CDC | Center for Disease Control |
| CRP | Center for Responsive Politics |
| EMS | Environmental Management System |
| EPA | Environmental Protection Agency |
| ESD | Education for Sustainable Development |
| EU | European Union |
| EUI | Economist Intelligence Unit |
| FAO | Food Agriculture Organization |
| FRC | Food Recovery Challenge |
| GAP | Good Agricultural Practice |
| GSC | Grocery Stewardship Certification |
| IDC | Institute of Democracy and Cooperation |
| ILSR | Institute for Local Self Reliance |
| ISO | International Organization for Standardization |
| JSE | Johannesburg Stock Exchange |
| LCC | Lusaka City council |
| LCMV | Lymphocytic choriomeningitis |
| MDGs | Millennium Development Goals |
| SCR | Social Corporate Responsibility |
| SDGs | Sustainable Development Goals |
| SE | Sustainability Education |
| SSCM | Sustainable Supply Chain Management |
| UNEP | United Nations Environmental Programme |
| UNESCO | United Nations Education Scientific and Cultural Organization |
| USEPA | United States Environmental Protection Agency |
| WBCSD | World Business Council on Sustainable Development |
| WEHAB | Water, Energy, Health, Agriculture and Biodiversity |
| WSSD | World Summit on Sustainable Development |

ABSTRACT

Rapid increase in the number of Supermarkets in sub-Saharan Africa, and Zambia in particular, has been viewed as an indication of positive developmental growth. However, as with any other industry, the food retail industry produces waste and contributes to environmental degradation. The extent to which this industry has affected the environment has not been well ascertained, and the overall image that emerges from literature is that very few studies have been undertaken to assess the environmental impacts associated with Supermarkets. The study was inspired by the lack of sustainability education and the low levels of compliance by Supermarkets to both local and international environmental regulatory standards leading to poor environmental sustainability practices in Zambia. The object of this study, therefore, was to examine the environmental sustainability practices of selected Supermarkets in Zambia's Lusaka District through ISO 14001 and to determine whether or not sufficient effort was made to improve sustainability. ISO 14001 is an internationally agreed standard that sets out requirements for an Environmental Management System (EMS). This standard identifies and establishes environmental impacts associated with business operations and suggests effective operational controls to manage the identified impacts.

A qualitative descriptive survey was used, which utilized a structured interview schedule and an ISO Checklist tool as primary data collection instruments. Purposive sampling design, involving expert purposive sampling and homogenous purposive sampling techniques, were employed to select ten supermarkets and an additional fifty members of the general public. The obtained results were analyzed using thematic analysis approach. The study revealed that there were a number of environmental concerns associated with Supermarkets' daily business operations, among which were solid waste generation leading to environmental pollution and littering. There were no policy guidelines that regulated the general operations of supermarkets regarding environmental protection as observed from the disparities in the measures supermarkets were engaged in to promote environmental sustainability. This explained the reason why there was very little understanding of the concept of environmental sustainability among members of the public and Supermarket management teams in particular. Only eight percent of Supermarkets were engaged in recycling as a means to promote environmental sustainability.

These findings point to a need for policy development to promote best practices and standards that will guide business operations among supermarkets as well as guide training and education to improve sustainability education among all sectors of the economy and among members of the general public. The study recommends that there should be strict policy guidance that regulates business operations in supermarkets in order to promote sustainable business operations. All Supermarkets should also have operational Environmental Management Systems that address environmental problems associated with their daily business operations.

CHAPTER ONE: INTRODUCTION

1.1 Background

In the last 50 years, humans have consumed more resources than in all previous history (USEPA, 2009). Consumption does not only involve the extraction of natural resources from the environment but also the need to meet the food requirements of the ever growing human population.

The continuous growth in the global population has exerted a lot of pressure on the natural environment. This is because the amount of resources needed to meet the demands of the human population grows proportionately with the population. The most immediate need is that of meeting the food requirements of every individual across the planet and food production, as is the case with other needs like energy production and transportation, also depends on the natural environment. The United States Environmental Protection Agency, (USEPA, 2009) estimated that over the last 50 years, humans have consumed more resources than in all previous history. This is estimate is evidenced by the how quickly our environment problems such as climate change which can be directly attributed to resource utilization.

Over the last thirty years, there has been a major shift in global consumption patterns from buying foods and non-food stuff from markets or specialized food shops such as fishmongers and vegetable markets to more specialized foods such as processed and imported foods (Friends of the Earth, 2005). In Zambia, this change has been very pronounced over the last 20years following the country's increased access to a wider variety of food choice. Ziba and Phiri (2017), point that prior to 1991, when Zambia was a closed economy with limited access to external markets, the majority of Zambia's population was very dependent on staple foods and a limited choice of processed foods, most of which were manufactured locally. However, after the liberalization of the economy, the influx of foreign supermarkets brought in a wider food range, which has subsequently changed consumers' diet patterns. The shift in food consumption towards higher-value products such as processed goods, fresh produce, and animal products has further propelled the spread of supermarket chain stores in the country (Hallam et al., 2004).

Besides providing a cheaper and convenient way of shopping to consumers, supermarkets have also been identified as key drivers in economic development through job creation as well as by

increasing the market share for the local farmers. However, supermarket's business operations have also been linked to a number of environmental problems. Major environmental concern from supermarkets is that of solid waste generation. Supermarkets generate two main categories of solid waste, namely, food waste and packaging materials, both of which constitute significant portions of the overall municipal solid waste (Davies and Konisky, 2000; Lusaka City Council, 2010). On the global scale, the most often quoted estimate is that as much as half of all food grown is lost or wasted before and after it reaches the consumer (Lundqvist *et al.*, 2008). With respect to packaging materials, plastics, corrugated cardboard and glass are generally the most significant type of solid waste generated. These wastes block drainages, harbor pathogens and rodents and also pose as a health hazard to the general public (LCC, 2010).

At the rate supermarkets were spreading across the country (Emongor and Kirsten, 2006), it was very likely that the effects they exert on the natural environment would increase proportionately. It became necessary therefore that appropriate policies and regulations should be put in place to monitor supermarkets business operations. In Zambia however, such regulations were not very pronounced. For instance, the current constitution only includes addresses markets through the Markets Act number 37 of 1994 which elaborates on the goods and products as well as guidelines on how the markets were to be run. Despite the recent influx of supermarkets in the country, this Act has not been amended to cover supermarkets' business operations. Policy issues relating to environmental concerns associated with business operations are not a topic of concern to Zambia only but have proved to be a global problem. In order to regulate environmental management policies globally, several countries and independent organizations adopted environmental policies and standards to help address various environmental challenges among business establishments. One such standard is the ISO 14001 which is an internationally agreed standard that sets out the requirements for an environmental management system. An environmental management system helps organizations to identify, manage, monitor and control their environmental issues in a holistic manner. Some of the benefits of using the ISO 14001 family of standards include achieving better environmental performance by incorporating environmental issues into business management, an improved corporate image among regulators, customers and the public as well as providing a competitive and financial advantage through improved efficiencies and reduced costs (Christini, 2003).

Previous studies focused on the impacts of supermarkets on agriculture development (Emongor and Kirsten,2009), the expansion of regional supermarkets and implications for local suppliers (Ziba and Phiri, 2015) and the introduction of shopping malls and their implications on retail shopping (Darlene et.al 2008). To the best of our knowledge, no studies have been carried out to investigate the environmental implications of supermarkets daily business operations. This study therefore, sought to fill this knowledge gap by examining environmental sustainability of practices among supermarkets in Lusaka district through ISO 14001.

Supermarket management teams and the general public need to be made aware of the advantages of good environmental practices through the dissemination of knowledge, skills, perspectives and values relating to sustainability through education. Sustainability education is therefore a critical tool in promoting compliance towards the set out regulatory standards and also help to promote environmental governance in the general population. Increasing public understanding and awareness of sustainability will help in achieving the goals of sustainable development which require citizens and business practitioners alike who are knowledgeable about sustainability and the actions needed to reach sustainability goals (UNESCO, 2014). Fifteen years after the implementation of the Millennium Development Goals (MDGs), the global community continued to struggle with extreme poverty and food insecurity. To help accelerate progress towards the achievement of these goals, the United Nations System Chief Executives Board for Coordination (CEB), established a new set of goals under the 2030 Agenda for Sustainable Development (UNPD, 2015). The new set of goals, referred to as Sustainable Development Goals (SDGs), are intended to be a universally shared common global vision of progress towards a safe, just and sustainable space for all human beings to thrive on the planet (Osborn et. al, 2015). SDG number 12 emphasizes environmental sustainability through the adoption of sustainable consumption and production patterns. It is against this background that this study sought to examine environmental sustainability of practices among selected supermarkets to raise awareness on environmental sustainability among these business entities and consumers alike so as to improve compliance to regulatory standards and enhance environmental sustainability.

1.1.1 Environmental Education Context of the Study

One of the recommendations made during the Fourth International Conference on Environmental Education held in Ahmedabad, India in 2007 is that of redirecting education which is a social

process, towards bringing change in lifestyles (in consonance with sustainable consumption and production): directing organizational practices towards sustainability; and towards including all people in all walks of life at all stages of the lifelong learning process for sustainability (UNESCO, 2007). The need for sustainable consumption has been necessitated by the current levels of environmental degradation that require immediate action (UNEP, 2010). In order to achieve this, the education system needs to be reoriented towards the adoption of consumption and production patterns that safeguard human rights and community well-being as well as the regenerative capacities of the earth and to ensure that economic activities at all levels promote human development in an equitable and sustainable manner (Ibid). Sustainable production and consumption habits can only be attained if organizations incorporate sustainability in their daily business operations. Ernst and Young (2013) have argued that a sustainable organization is one that meets the expectations of all stakeholders, as well as able to generate long term benefits by creating a virtuous cycle between economic, social and environmental considerations. Every business decision puts into consideration what effect it will have on the social and environmental wellbeing of the general public. The general public have a responsibility of responding to unsustainable business practices that may put their health at risk hence the need to equip all citizens with sustainability education to help them understand their roles and responsibilities in matters of sustainability. UNESCO (2010) emphasizes this fact by stating that “Education for Sustainable Development (ESD) is a dynamic concept that aims to enable people of all ages and from all walks of life to pursue and benefit from a sustainable future” (pp.2). ESD calls for everyone to work together to bring about sustainable development through education, a lifelong learning process that takes place in formal, non-formal and informal contexts as well as in society in general (UNESCO, 2010).

The general intended outcome of this study is to promote sustainability education among members of the general public as well as among supermarket management members to help improve environmental protection through their day to day activities. It is therefore well located within the broad landscape of environmental education.

1.2 Problem Statement

Lack of sustainability education and low levels of compliance to both local and international environmental regulatory standards among business establishments has arguably contributed to

poor environmental sustainability practices in Zambia. Environmental policy challenges are not only common to Zambia but have proved to be a global challenge (Sprinz, 2012). Despite regulatory bodies such as ISO 14001 which is an internationally agreed standard that sets out the requirements for an environmental management system, no clear policy guidelines had been enacted to regulate Supermarket business operations in Lusaka in the year 2017 when this study was conducted. Both the Markets Act No. 37 of 1994 and the Business Regulatory Act No. 3 of 2014 of the Laws of Zambia did not have clauses that regulated supermarkets' business operations regarding their impacts on the environment. It was not clear, therefore, what regulations governed supermarkets business operations as the Zambia Bureau of Standards, (ZABS, 2016) further indicated that it was not mandatory in Zambia for business establishments to comply with international environmental regulatory standards. Such a situation constitutes a problem.

If Supermarkets continued to operate without environmental policies, their business operations would lead to various environmental and health problems. Moreover, supermarkets would remain unconscious of environmental challenges they posed and consumers would not be aware of how they may reorient their consumer behavior towards the goals of sustainable development.

1.3 Significance of the study

Matters relating to environmental sustainability had not been accorded their due attention in most businesses of Zambia during the year 2017. There were no strict policy directives that addressed matters of sustainability nor was there localization of international policies to address local environmental challenges. For instance, the Seventh National Development Plan for the years 2017 to 2021 did not have an environmental chapter, neither were there clear measurable targets nor indicators relating to environmental concerns (Ministry of National Development Planning, 2017).

The Zambia Bureau of Standards (2016), a regulatory body that protects the rights and interests of consumers, states that there is no policy directive in the country which mandates business entities to comply with international regulatory standards such as ISO 14001. This perhaps explains why there is a general lack of literature on the performance of Zambian supermarkets with regard to environmental sustainability. This study therefore, sought to examine environmental sustainability of practices among selected supermarkets in Lusaka district and to explore how sustainability education would help improve perceptions and attitudes towards environmental protection. The findings were envisaged to lead to the establishment of an information base regarding existing

issues and knowledge gaps in policy compliance and sustainability education. The results from the study may also provide a foundation for a national policy framework on compliance to both local and international environmental regulatory standards for various business establishments in the country.

1.4 Purpose of the study

The purpose of this study was to examine the environmental sustainability of practices of selected supermarkets through ISO 14001 and assess how sustainability education would enhance the sustainability of existing practices among selected supermarkets in Lusaka.

1.5 Objectives of the study

The objectives of this study were to:

- a) Explore supermarkets' awareness of environmental impacts of their daily operations
- b) Determine existing practices that related to sustainability among selected supermarkets in line with the ISO 14001 standards.
- c) Examine specific measures supermarkets were undertaking in order to reduce environmental impacts related to their operations and to ensure environmental sustainability.
- d) Establish how sustainability education would promote environmental sustainability practices in the sampled supermarkets.

1.6 Research Questions

The following were the research questions:

- a) How aware are supermarkets about environmental impacts of their daily operations?
- b) What sustainability practices exist among supermarkets in line with the requirements of the ISO 14001 standards?
- c) Which specific measures do supermarkets undertake to reduce environmental impacts related to their operations in order to ensure environmental sustainability?
- d) What role would sustainability education play in promoting environmental sustainability practices among supermarkets?

1.7 Conceptual Framework

Human actions constitute the most significant effects on the state of the environment. Poor decisions and actions for the environment are usually as a result of lack of knowledge and policy interventions that promote good environmental governance both at the individual and corporate levels. In order to promote sustainable human actions, people's attitudes towards the environment need to be reoriented through sustainability education and awareness. UNESCO (2002) has defined Sustainability Education (SE) or Education for Sustainable Development (ESD) as a vision of education that seeks to empower people to assume responsibility for creating a sustainable future. It aims at improving access to quality basic education, reorienting education curricula, training and raising public awareness as well as helping people to develop the behaviors, skills and knowledge they need, now and in the future. Education plays an important role in ensuring that individuals and corporations assume responsibilities that support processes and actions for a healthy social, economic and natural environment.

Figure 1. illustrates this fact by showing that sustainability education among supermarkets will promote the adoption of principles, knowledge, attitudes and skills that favor environmental sustainability. This should help to improve compliance to environmental regulatory standards such as ISO 14001, which organizations of any size and type could use to formulate Environmental Management Systems (EMS) in order to control the impacts of their activities, products or services on the environment, (ISO, 2002). Figure 1. further shows that when Supermarkets adopt the guidelines of sustainable business practices through sustainability education their daily operations will result in Eco-efficiency. The World Business Council on Sustainable Development (WBCSD) defines Eco-efficiency as “being achieved by the delivery of competitively priced goods and services that satisfy human needs and bring quality of life, while progressively reducing ecological impacts and resource intensity throughout the life cycle, to a level at least in line with the Earth's estimated carrying capacity (wbcSD.org, 25.05.16).

Eco-efficiency is closely linked to the concept of Sustainable Business, or green business which refers to an enterprise that has minimal negative impacts on the global or local environment, community, society, or economy. Based on the Brundtland definition, Landrum and Edwards (2009: 4) define a sustainable business as ‘one that operates in the interest of all current and future stakeholders in a manner that ensures the long-term health and survival of the business and their

associated economic, social, and environmental systems'. Businesses solely focusing on reducing their environmental impact are referred to as 'green businesses' whereas a sustainable business would focus on all three dimensions of sustainability, which have often been referred to as 'triple bottom line'. Eco-efficiency and Sustainable Business Practices are tools that help to improve compliance environmental regulatory standards, help to minimize risks associated with business operations such as pollution and environmental degradation as well as contribute to an improved state of the environment, literacy and environmental sustainability in business and among consumers.

Sustainability as a policy concept has its origin in the Brundtland Report of 1987. This document is concerned with the tension between the aspirations of mankind towards a better life on the one hand and the limitations imposed by nature on the other hand. Authors such as Sutton (2004) were more inclined on the environmental aspects of sustainability by stating that environmental sustainability was the ability to maintain the qualities that were valued in the physical environment. In the course of time, the concept had been re-interpreted as encompassing three dimensions, namely social, economic and environmental. UNESCO (2012) hence defined sustainability as a paradigm for thinking about a future in which environmental, social and economic considerations were balanced in the pursuit of development and an improved quality of life. This standpoint has also been supported by Wayne *et al* (2006) who have defined sustainability as a process that helps create a vibrant economy and a high quality of life, while respecting the need to sustain natural resources and protect the environment. It expresses the principle that future generations should live in a world that the present generation has enjoyed but not diminished.

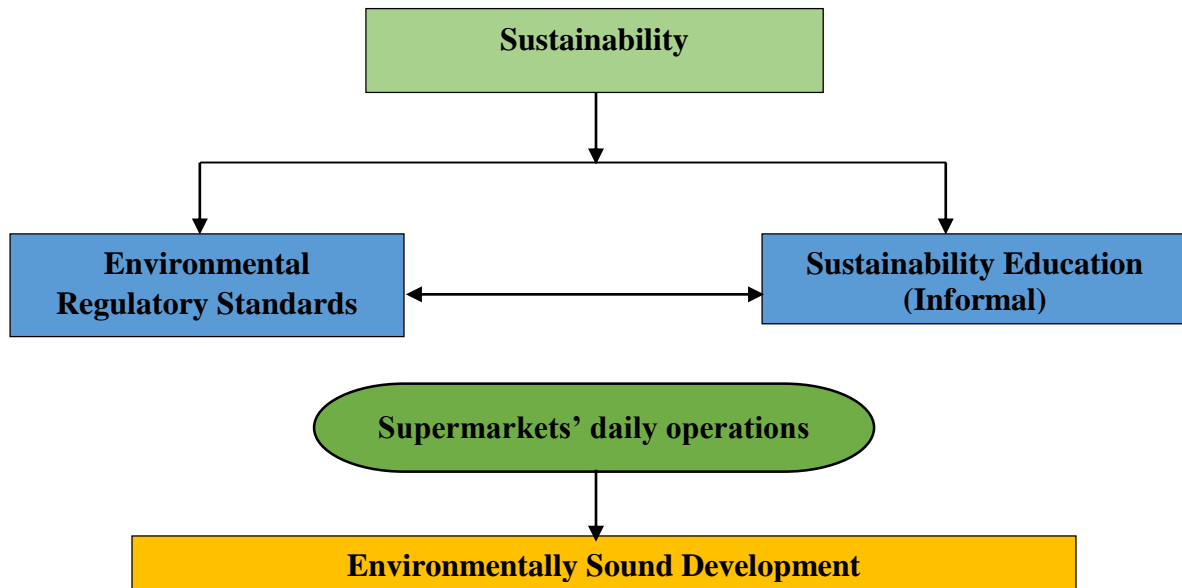
These three spheres of society, economy and environment are interconnected and there should be a balance among the three in order for a society to achieve sustainability (UNESCO, 2012). The sustainability paradigm saw a major shift from the previous paradigm of economic development with its damaging social and environmental consequences. Until recently, these consequences had been seen as an inevitable and acceptable part of the development process. However, we now realize that major damage or serious threats to the well-being of humans and the environment in pursuit of economic development have no place within the sustainability paradigm (UNESCO, 2012). Sustainability issues arise wherever there is a risk of difficult or irreversible loss of the things or qualities of the environment that people value. And whenever there are such risks, there

is a degree of urgency to take action. The need for promoting environmental sustainability is ever so important; unsustainable patterns of production and consumption are driving resource scarcity, environmental degradation, and rapid changes in the critical natural systems that sustain life (Sutton, 2004).

Interpretations of sustainability are value-laden. All definitions – whatever their source – serve particular social and economic interests and need to be critically assessed. Most of these definitions could be categorized into two groups: those that prioritize “sustainable economic growth” and those that give preference to “sustainable human development” (International Union for the Conservation of Nature, 2002:p3). The “sustainable economic growth” group (which includes the Brundtland Report, itself) is reformist in that it does not support the transformation of current social or economic systems. In this approach, the natural environment is conceived in a utilitarian way with conservation treated as one of a range of policy options. Great emphasis is placed on the role of technological and economic tools in shifting individual, group and industry activities towards a more sustainable path of economic development.

These actions are necessary in promoting Environmentally Sound Development (ESD). ESD, sometimes referred to as Ecofriendly Business or simply Green Business is somewhat an ambiguous concept as evidenced by various definitions in different texts. For example Brown and Routledge (2011) have embraced a narrow definition of Green Business by stating that it is an establishment that produces green output while Makower and Pyke (2009) state that a green business requires a balanced commitment to profitability, sustainability and humanity. Similarly, Croston (2009) states that Green Businesses have more sustainable business practices than competitors, benefiting natural systems and helping people live well today and tomorrow while making money and contributing to the economy. A common theme emerges among these definitions of ESD which implies that engaging in economic activities that embrace environmental sustainability as the cornerstone of every business ethic while improving the livelihoods of the general public. The Business Dictionary further adds that a Green Business is a business functioning in a capacity where no negative impact is made on the local or global environment, the community or the economy, and further adds that green business will also engage in forward-thinking policies for environmental concerns and policies affecting human rights. This should be the goal of every Supermarket. Figure 1. gives a summary of Conceptual Framework.

Figure 1: A conceptual framework of the study on environmental sustainability of practices among selected supermarkets through ISO 14001.



Source: Field Data, 2017

1.8 Theoretical Framework

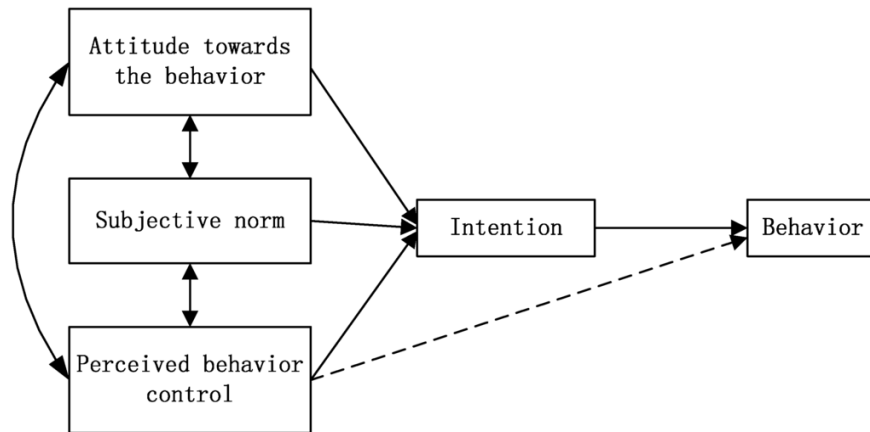
This study was guided by the Theory of Planned Behavior (TPB). The TPB is an extension of the theory of reasoned action (Ajzen and Fishbein, 1980; Fishbein and Ajzen, 1975) made necessary by the original model limitations in dealing with behaviors over which people have incomplete volitional control.

The TPB has been applied to study a range of pro-social behaviors, such as charitable giving. In one study, the TPB explained nearly 70% of the variance in intentions to donate to charity, Van der Linden (2011). However, the TPB also shows good applicability in regards to antisocial behaviors, such as using deception in the online environment, Grieve *et al* (2013).

Another application of the theory of planned behavior is in the field of environmental protection. Generally speaking, actions that are environmentally friendly carry a positive normative belief. That is to say, sustainable behaviors are widely promoted as positive behaviors. Although there may be a behavioral intention to practice such behaviors, perceived behavioral control can be hindered by constraints such as a belief that one's behavior will not have any impact (Kroger, 2010; Stern, 2005). For example, if one intends to behave in an environmentally responsible way but there is a lack of accessible recycling infrastructure, perceived behavioral control is low, and

constraints are high, so the behavior may not occur. Applying the theory of planned behavior in these situations helped to explain contradictions between sustainable attitudes and unsustainable behavior.

Figure 2: *Structural representation of the TPB*



Source: Adapted from Ajzen, 1991

Figure 2. illustrates how one’s attitude, perceived social norms and feelings of control together determine one’s intentions, which guide behavior. Attitude toward behavior refers to the degree to which a person has positive or negative feelings of the behavior of interest. It entails a consideration of the outcomes of performing the behavior. Individuals are likely to engage in behavior over which they have a positive feeling about, that is behavior which will result in a positive outcome. Subjective norm refers to the belief about whether significant others think one would perform the behavior. Norms are attitudes and behaviors that are considered normal, typical, or average. They determine others' approval or disapproval of the behavior. Our subjective norm in environmental sustainability is responsible behavior towards the environment such that unsustainable practices should be considered unacceptable and unethical among all members of the public. Perceived Behavioral Control refers to the individual’s perception of the extent to which performance of the behavior is easy or difficult (Ajzen, 1991). It increases when individuals perceive they have more resources and confidence to engage in a particular behavior. (Ajzen, 1985; Hartwick and Barki, 1994; Lee and Kozar, 2005). This implies that the dissemination of sustainability education will enable supermarket management teams to understand the benefits of good environmental practices and how sustainability practices can be incorporated into the daily business practices in order to help improve the state of the environment. Behavioral Intention is a

proxy measure for behavior. It represents a person's motivation in the sense of her or his conscious plan or decision to perform certain behavior (Conner and Armitage, 1998). Generally, the stronger the intention is, the more likely the behavior will be performed.

The TPB is a theory that links beliefs and behavior. According to Ajzen (1991), a central factor in the theory of planned behavior is the individual's intention to perform a given behavior. Intentions are assumed to capture the motivational factors that influence a behavior; they are indications of how hard people are willing to try, of how much of an effort they are planning to exert, in order to perform the behavior. Most assume that our attitudes determine our behavior. And this is rightly so as illustrated by Shultz *et al* (1995) through their survey where they found that peoples' attitudes toward recycling (but not general attitudes toward environmental issues) predicted participation in recycling. Thus, a positive attitude towards a particular matter results in positive behavior towards the same. However, according to the TPB, there is more to predicting behavior than just knowing one's attitude. Ajzen further states that, TPB predicts an individual's intention to engage in a behavior at a specific time and place. It suggests that individual behavior is driven by behavior intentions, where behavior intentions are a function of three determinants: an individual's attitude toward behavior, subjective norms, and perceived behavioral control (Ajzen, 1991).

In this study, behavior intentions are being used to assess the perceived behavioral control of individuals towards matters of environmental sustainability and what attitude people will have towards this behavior. It is true that attitudes are a good way to predict spontaneous, unplanned behavior. However, our attitudes don't always correctly predict our deliberate behavior - at least, not on their own. Attitudes, combined with perceived control and norms, actually predict our intentions. This is the basis of the theory of planned behavior, which is used to predict deliberate and planned behavior. By understanding the motivations behind people's actions towards the environment, a new environmental norm shall be identified, one which promotes environmental protection and management among all citizens.

1.9 Summary

This chapter opened by giving a background on the growth of supermarkets and their effects on the environment. It further went on to give an overview of the aim of the study and the research questions the study sought to answer. Finally, the chapter closed with a conceptual framework of how policy and sustainability education would impact on supermarkets business activities.

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

The reviewed literature in this chapter highlights the trends in Sustainability practices among supermarkets, supermarkets awareness of the impacts of their daily operations, the measures supermarkets were taking to ensure environmental sustainability as well as the role of sustainability education in enhancing good environmental practices. The review started by reviewing literature to explore general perspectives of environmental sustainability before addressing the earlier mentioned areas on a global, African and Zambian contexts.

2.2 A Generalized Perspective of Environmental Sustainability

Sutton (2004) states that Environmental Sustainability is the ability to maintain the qualities that are valued in the physical environment. Some of these qualities include clean water, air a suitable climate, a good quality of both human and animal life and a clean and livable natural environment. Sutton further explains that threats to these aspects of the environment mean that there is a risk that these qualities will not be maintained. Sustainability issues arise whenever there is a risk of difficult or irreversible loss of the things or qualities of the environment that people value.

Goodland and Daly (1996) have defined Environmental Sustainability by input and output rule as “keeping wastes within assimilative capacities, harvesting within re-generative capacities of renewable resources, and depleting non-renewable energy resources at the rate at which renewable substitutes are developed”. This definition provides a broad set of activities and responsibilities to be performed by any firm to become environmentally sustainable in an economy. In order to achieve rapid economic growth without compromising capacity of ecosystem to sustain, sustainability practices should be integrated within the core business in order to achieve a sustainable economy (World Wildlife Fund and Confederation of Indian Industry, 2008). The sustainable development of a society is the ability to develop an economy and social institutions while maintaining its environment and resources indefinitely (Botkin and Keller, 2005). A sustainable economy is thus defined as an economy that maintains its level of activities over time in spite of environmental resource use (Botkin and Keller, 2005).

Sustainability is a complex and dynamic concept in nature (Gao and Zhang, 2006) because of which integrating the sustainability into business is one of the most difficult challenges (Erol *et al.*, 2009). In order to face the environmental sustainability challenge, companies in Europe are now increasingly shifting or planning to shift towards more sustainability-oriented business models. In addition to the aforementioned complexities, rapidly growing consumer awareness and pressure from various stakeholders such as shareholders and policy makers towards organizations' environmental impacts have manifested in an increased demand of environmentally-friendly products (Walker and Phillips 2009) and improved environmental performance of firms globally (Urban and Govender, 2012). These factors are increasingly influencing global business practices to those that embracing sustainability as a core element in daily business operations.

Morelli (2011) points out that whether one considers sustainability to exist as a three-legged table consisting of the environment, the economy, and society, or as a dualistic relationship between human beings and the ecosystem they inhabit, there should at least be agreement that ensuring the provision of clean air, clean water, and clean and productive land is foundational to a responsible socioeconomic system. It is apparent that, without a sustainably productive environment to provide a resource foundation, it would be difficult or impossible to imagine having a sustainable society. Similarly, a sustainable economy depends upon a sustainable flow of material, energy, and environmental resources all of which could be fortified through Sustainability Education.

2.3 ISO 14001: A historical perspective

ISO 14001 is an internationally agreed standard that sets out the requirements for an environmental management system. The ISO 14000 series consists of a set of standards and guidelines of environmental management systems (EMS), environmental auditing, environmental performance evaluation, environmental labeling, life cycle analysis, and environmental aspects in product standards (IISD, 1996). An Environmental Management System (EMS) is a structured system or management tool which, once implemented, helps an organization to identify the environmental impacts resulting from its business activities and to improve its environmental performance. The system aims to provide a methodical approach to planning, implementing and reviewing an organization's environmental management. It helps organizations improve their environmental performance through more efficient use of resources and reduction of waste, gaining a competitive

advantage and the trust of stakeholders. (ISO, 2015). These standards are aimed at regulating global operational standards among various lines of businesses and reduce their impacts on the environment.

The International Organization for Standardization (ISO), is a non-government network of national standards institutes. ISO was born from the union of two organizations namely the International Federation of National Standardization Associations (ISA), established in New York in 1926 and the United Nations Standards Coordinating Committee (UNSCC), established in 1944 (Whitelaw, 1997). The outbreak of the First World War in 1939 disrupted the ISA's operations and by 1942, the organization had completely ceased its operations. In 1944, the United States of America, Great Britain and Canada established the UNSCC to bring the benefits of standardization to bear both on the war effort and the work of reconstruction. After the war ended in 1945, the UNSCC decided to create a new global standardization body and it was agreed that ISA be incorporated into the new regulatory body. Members from the 1939 ISA council represented ISA and in October 1946, the two organizations merged to form what is presently known as the International Organization for Standardization (ISO), (ibid).

In 1986, ISO published the ISO 9000 series of standards; a quality management system aimed at facilitating trade, spreading knowledge, disseminating innovative advances in technology, and sharing good management and conformity assessment practices. (ISO, 2011). However, the ISO 9000 series of standards did not include standards that addressed environmental regulations to guide business practices in various sectors of production due to the lack of publicity on the environmental consequences emanating from various industries across the globe. Nevertheless, this scenario drastically changed in the early 1990s when there was a growing concern over the increasing levels of global pollution and environmental degradation mainly from manufacturing companies (UNDP, 1998). These concerns culminated in the 1992 United Nations conference on Environment and Development (UNCED) held in Rio de Janeiro where a number of recommendations on conservation and management of resources for development were made (UNCED, 1992).

This global awareness on environmental problems generated a commitment to protect the environment by advancing the cause of sustainable development across the world. There was an

increase in the number of firms that were showing interest in voluntary environmental commitments to eliminate or control negative environmental impacts associated with their business operations. As such, there was a growing need to formulate standardized regulatory benchmarks that specifically addressed environmental consequences of business practices and lifestyle choices. Consequently, the ISO formulated the ISO 14000 family of standards in 1996. This family of standards included the ISO 14001 series which contained environmental processes and policies for the creation of management systems rooted in environmental best practices (Wilcox, 2007).

2.3.1 ISO 14001-Based EMSs among European Supermarkets

A number of supermarkets globally have appreciated the need to establish EMSs based on the quality control measures of the ISO 14001. Literature indicated that most European Supermarkets had well established EMSs. This could be as a result of Supermarkets being labeled among high impact sectors: businesses that were categorized in the high impact sector were those that were deemed to exert the most damage on the environment (Maier and Vanstone, 2005). Other industries under the high impact sector were air transport, construction, pest control and mining. One of the leading supermarkets with a well-established EMS is the British based Tesco. Following public complaints about Tesco's business activities and their impacts on the environment, Tesco responded by implementing an EMS to measure the supermarkets carbon footprint and identify their biggest impacts and provide transparency within their business and to others about their progress. (Tesco, 2008). Among the complaints were that Tesco was contributing towards climate change by running energy-intensive stores, selling food and other products that had travelled long distances thereby increasing carbon emissions in the process. The footprint was used to set challenging long-term targets to substantially reduce emissions from their buildings and distribution network (ibid). Twelve months after the establishment of the EMS, the chain store reduced its carbon emissions by 4.7 percent. Tesco went further to invest £100 million Sustainable Technology Fund to support large-scale carbon reduction technologies at their stores, distribution centers and in their supply worldwide.

Other European Supermarkets such as Kesco have developed EMSs that are now being used as quality control standards among different supermarket stores. Kesko, in cooperation with the Finnish Association for Nature Conservation developed an operating model for food retail stores

called the *K-environmental store diploma* which comprises of a 160-point checklist in ten different environmental management areas. Only the best stores can meet the high goals. The diploma is awarded by an independent, third-party auditor after an initial self-assessment. At the end of 2009, there were 624 K-environmental stores, 114 more than the year before (Kesko 2010). Yearly improvements are being made to the model to promote best standards among all supermarkets. In Denmark, different local supermarkets have green shop diplomas. Green shop diplomas are local EMSs for small shops. Green Shop is a diploma system for shops which continuously focuses on environmental and energy management to support the operation of the store and the range of products in the shop.

2.3.2 ISO 14001-Based EMSs among American Supermarkets

Walmart, a leading in the United States has taken a leading example in implementing an operational EMS. In order to ensure environmental sustainability along the entire supply chain, Walmart requires that all its suppliers fully comply with all applicable national and/or local laws and regulations, including but not limited to those related to labor, immigration, health and safety, and the environment (Walmart, 2014). Walmart explains that it is not enough for the supermarket chain store to set up EMSs that are limited to the supermarkets daily business operations as some of the environmental impacts are generated along the supply chain. As such, Walmart only engages suppliers whose manufacturing facilities comply with environmental laws, including all laws related to waste disposal, air emissions, discharges, toxic substances and hazardous waste disposal. Suppliers are also required to validate that all their input materials and components were obtained from permissible harvests consistent with international treaties and protocols in addition to local laws and regulations (ibid).

2.3.3 ISO 14001-Based EMSs among African Supermarkets

Among African supermarkets, there was very limited information regarding the implementation of EMSs using ISO 14001 standards. Africa's largest supermarket chain store, Shoprite, indicated that they were making efforts to reduce carbon emissions, utilize more of recyclable packaging materials as well as reduce waste generation through recycling, Shoprite (2016). However, the chain store did not indicate whether they had formulated an operational EMS based on ISO 14001 standards in all its subsidiary outlets across Africa. Several studies that have been carried out among African supermarkets were mostly concerned with the relationship between supermarkets

and suppliers. For instance Ombati et al (2015) looked at strategies for sustainable supply chains among Supermarkets in Nairobi; Mambarika and Mutekwa's (2009) study explored the effectiveness of ISO 14001 in improving corporate environmental performance at Unilever, a manufacturing company while Gbedema (2004) examined ISO 14001 certifications in manufacturing companies. This lack of information on the implementation of ISO based EMSs among African supermarkets could be an indication that the standard had not been well utilized among African based supermarkets. Among Zambian supermarkets, no information was available to show the existence of environmental management systems based on local or international regulatory standards.

2.4 Sustainability practices among supermarkets

Unlike manufacturing sector, retailers were not earlier considered as major polluters due to which only a handful of studies have been conducted in the past to investigate environmental sustainability practices of retailers (Taneja and Girdhar, 2012). It was generally assumed that any environmental impact associated with Supermarkets was as a result of how consumers used and disposed their purchases and not as a direct consequences of how these establishments ran their businesses. Moreover, there has been a complete disregard in the existing literature towards environmental aspects of retailing for a long time since 1970s until the natural environment became topic of interest for marketing researchers (Ibid). So far, most of the researches related to corporate environmental management and sustainability have been produced mainly in the field of manufacturing sector alone. The retail industry has remained an under-researched area in the context of environmental sustainability for a long time. There is need therefore to carry out studies on the environmental impacts of Supermarkets and what their perceptions are on their daily business practices.

Different regions and countries have varied regulatory and statutory standards that guide the overall business operations of supermarkets. Globally, supermarkets are regularly faced with challenges of ensuring that their suppliers are as mindful of their environmental and social responsibilities as they are or should be. This is not always easy to do particularly because suppliers come from diverse backgrounds. The supermarkets are equally faced with challenges in recycling their packaging materials and ensuring stakeholders' safety among others (Ratan *et al.*, 2010). Regulatory instruments should therefore be re-contextualized in order to address specific

environmental challenges associated with Supermarket daily business operations in different parts of the world.

2.4.1 Sustainability Practices among American Supermarkets

Several countries are making positive efforts in implementing sustainable business practices. For instance in the United States of America (USA), ShopRite, one of the major supermarket chains is taking a leading role in sustainability practices aimed at reducing the stores environmental footprint by reducing wastes, energy and water usage (ShopRite, 2016). In the area of packaging, the chain store promotes bag reuse and has provided an assortment of reusable bags for shoppers, paper, plastic and reusable canvas (Ibid). The store also has plastic bag recycling bins at each store. The store further reports that reusing, recycling and reducing the number of bags being used by shoppers has resulted in less trash being sent to the land fill and fewer resources being used in the manufacture of new bags. ShopRite has also invested in a multipurpose recycling plant located in Elizabeth, New Jersey. The facility, which operates 16 hours a day, six days a week, recycles plastic bags, shrink wrap and corrugated cardboard; recycling nearly 2 million tons of materials since its opening in 1970. In 2015 alone, the plant recycled 136,522 tons of cardboard, 3,798 tons of plastics, 558 tons of newspaper, 434 tons of office paper, 57 tons of metal, and 2, 824 tons of waxed corrugated cardboard, wastes generated by ShopRite stores across the US. The recycling program is continually expanding and recently added floral containers, wire bound wooden crates, fluorescent light bulbs, ballasts, plastic receipt spool cores and ShopRite gift cards. (ShopRite, 2016).

In 2015, many ShopRite Stores across the USA took the Food Recovery Challenge (FRC) and partnered with the United States Environmental Protection Agency (USEPA) to reduce food waste by recycling, composting and increasing food donations. In addition, more and more ShopRite Stores are receiving Grocery Stewardship Certification (GSC), GSC is the nation's first and only grocery sustainability certification program, which provides store leaders with a framework for systemizing sustainability practices at retail and increases employee engagement with decreasing environmental impact (Ibid)

ShopRite is also engaged in promoting Sustainability Education by publishing a newsletter called *ShopRite Earth News*. The newsletter contains information aimed at helping to educate customers and communities on how they can become more 'green' by reducing their own energy and water use, composting at home to reduce waste and many other ways they can help reduce their impact

on the environment. In addition, the chain store holds a cleaning programme called the “ShopRite Earth Day Challenge”. Volunteers are challenged to beautify their communities by cleaning up litter at local parks and beaches. In 2015, approximately 6,000 volunteers – wearing ShopRite donated gloves and using ShopRite donated trash bags gathered to clean up 121 locations in Connecticut, Maryland, New Jersey, New York, and Pennsylvania. Over 31, 000 volunteers participating in the challenge over the last seven years (ShopRite, 2016). This is a good example of sustainability practices by a single chain store whose programmes have addressed several aspects that are attributed to the supermarkets daily operations as well as engaging and educating local communities on how to reduce environmental impacts associated with consumption.

The Sustainability Institute at the University of New Hampshire reports that Hannaford is one other Supermarket that has taken positive steps in reducing environmental impacts of the stores business activities. According to the institutes’2016 food solutions report, Hannaford, also a recipient of the GSC, is a leader in the field, spearheading novel initiatives to minimize resource consumption. For example, the Supermarket installed iceless seafood cases in all its stores which has helped to reduce water consumption by 100,000 gallons per store annually. The report further states that Hannaford initiated a zero waste programme in 2011 by engaging in a robust recycling programme to reduce waste generation. Since food waste amounts to 30% of total waste at Hannaford, the zero waste program places a notable emphasis on reducing food waste. Hannaford’s food waste reduction strategy is rooted in the ‘Food Recovery Hierarchy’ outlined by the Environmental Protection Agency (EPA). The hierarchy prioritizes actions that organizations can take to prevent and divert food waste. The most preferred method is source reduction, or reducing the volume of surplus food generated.

Next is feeding community members in need by donating the extra food, followed by feeding animals, using byproducts for industrial uses, and composting. At the very bottom lies the least preferred resort, which is sending waste to landfill and incineration. In addition to food waste, the zero waste program focuses on recycling paper, cardboard, stretch, and film plastic. Within the first year, the program saw a 30% reduction in total waste volume and \$1,000,000 in savings. After an exceptionally successful pilot, the program was expanded to all Hannaford stores in the following year. The report however does not clarify on the efforts the supermarket is engaged in

concerning community sensitization on the need and importance of sustainable environmental practices in their consumption choices. It is not clear how the stores efforts in promoting sustainability will trickle down to the general public to further promote sustainability at the household level.

An area of concern in the USA pertaining to supermarkets' sustainability practices has been the link between food suppliers and their role in promoting sustainability. Al-Odeh and Smallwood (2012) carried out a study on Sustainable Supply Chain Management (SSCM) to review trends and frameworks in SSCM and established that forces behind Supply Chain Sustainability were customers' levels of Sustainability Education that exerts pressure on organizations to adopt sustainable strategies. This was because a sustainable conscious population demanded for products and services that had very little or no negative effects on the environmental. Sustainability Education does not only help Supermarket management teams to engage in environmentally sound business practices but it also helps them to make informed decisions on issues of sustainability and consumption. Liang and Chang (2008) have argued that embracing sustainability in the supply chain leads to a number of benefits because this helped organizations in achieving advantages over their competitors by trading in green products as well as reducing their overall impacts on the environment.

Dakov and Novkov (2006) further assert that sustainable supply chain enables specialization and concentration of efforts; development of integral innovative decisions; improvement of brand differentiation and customer loyalty by offering unique capabilities to address environment health and safety related requirements and expectations. It also leads to product, process, and supply quality improvement. This however, does not clarify the extent to which Sustainability Education can be utilized to maximize on the operational capacities of Supermarkets as well as how the general public would further benefit if current business practices incorporated Sustainability Education in their Social Corporate Responsibility (SCR) programs.

2.4.2 Sustainability Practices among European Supermarkets

In the United Kingdom, emphasis has been placed on sustainable consumption and production. According to Seyfang (2007), the UK government had embarked on a 'Changing Patterns' campaign to promote sustainable consumption and production in line with the European Union's

commitment to develop a 10-year framework for sustainable consumption and production which was made at the 2002 World Summit for Sustainable Development in Johannesburg. However this initiative was short lived and failed to yield the intended results mainly because the changes were to be implemented on a voluntary basis by supermarkets and the general public (Ibid). Childs and Whiting further note that Green consumerism, a trend that began in the early 1990s quickly subsided by the late 1990s due to changes in consumer behavior. This change saw many supermarkets stopping the sale of green products which ultimately affected consumers.

However, this trend is changing with most Supermarkets across the UK adopting sustainable business practices. One such supermarket is Sainsbury's who are the first supermarket in the UK to Launch a supplier environmental scorecard to track and measure supplier environmental footprints. Sainsbury's only purchases their raw material based on sustainability perspectives (Sainsbury's, 2014). The store also obtains all its fresh produce from within the UK to reduce on greenhouse gas emissions associated with food importations from distant places. Long term initiatives include engaging suppliers who will meet Sainsbury's social and environmental standards. This will involve developing a more sustainable long-term business journey by engaging the full participation of all suppliers. This will build strong social and environmental standards from suppliers. In order to build supply chains that are resilient to the social and environmental challenges facing the industry, the store will work closely with farmers, producers and processors to champion and embed excellence in sustainability. This report however does give details of the extent to which Sustainability Education, is being incorporated into the daily business operations to achieve long term solutions to the identified environmental challenges. Another observation that arises from the report is that there is no tentative guarantee of implementing the cited long term programs as they are directly affected by the changing business environment as well as institutional and state policy standards.

A growing number of major retailers claim to be integrating sustainability into their core business strategies, and some have even exceeded consumer expectations. However, the full potential of retailers to encourage sustainable consumption and production has yet to be realized, as current environmental initiatives are still seen to be fragmented and unsystematic in terms of the overall market (BIO Intelligence Service 2009; Knickel *et al.*, 2010). Some studies show that very few, if

any, European retailers can demonstrate implementation of a broad range of sustainability initiatives by the majority of their shops (Chakanikova and Mont 2010).

Several studies have examined sustainability of supply chains. Fitzgerald, Luck and Morgan (2007) conducted a study on strategies for sustainable supply chain management in Sweden. The study specifically focused on supplier interaction devices. The findings of the study indicated that to adopt sustainability in a company's supply chain, the employed strategy should communicate a clear understanding of sustainability, be strategic and relevant to sustainable development. What has been the challenge with this approach is that defining sustainable food consumption is not an easy task. Understanding sustainable food is a co-evolutionary process: institutional structures and technology on the one side, and knowledge, meanings and preferences on the other influence each other, and change through constant interaction between players in the food system.

A recent survey by the Economist Intelligence Unit (EUI) regarding business and sustainability challenges for retailers, revealed that the supply chain is the weakest link and that companies find severe difficulties in extending sustainability policy to suppliers (EUI, 2008). About one-fifth of the companies have only implemented supplier controls in the last five years. Government regulations-legislation refers to the steps taken towards better understanding and implementing sustainability goals and objectives for their companies and communities. For example, EU policies over the past few years are trying to promote the integration of sustainable development with policies that foster the EU's competitiveness.

Sustainability challenges are now explicitly linked to economic development issues, and every European company has a part to play in promoting the concept of sustainability. However, in many cases, governments do not play a very influential role in the adoption of sustainability practices, but just set a compliance standard, which is frequently seen as the minimum of what business should be doing (Collins and Flynn 2007). As a result, most companies feel little or no pressure. The special interest groups also play an influential and sometimes crucial role. For example, twenty-three human rights, labor and environmental groups concluded that Wal-Mart's sustainability program lacked "real impact on global warming, employee health and welfare" - even if all the targets were met (Food Production Daily, 2007). It is expected that this criticism could force many retailers to adjust the sustainability initiatives taken. The impact of the pressure

by interest groups is further accelerated by the new networked social media environments and the new forms of communications (Langley and van der Broek, 2010). These are exposing supermarkets to a much higher risk of not behaving well as messages spread all over the world in an incredible speed and way.

2.4.3 Sustainability Practices among Asian Supermarkets

Food safety had been a big challenge faced by the Chinese supermarket. The ‘tainted milk’ scandal caused by Sanlu Company in 2008 and the abuse of food additives and even the illegal use of chemical additives had lowered the public trust in food safety standards in China (Kim, 2013; Wu, *et al.*, 2013). In order to rebuild customers’ confidence in Chinese food industry, the Chinese Government adopted uniform national standard certification systems and requirements for advanced management system in the milk industry (Wang *et al.*, 2008; Huang *et al.*, 2012). This was a very important step in ensuring that industries, and indeed supermarkets were selling products that did not lead to public health threats or pollute the environment. This further helped to regulate other products that were not affected by the milk scandal and ensured that all products that were sold to the public were fit for human or animal consumption. Another step the Chinese government took was the establishment of the Hazard Analysis Critical Control Point (HACCP) management to reduce the abuse of food additives (Wang *et al.*, 2008).

The HACCP was also mandated to manage an independent food safety regulation system, the food traceability system, the country of origin labeling) and oversee regulate green, eco-labeled and environmentally friendly seafood. These steps were critical in ensuring environmental sustainability; for example the regulation controlling the use and abuse of food additives protects the rights of consumers by ensuring that nonhazardous items are used in food products thereby protecting their health. These strict regulatory standards promote uniform business practices that were monitored by government agencies so that the negative effects that could be associated with the products and business practices were greatly reduced to the benefit of consumers and the environment as well.

The vegetable supply chains of Chinese supermarkets faces the challenge of accessing large volumes of high quality fresh vegetables and fruits in a timely manner, combined with high costs of delivery (Stringer et al, 2008; Miyata et al, 2009). In order to solve those issues, supermarkets

are more likely to cooperate with vegetable suppliers which have large scales of production; have short distances between themselves and processing plants and cities; support longer contracts with supermarkets and are certificated producers (Stringer et al, 2008). In these circumstances the supermarkets are much more likely to provide technical and financial assistance to producers (Miyata et al, 2009). As a result, the Chinese agro-food market has changed from a huge number of small farmers and traders to farmer led professional cooperatives (Jia *et al*, 2012; Deng *et al*, 2010). These practices however seem to be purely profit oriented and do not support environmental sustainability. For example it is noted that supermarkets favor suppliers with large scale production capacities: this implies that even when a supplier engages in unsustainable agricultural practices, supermarkets will still prefer to acquire their produce from such at the expense of environmental protection. There are no sustainability education programs for both food suppliers and consumers that can help to promote sustainable business and consumer behavior.

Ito-Yokado is a superstore, retailer of products related to daily life under the umbrella of the Seven & I Holdings in Japan. To tackle global warming, the Group has been pushing ahead with strategies of improving its product development, marketing and energy-saving measures to cut carbon emission. Reducing the environmental impact is one of the priority issues of Ito-Yokado. In the CSR 2010, it describes the environmental efforts of improving energy efficiency, introducing renewable energy, reducing waste, recycling, eco-friendly products and energy-efficient store facilities, LED lighting, promotion of eco-friendly driving and reducing the use of plastic packaging. These initiatives are important to raise customers' environmental awareness of consumption (Hoi Lai, 2012).

Ito-Yokado has been installed with energy-efficient facilities for every new store opening. For example the Ario Kitasuna store is equipped with total 3,747 LED lights which can reduce CO₂ emission by 161 tons annually compared with traditional lighting system in 2010. Not only does this help to conserve energy but also reduces climate change through reduced CO₂ emissions. This are good business practices that help to protect and manage the environment. The store has cooperated with the building owner to adopt geo-heat for store heating and cooling. A constant temperature of about 15°C is maintained by virtue of the building design unlike using energy to regulate temperatures in the store. During fiscal year of 2009, Ito-Yokado's CO₂ emissions are

only 85.1% compared with fiscal 2008 due to the energy-efficient facilities and reduced oil usage (Ito-Yokado, 2012).

Due to the revised Food Recycling Law which regulates all food retailers to achieve a food waste recycling rate of 45% in 2012, Ito-Yokado has been recycling the expired food products and other food waste to make compost and livestock feedstuffs. The oil waste from deep fryers is recycled since 2007 to generate raw materials as livestock feedstuffs, soap and paint. In 2009 the oil waste recycling rate is increasing to 31.5% with recycling practiced at 62 stores. The company targeted to expand the recycling at Seven Farm and 100 stores in 2012 (Ito-Yokado, 2012). All these efforts are helping to reduce negative impacts on the environment particularly through the recycling of solid waste products, which when mismanaged can lead to huge environmental challenges like pest infestation and general uncleanliness.

Ito-Yokado established an agricultural production corporation called Seven Farm 46Tomisato, located in Tomisato, Chiba. In 2008, there was a joint investment with the Japan Agricultural Cooperatives to expand the recycling of food waste. Food wastes collected at seven Ito-Yokado stores in Chiba were turned into compost and used at Seven Farm 46 to grow vegetables like corn and broccoli for sale in ten stores in Chiba. In 2010, Seven Farm Co., Ltd was established to control and upgrade the food recycling network to expand the closed-loop agriculture practiced by Seven Farm to 10 locations in Japan in 2013 (Ito-Yokado, 2012).

All Ito-Yokado supermarkets have in-store posters to encourage customers to bring their own shopping bags. The supermarkets also sells its own eco-shopping bags as way of reducing the use of plastic shopping bags. A discount is offered to the customers who do not request plastic bags upon purchase. Since 2007, the stores have been charging customers for plastic bags with the approval from the local governments. It targeted to reduce plastic bag consumption by 50% in 2011(Ito-Yokado, 2012).The stores plan to continue introducing plastic bag fees and discount service for purchasing without plastic bags. Using both penalty and appraisal incentives are useful to encourage customers' awareness of green consumption in the stores.

2.4.4 Sustainability Practices among African Supermarkets

It has been a challenge locating any data on sustainability practices in Africa. This information gap justifies the context of the current study which seeks to identify practices among African supermarkets as well as propose possible solutions to challenges that might be identified. Most of the documented studies are those relating to supermarket -supply chain relationships as well as efforts to build green economies. One such study is that done in Kenya. Mwirigi (2010) conducted a study on the challenge of building sustainable supply chain relationships among small firms. The study focused on Faulu Kenya as a microfinance institute, its supplier and customer relationships.

In South Africa, the bulk of information is that on “Green Business”. ‘Green’ business is a new concept of sustainable business in the South African economy that has been adopted voluntarily by businesses as an extension of the concept of a green economy. The transition of an unsustainable ‘brown’ economy to a sustainable ‘green’ one occasioned the foundations of the economy to be based on the importance of environmental, social and natural resources of capital. The ‘green’ economy concept did not replace sustainable development, but there was increasing recognition that sustainability was mostly dependent on the economy (UNEP, 2011). Past decades of generating wealth have been based on a ‘brown’ economy, a model excessively dependent on fossil fuels, resource depletion, and environmental degradation that had not substantially addressed issues of social marginalization, environmental degradation and resource depletion (UNEP, 2011).

A ‘green’ economy grows faster than a ‘brown’ economy over time, while maintaining and restoring natural capital (UNEP, 2011). South Africa’s green economy is new and underdeveloped, so that the present ‘greening’ of the economy in South Africa was being defined by local business efforts. Current efforts towards creating a green South African economy were however casting a bright light towards sustainability practices. According to Christelis (2013), the Johannesburg Stock Exchange (JSE) – listed companies are required to produce an integrated report for all-inclusive details of a company by including social, environmental, and economic performance in conjunction with financial performance (SAICA, 2008). The JSE’s Socially Responsible Investment (SRI) Index for sustainability performance is a driver for increased attention to sustainable investment into the South African market (JSE, 2011). The Index recognizes listed companies that incorporate sustainability principles into business practices and serve as a tool for

investors to assess this, thereby promoting sustainable business practices in South Africa (JSE, 2011).

Further adoption of green principles is evident on a national level in the New Growth Path government policy (IDC, 2010). Along with key drivers in the policy, specific focus is placed on sectors in order to generate an inclusive green economy (IDC, 2010). A green economy in the policy targeted a potential of 300 000 in direct jobs by 2020 to over 400 000 by 2030 (South African Government, 2011). The policy's main changes are energy efficiency support and renewable energy use with strategies to encourage domestic production of inputs (e.g. solar water heaters initially) (South African Government, 2011). Core actions are geared towards renewable energy generation; development of green industrial measures; reductions in building energy and waste; social support in greening the economy; targeted skills development; driving environmental programmes (includes recycling and community cleaning); policy to support green technologies for households and enterprises (South African Government, 2011).

In the Zambian situation, there is very little information regarding supermarket sustainability practices. A study by Hantuba (2003) indicated that this is mainly because supermarkets consider such topics sensitive and would not like to expose their trade secrets. The supermarket managers in decentralized outlets were apprehensive and unwilling to release much information bordering on policy and trade secrets. This applies to other supermarket managers in Lusaka who were targeted for interviews by the researchers. This refusal by supermarket managers to provide information on their daily business practices is a clear indication that most of the supermarkets are not engaged in sustainable business practices that can help to reduce environmental impacts of their businesses. This study will therefore help to fill this information gap by examining the sustainability of current business practices among supermarkets in order to help identify opportunities that can promote sustainable business practices among Zambian supermarkets.

Available information is that relating to the status of supermarkets and their associated linkages with small scale farmers. Supermarkets have standardized their procurement requirements and practices which small holder farmers, mostly in rural settings in order to meet their demands for

the supply of various farm produce. A number of farmers have since adopted what is called Good Agricultural Practices (GAP) in order to provide fair competition from imported products.

The concept of Good Agricultural Practices (GAP) has evolved in recent years in the context of a rapidly changing and globalized food economy (FAO, 2003). This is mainly a result of the concerns and commitments of a wide range of stakeholders to balance food production and security with food safety and quality and environmental sustainability of agriculture. The Food and Agricultural Organization (FAO) has along with a number of stakeholders developed a conceptual framework for Good Agricultural Practices. Broadly defined, the GAP applies to recommendations and available knowledge to addressing environmental, economic and social sustainability for on-farm production and post-production processes resulting in safe and health food and non- food agricultural products. Many farmers in both developed and developing countries already apply specific GAP related practices through sustainable agricultural methods. (Ibid)

2.5 Supermarkets' awareness of the impacts of their daily operations

As earlier stated, there are various environmental concerns that are directly associated with supermarkets and their daily business operations. A number of supermarkets are becoming aware of the negative effects associated with their business practices and are taking the necessary measures to address them.

2.5.1 Awareness of Environmental Impacts among European Supermarkets

According to the Guardian (2014), the UK's Tesco was awarded for being the most innovative supermarket in addressing environmental issues related to their business operations. In 2013 the supermarket chain store published an article revealing that over 28,500 tons of food are wasted in Tesco stores across the UK. This revelation was aimed at triggering a public debate about an urgent global challenge which saw other retailers, including the UK's biggest grocers, vowing to follow Tesco's lead and work with the British Retail Consortium to reveal how much food they wasted each year. (The Guardian, 2014). Becoming a global leader in the fight against food waste was one of the ambitions set out in Tesco's new corporate responsibility strategy, launched in May 2013 with the slogan "We use our scale for good."

The retailer recognized that a company of its size, with 50 million customers and thousands of suppliers around the world, had a significant part to play in helping to address some of the most

pressing issues facing society, including sustainability, health and employability. Wasted food was a massive global problem, costing producers and customers about £460bn a year (The Guardian, 2014). It is estimated that about a third of all food grown worldwide goes to waste – primarily in agriculture, in the supply chain and by customers. Every bag of food thrown out puts extra strain on the environment at a time when the food system as a whole is coming under increasing pressure through growing demand. That is why Tesco decided to take a lead in reducing the amount of wasted food each year.

Sainsbury's is another UK based supermarket engaged in activities aimed at addressing environmental impacts associated with their business practices (The Guardian, 2014). The chain store is promoting sustainability education through electronic media by producing short films explaining the stores' 20x20 sustainability plan. The plan is based on 20 targets which the chain store intends to achieve by the year 2020 one of which is to sustainably access all its raw materials and commodities. The short films are targeted at members of staff, customers and members of the general public who are being sensitized on the importance of environmental sustainability through consumerism as well as other aspects of sustainability.

One problem which seemed to have attracted a lot of attention among supermarkets' management teams was that of packaging, particularly the use of plastic bags and their impacts on the environment. It is said that people began to use plastic bags to carry groceries and goods by hands in the 1970s, (Clapp and Swanton, 2009) and these bags became popularized rapidly in the last quarter of the 20th century (Sugii, 2008). No accurate statistics had been documented on the total number of plastic bags produced so far but estimates indicated that about a trillion plastic bags were being nonchalantly used worldwide every year (Miller, 2012). These bags are very popular with both retailers and consumers, because they are very cheap, strong, lightweight, functional, and as a hygienic means of carrying food and other goods. Although the plastic bags are modern conveniences for carrying goods, they are responsible for the environmental and agricultural land degradation that has incidentally used up precious resources of the earth, in particular, petroleum (Sugii, 2008).

Media attention on environmental matters in the UK had prompted supermarkets to help change consumer behavior and incorporate ethical behavior in the mainstream (Intel, 2007). A good example of these efforts were those undertaken by Tesco, the third largest retailer in the world

measured by profits and second largest retailer measured by revenues. Tesco has stores in twelve countries across Asia and Europe and is the grocery market leader in the UK. Tesco was committed to reducing packaging without compromising the protection and preservation of their products. Their commitment is covered in five principles: 'Packaging should be fit for purpose; use the lightest weight materials; use materials from the most sustainable sources; maximize opportunities for recycling and recovery; and be designed to have the lowest carbon impact keeping in mind the product and value chain' (Tesco plc, 2009).

Their main priority lies in reducing the weight of their packaging, and to date they have reduced it by 100,000 tons since 2007. Associated Dairies, (Asda) have reduced the packaging on their products by 25%, and at least 92% of their packaging is recyclable (Asda, 2010). Sainsbury's is also committed to working with the government to make as much of their packaging as recyclable as possible (Sainsbury's, 2011). In adhering to their packaging reduction programme, Morrisons have reduced packaging on their own brand products by 15%, and 17,155 tons of packaging has been removed from their products (Morrisons, 2011). Since August 2009, Tesco had managed to divert 100% of their waste from going directly to the landfill by reducing, reusing and recycling. They have also implemented a new initiative of 'Buy One Get One Free - Later' of perishable goods, where customers can pick up their free product when required (Tesco, 2009).

Associated Dairies (Asda) were also putting their efforts into standardizing their portion sizes with the help of the Food and Drink Federation and the Institute of Grocery Distribution. They are also supporting the Government's 'Love Food Hate Waste' campaign, coordinated by WRAP (Asda, 2010). Sainsbury's are diverting 30,000 tons of waste from the landfill every year and sending this to anaerobic digestion plants, which is an alternative way to produce energy (Sainsbury's, 2011). Morrisons are offering information to customers on the difference between 'use by' and 'best before' dates. As well as conducting research to find out which fresh produce needed packaging to prevent damage and thus reduce waste of the product. (Morrisons, 2011).

2.5.2 Awareness of Environmental Impacts among North American Supermarkets

In the USA, there were contrasting responses to environmental impacts associated with supermarket business operations. Some supermarkets were addressing the environmental concerns associated with their business operations while others did not. According to the Institute for Local Self Reliance (ILSR, 2012), Walmart, the US largest supermarket chain store had carried a

sustainability campaign which had improved the companies public image while doing very little for the environment. ‘In fact, Walmart’s environmental impact had only grown over the last seven years. Its business practices remained highly polluting, while its relentless expansion and consolidation of the market had come at the expense of more sustainable enterprises and systems of production and distribution’ (p.1).

Walmart’s sustainability program did not address the issue of short-lived products and the resulting increase in landfill waste. The gains made by the companies much publicized store waste reduction program and its initiative to reduce energy use in its supply chain- a program implemented in only 1% of the Chinese factories that supply Walmart’s store – was miniscule compared to the volume of pollution and trash created by the expanded pace of consumption that Walmart fostered (ILSR, 2012). It was not clear why a corporation the size of Walmart would fail to implement strategies aimed at addressing environmental impacts associated with its business operations.

According to the Center for Responsive Politics (CRP, 2012), despite publicly expressing support for addressing urgent environmental issues like climate change, Walmart’s campaign donations revealed a very different agenda. Walmart was one of the largest corporate campaign contributors in the US with the majority of its contributions favoring candidates who consistently voted against the environment, including those that denied the existence of climate change. Despite these setbacks, Walmart’s Global Responsibility Report (WGRR, 2016) stated that Walmart was set to finding a more sustainable approach to their retail business. They had set long-term goals to operate with 100 percent renewable energy, to create zero waste in their operations and to sell products that sustained people and the environment.

On the other hand, Kroger, another leading US Supermarket chain store had taken a leading example in addressing environmental concerns associated with their business operations. Kroger, in their 2015 Sustainability Report, indicated that the chain store was commitment to environmental sustainability by striving to reduce their impacts on the environment by using natural resources responsibly and minimizing waste in all of their operations. One of the key sustainability priorities the store had embarked on was the move towards zero waste generation (Kroger, 2015). In 2014, the store initiated a number of activities in their waste reduction initiatives and continued to look for new ways to improve their business practices. These included diverting waste from landfills, reducing packaging materials, recycling plastic bags, donating safe,

perishable foods to food banks and increasing recycling rates and finding cost-effective and responsible alternatives for their waste.

Krogers' further indicated that the chain store had joined the Environmental Protection Agency's (EPA) Waste Wise Program (WWP) and adopted the EPA's "zero waste" definition for the Company-wide sustainability efforts. This nationally recognized program gave them a way to benchmark, measure and communicate their efforts in a more consistent and cohesive way. It also allowed them to track individual waste streams, track their progress over time and identify even more opportunities for waste reduction. Their goal was to ultimately meet and exceed the EPA's "zero waste" threshold of 90% in all their supermarkets. Kroger was also committed to compliance with all applicable legal and other environmental regulatory requirements. In 2014, an expanded program was established for hazardous waste management in each of their supermarket divisions to help reduce hazardous waste disposal into the environment.

Pilot projects had been rolled out for the recycling of waste aerosol cans and nicotine smoking cessation products. The Fred Meyer division in the store has recycled over 9,000 pounds of aerosol cans since November 2014 and there are plans to increase the tonnage of wastes to be recycled on an annual basis. Further, Kroger is establishing an environmental compliance center of excellence to enhance overall environmental management across the enterprise. These efforts were a clear indication of the stores' commitment to reducing the negative effects associated with their business operations as well as a reflection of their long term commitment to promote environmental sustainability. If emulated by other supermarket chain stores, these efforts would help to improve the state of the environmental in relation to business operations.

2.5.3 Awareness of Environmental Impacts among African Supermarkets

In Africa, data on the details of supermarket business practices was scarce, and information on supermarket awareness of the impacts of their daily operations was nearly non-existent in the literature. The only exception was Shoprite stores, though the bulk of the available information only related to its expansion efforts. Shoprite is South Africa's (and therefore Africa's) largest food retailer. It started with 8 stores in 1979, with turnover of 10 million rand. By 2003, Shoprite had a turnover of 22 billion rand (US\$ 2.6 billion) and served more than 39 million customers per month. Beside its furniture stores, house and home stores, financial services, and 41 fast-food

outlets (Hungry Lion), it had 294 Shoprite supermarkets (targeting the mass market, the lower-middle and middle class consumers) and 79 Checkers Supermarkets and 19 Checkers Hypermarkets (targeting the upper middle class and upper class consumers) (Shoprite, 2002). As of October 2017, Shoprite holdings had a revenue of 141 billion rand (US\$ 14.1) with over 2680 stores across 15 countries (Shoprite, 2017).

Shoprite indicated that the chain store had not taken any direct actions to address environmental issues associated with their business practices. The supermarket chain had not indicated what impacts they were exerting on the environment nor had they given any concrete direction or approaches they intend to take in order to address environmental challenges associated with their business operations. Shoprite's (2009) annual report on sustainability indicated that the store was committed to promoting sustainability by helping to sustain the world's environment, society and economy for the benefit of present and future generations. The group planned to introduce and set specific targets and objectives to be published and tracked in its annual reports, for specific key environmental sustainability indicators such as energy use, waste production and recycling, and transport emissions. However, the above statement did not give any clear activities that the store would engage in nor did it specify any direct environmental concerns intended to address. It was not clear therefore if the company indeed planned to implement any of the stated efforts as a means of promoting environmental sustainability. To compound the situation even further, their 2015 annual report did not have a clause on environmental sustainability hence making it difficult to assess if any of the promises they listed in their 2009 report had been implemented.

In Zambia, as was the case in other African countries, Supermarkets did not publicize their business operations nor did they provide information on how they were addressing environmental challenges associated with their business practices. Only Shoprite had availed information on their efforts to address environmental challenges associated with their business practices. According to Muneku (2003), Shoprite Zambia had no policy on the environment but complied with national legislation and standards on this matter. Shoprite Checkers in Lusaka and Kitwe worked in collaboration with Local Authorities in disposing its garbage. No serious environmental complaints had been brought before the company during its period of operations in Zambia except for the 2003 incident where Health Inspectors from the Ministry of Health who confiscated and

destroyed large quantities of foodstuff that had gone stale from Shoprite Checker's fast food outlets trading as Hungry Lion on the Copperbelt province of Zambia. This is the only report that indicates any issue related to the environment.

It was not clear what practices the company has been engaged in in the last 14 years, especially that it has expanded its presence in almost all the districts of the country some of which do not have government representation to actively monitor their compliance to local environmental regulatory standards. The chain store does not publish yearly sustainability reports on their business practices or regarding measures taken to address various environmental concerns associated with the daily business operations. It was hoped that this study would help to bring out information on the current practices among Zambian supermarkets as well as identify opportunities to help address environmental challenges associated with their business operations.

2.6 The role of Sustainability Education in enhancing Environmentally Sustainable Practices

Education empowers people for their role in society and therefore is of vital importance to promote the sustainable development of our global community. The Millennium Development Goals (MDGs), adopted by the UN General Assembly in 2000, and the Water, Energy, Health, Agriculture and Biodiversity (WEHAB) initiative proposed by the then UN Secretary General Kofi Annan during the 2002 World Summit on Sustainable Development (WSSD) in Johannesburg, both underscore the role of education in improving peoples' lives. It is broadly understood that literacy is a critical contributor to sustainable development, and that literate parents substantively improve children's chances of success in schools. Women's empowerment and the literacy of mothers have also been identified as significant potential contributors to sustainable development. Education for All plays a crucial role in preparing children for their future in a highly connected, interlinked and globalized world, but as has been identified by UNESCO in the Education for All Global Monitoring Reports, Education for All must also provide quality education; and this remains poorly defined on the African continent in particular (Tikly et al., 2010).

Sustainability education (SE) is an emerging global priority (Colucci et al, 2006). As such, UNESCO labeled 2005-2014 as the global decade for sustainability, helping to push educators to investigate how sustainability education can be incorporated into classroom and outdoor teaching

strategies (Lugg, 2007). According to (UNESCO, 2004), Sustainability Education, or education for sustainable development means including key sustainable development issues into teaching and learning; for example, climate change, disaster risk reduction, biodiversity, poverty reduction, and sustainable consumption. It also requires participatory teaching and learning methods that motivate and empower learners to change their behavior and take action for sustainable development. Education for Sustainable Development consequently promotes competencies like critical thinking, imagining future scenarios and making decisions in a collaborative way.

Approaches to education for sustainable development are becoming increasingly trans-disciplinary, with a view beyond formal education, to informal and non-formal contexts and to the engagement of the media. A trans-disciplinary approach involves going between, across, and beyond different disciplines (UNESCO, 2005). Globally, the primary concerns are improving basic education, re-orienting education and improving public understanding, as embodied by the UN Millennium Development Goals.

2.6.1 Global Efforts in Promoting Sustainability Education

The European Union's Sustainable Development Strategy, highlights the importance of education and communication when it states:

“Widespread popular ‘ownership’ of the goal of sustainable development depends not only on more openness in policymaking but also on the perception that individuals can, through their own actions, make a real difference. For example, local Agenda 21 has been effective at promoting sustainable development at the local level. The education system also has a vital role to play in promoting better understanding of the aim of sustainable development, fostering a sense of individual and collective responsibility, and thereby encouraging changes in behavior” (Commission, 2001, p. 30).

The role of education in helping change people's perceptions on issues of the environment cannot be overemphasized. It is only after people have been 'educated' to understand the importance and value of the environment that their attitudes will change, thereby enabling them to make informed decisions on environmental matters.

The fact that sustainable development is difficult to define is something of an advantage to educationalists, the abstract nature of the term allowing for a more interdisciplinary approach to

curriculum development (Hopkins and Mckeown, 2002). There are, however, clearly differing priorities between member states of the European Union when it comes to sustainable development. Mediterranean states are justifiably more likely to prioritize marine conservation, for instance, while the livelihood of their respective agricultural sectors is a key concern to many of the new member states in Eastern Europe and reflected in education (Kiavola and Cabral, 2004).

Education for Sustainable Development (ESD) had a dominant role in bridging concepts and educational approaches concerning environment, sustainability, climate change, lifestyles and learning (Surian, 2011). ESD has its roots in the 1972 Stockholm United Nations Conference on the Human Environment, in the Brundtland Commission Report (1987) and in the 1992 and 2002 Earth Summits. According to UNESCO (2004), Education for Sustainable Development (ESD) implies four main areas of work. The first area concerns improving access and retention in quality basic education: enrolling and retaining both girls and boys in a quality basic education is important to the well-being of individuals over their lifetime and to the society in which they live. Basic education should focus on learners gaining knowledge, skills, values and perspectives that encourage sustainable livelihoods and support citizens to live sustainable lives.

Reorienting existing educational programs to address sustainability represents the second area of work and it implies rethinking and revising education from early childhood education to university to include knowledge, skills, perspectives and values related to sustainability is essential. The students of today need to be able to solve the problems of tomorrow. Unfortunately, such solutions were rarely found within existing textbooks and educational practices. Therefore, students must also develop creativity and problem-solving skills to create a more sustainable future. A third area of work concerns increasing public understanding and awareness of sustainability, achieving the goals of sustainable development requires citizens who are knowledgeable about sustainability and the actions needed to reach sustainability goals. Such citizens will require widespread community education and responsible media committed to encouraging lifelong learning in an informed and active population.

The fourth area of work focuses on providing training to all sectors of society as all of them can contribute to sustainability. Both public and private sector employees should receive ongoing

vocational and professional training infused with the principles of sustainability, so that all sectors of the labor force can access the knowledge and skills necessary to make decisions and perform their work in a more sustainable manner. Within this scenario authors like Haigh (2005) highlights the needs for education to “green the curriculum”. William Scott’s Keynote Address to the Fourth World Environmental Education Congress (WEEC), in Durban, July 2007 (Scott 2009) explored what environmental education researchers would learn from the previous 30 years of work (since the Tbilisi conference), and presented some of the current challenges in doing, and using research. Scott suggested that greater openness to new approaches should be promoted, as well as different ways of thinking and working, more understanding across cultures, and a stronger research focus on understanding the relationship between sustainability, society and learning.

2.7 Gaps in Literature

As Webster and Watson note, “a review should identify critical knowledge gaps and thus motivate researchers to close this breach” (Webster and Watson 2002). When a systematic review of literature fails to draw conclusions on a particular topic of study, the reviewed literature is said to have knowledge gaps (Robinson *et al*, 2011). Mueller–Bloch and Kranz (2015) further state that a research gap arises when there is a gap in sets of information that is derived from a literature synthesis and requires further research to be resolved. Based on the above, our review of literature identified the following knowledge gaps which this study sought to fill.

2.8 Research GAPS on Supermarkets Business Operations in Zambia

It has been generally perceived that supermarkets did not cause any environmental damage but that consumers handling of the goods obtained from supermarkets caused environmental damage (Taneja and Girdhar 2012). Taneja and Girdhar’s study further revealed that retailers such as supermarkets were not considered as polluters resulting in very few studies being carried out to investigate environmental effects of the daily business operations. This trend has been the same in Zambia where most environmental messages have been those targeted at manufacturing companies and the role citizens have to play to ensure environmental sustainability. Very few efforts in practice or policy directives have been made to address supermarkets’ business operations and their effects on the environment business hence this study’s attempt to explore supermarkets’ awareness of the environmental impacts of their daily operations.

The study identified a lack of knowledge on the environmental effects of supermarkets daily business operations. Previous work has mainly focused on the effects that supermarkets have on the local supply chain. Holweg et al. (2010), Ziba and Phiri (2017) both focused on the relationship between supermarkets and food suppliers while Miller et al. (2008) critiqued radicalized retail expansion and South African foreign investors in Zambia. On the other hand, Hantuba's (2003) study explored the procurement requirements and practices of supermarket chains in rural areas to determine the nature of opportunities or constraints they posed to smallholder farm producers in rural areas. Just like Miller, Holweg and Ziba and Phiri, Hantuba's study failed to analyze the environmental implications that emanated from the increased demand of farm produce by the supermarkets such as agricultural practices aimed at meeting the growing food demand. Hantuba's study further analyzed the rise of supermarkets in Zambia but his analysis only went as far as considering how supermarkets stimulated agricultural trade and retailing among rural producers without reviewing how this increased trade would affect the environment. To fill this knowledge gap, this study sought to determine existing practices that relate to sustainability among selected supermarkets in line with requirements of the ISO 14001 standards.

Based on the reviewed literature, no studies had been carried out to investigate measures supermarkets were undertaking to address environmental aspects associated with their operations. It had not yet been established as to the type of framework supermarkets were using to ensure that they conducted their business operations in a sustainable manner. The observed lack of investigation on the measures supermarkets were undertaking to reduce their environmental footprint meant that if indeed supermarkets daily operations did cause harm to the environment, such business practices would result in very damaging effects on the environment considering the rate at which supermarkets were expanding in Lusaka district. Muneku's (2003) social observatory pilot project investigated the effects of the Competition Policy among supermarkets and how it affected suppliers and consumers. However, his study did not address policies that guided environmental performances of supermarkets hence leaving a void as to what policy framework guided Supermarkets daily business operations in relation to their effects on the environment.

Table 1: Summary of information gaps

| Author and Title of work | Scope of work | Information Gap |
|---|---|--|
| Hantuba, H. (2003) <i>Linkages between Smallholder Farm Producers and Supermarkets in Zambia</i> | Procurement requirements and practices of supermarket for small scale farmers in rural areas of Zambia | Were procurement standards in line with minimizing Supermarkets effects on the environment? |
| Muneku, C. (2003) <i>Social Observatory Pilot Project. Africa Labor Research Network (Shoprite Zambia).</i> | Competition policy among supermarkets and its implications on consumer welfare. | Lack of information on environmental policy that guides supermarkets business operations |
| Miller et. al (2008) <i>Malls in Zambia: Radicalized retail expansion and South African foreign investors in Zambia</i> | Expansion of South African supermarkets in Zambia: A means of capitalizing historically and economically tied countries | What are the environmental effects of the increased presence of supermarkets in Lusaka? |
| ZABS (2016) <i>Quarterly Publication on Standardization and quality assurance</i> | Country wide Standardization awareness campaigns | What is the role of sustainability education in guiding business practices among supermarkets and other business establishments? |

2.9 Summary

Literature revealed that there were variations in the way supermarkets were incorporating sustainability practices in their business operations. In regions like the USA and the UK, a number of supermarkets had engaged in long term sustainability initiatives such as investing in recycling plants to reduce their waste generation and energy use. However, there were inconsistencies in the way these sustainability practices were being implemented suggesting that there were no strict regulatory standards that governed business practices in those regions. Asian supermarkets had also exhibited good environmental practices ranging from packaging, waste minimization as well as coordination with suppliers to ensure that they sold ‘green’ products. Africa was lagging behind in sustainability practices with very little information being available on what efforts were being taken to reduce the impacts of supermarkets business operations on the environment. There was

virtually no information on what practices Zambian supermarkets were engaged in to address environmental impacts which emanated from their business operations.

In terms of supermarkets' awareness of their impacts on the environment, the majority of them knew the effects of their business operations on the environment. Despite this knowledge, very few supermarkets were engaged in meaningful actions aimed at addressing the identified environmental effects. For instance, Walmart, one of the world's leading supermarket had the worst sustainability program among supermarkets of its size (Mitchell, 2012) and most of their efforts to reduce their effects on the environment had been promissory. As was the case with the previous section, African supermarkets had not publicized their activities in relation to reducing their impacts on the environment thereby making it difficult to have a clear picture on their performance. In Zambia only Shoprite availed information, but this information was outdated and did not reflect what was currently obtaining in the food retail industry especially that the number of supermarkets had exponentially grown over the last ten years in Lusaka district. Only one UK based supermarket indicated being involved in SE for both its employees and the general public. For the rest, it was not clear what role SE played in governing their daily business operations.

CHAPTER THREE: METHODOLOGY

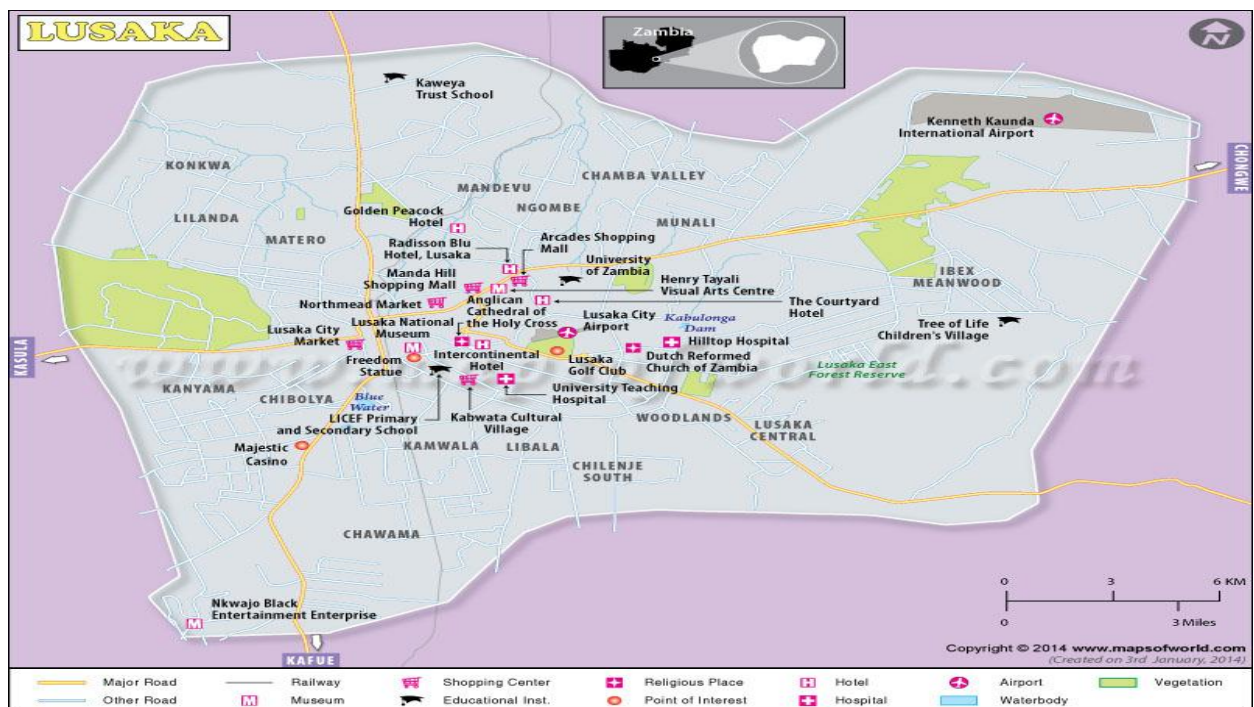
3.1 Introduction

This chapter seeks to provide a comprehensive description of the geography and the socio-economic characteristics of the study area. This will be followed by providing reasons to justify the selection of Lusaka District for this study. The chapter will further elaborate the research methodology which was employed to collect the research data. An explanation of the philosophical assumptions as well as the research design used in the study will also explained. The chapter further gives reasons for adopting this research design.

3.2 Location of the study area

Lusaka District, located at 15° 24' S, and longitude of 28° 17' E is one of the four districts that constitute Lusaka province. It covers an area of 380 square kilometers and is bounded by Chongwe and Luangwa districts in the south and Kafue district in the east, UNDP (2013). According to the 2010 census of population, the district had a population of 1,854,907, CSO (2012). But considering that the urban population has been growing by 4.2 percent between 2000 and 2010 (CSO, 2012), it is likely that the population of the district has grown from the projected 2010 census figure.

Figure 3: Distribution of Supermarkets in Lusaka District.



Source: Google maps, 2017

3.3 Development of Supermarkets in Lusaka

The establishment of supermarkets has been a significant part of the economic developmental process of Lusaka. Since 2000, retail opportunities have been radically transformed for residents of Lusaka with the building of three new, large, out of town retail centers; Manda Hill, opened in 1999, Arcades opened in 2003 and Crossroads opened in 2006 (Miller *et al*, 2008). Each of these shopping malls comprises a number of large Supermarkets with the prominent ones being Shoprite stores, Pic 'n' Pay, Spar and Food Lovers Market. This development of shopping malls in the district has continued over the years to include such shopping malls as Levy Park, Metropolitan and East Park Malls; Kabulonga, Makeni, Woodlands, Embassy and Twin Palm malls, all of which house a minimum of at least two supermarkets.

The South African based Shoprite checkers was one of the first stores to set up supermarkets in the country. The first Shoprite outlet was opened in October, 1995 on Cairo Road, followed shortly by Ndola and Kitwe. In 1996, four more shops were opened in Kabwe, Chingola, Mufulira and Livingstone. Between 1997 and 1999, another 6 shops were opened with the Manda Hill shop epitomizing Shoprite Investments in Zambia (Hantuba, 2003). At the moment, Shoprite is the largest supermarket chain in the country with 26 outlets operating across the country, (Shoprite, 2016). The increase in the number of supermarkets in the District has led to the creation of employment opportunities and other auxiliary business opportunities like cleaning services and security. However, supermarkets have not taken an active role in promoting sustainable business practices nor have they undertaken awareness campaigns to educate consumers on the benefits of good consumer behavior and environmental protection. The general surroundings of most of these supermarkets were not in a state befitting these business establishments and, despite being a government regulation that business establishments selling cooked food items should have running water and toilet facilities, a physical check revealed that some supermarkets did not have either of those basic sanitary facilities on their premises.

3.4 Reasons for selecting Lusaka District as the study area

Being the capital city, Lusaka is a hive of economic activities in the country. Other than being the confluence of travel to all parts of the country, the District has the highest population among all districts in the country as well as the highest labor force participation rates in the country (CSO, 2012). Because of the stated demographic and economic trends, the District has the highest density

of supermarkets and hence provided a broader spectrum of the target population. The researcher was also resident in the district hence the study area had an economic advantage towards access to the target population. Efforts to determine the total number of Supermarkets in the District proved futile as the local authorities responsible for keeping such records did not avail the researcher with the information.

3.5 Philosophical underpinnings of the adopted research paradigm

The study used the post-positivist research paradigm to guide methodological design and research analysis. The post-positivistic research paradigm, a term coined in the mid-1960s, assumes that there are many ways of knowing aside from using the physical scientific method. Rather than testing hypothesis, post-positivistic research generates hypotheses through inductive reasoning. Instead of trying to explain how something operates, scholars strive to understand why it or people operate in the manner that they do (interpretation) and to reveal power relationships and structures, (McGregor *et al*, 2010). Hetherington (2000) adds that post-positivism is neither anti-positivism nor a continuation of positivism by other means. Post-positivism also does not reject quantitative methodology, but it harnesses it within a more complex research design. It is more cautious concerning strong and one-sided interpretations and restrained regarding too extensive (or obsessive) use of quantitative data and methods.

Within the stream of post-positivism, the specific philosophical paradigm that governed thinking in the methodological framework was critical research. Bohman (2005) identified three elements of critical research which are to explore what is wrong with current social reality, identify actions to change it and lastly to provide clear norms for criticism and transformation. This study therefore did not merely explore the issue of the sustainability of practices among supermarkets, but also aimed at identifying possible solutions and strategies to achieve environmentally sustainable business practices.

The ontological position of critical paradigm is historical realism. Historical realism is the view that reality has been shaped by social, political, cultural, economic, ethnic, and gender values; reality that was once deemed plastic has become crystallized (Guba and Lincoln, 1994, p. 110). Realities are socially constructed entities that are under constant internal influence. Cohen *et al* (2007,p.26) add the following as the key ontological assumptions of critical research paradigm; “reality is out there”, social reality is defined from persons in society, social reality is socially

constructed through media institutions and society and that social behavior is the outcome of “particular illegitimate, domineering and repressive factors , illegitimate in the sense that they do not operate in general interest – one person’s or groups’ freedom and power is bought at the price of another’s freedom and power”.

One of the epistemological assumptions of critical research is that knowledge is both socially constructed and influenced by power relations from within society. Cohen et al. (2009, p. 27) explain that, “what counts as knowledge is determined by the social and positional power of the advocates of that knowledge” and that knowledge is produced by power and is an expression of power rather than truth. It was the aim of this study to obtain knowledge pertaining to supermarkets business operations and their effects on the environment by establishing the social and economic forces that determine supermarkets business operations. The study also aimed at understanding ‘power’ or political influence regarding the establishment of environmental policies that govern supermarkets business operations.

3.6 Research Design

This study was placed within the boundaries of Descriptive Survey Design. Salaria (2012) states that the method of research which concerns itself with the present phenomena in terms of conditions, practices beliefs, processes, relationships or trends invariably is termed as “descriptive survey study”. Aggarwal (2008) further states that descriptive research is devoted to the gathering of information about prevailing conditions or situations for the purpose of description and interpretation. This type of research method is not simply amassing and tabulating facts but includes proper analyses, interpretation, comparisons, identification of trends and relationships. Descriptive research involves gathering data that describe phenomena and then organizes, tabulates, depicts and describes the data collection (Glass and Hopkins, 1984). This study attempted to understand the prevailing practices among supermarkets by critically analyzing the respondent’s feedback in order to get a clear interpretation of the underlying causes of current business practices among supermarkets. Information was obtained using a semi structured interview schedules and an ISO checklist tool shown in Appendices 2 and 3. These tools were used to get an insight into the underlying issues relating to environmental sustainability. The obtained information would help to shape new theories and strategies that can help improve environmental sustainability practices among supermarkets in Lusaka District.

The Epistemological assumption was that the knowledge so obtained would be subjective in that it was based on people's perceptions, experiences, educational and social backgrounds. Epistemology is about issues having to do with creation and dissemination of knowledge in particular areas of inquiry while Ontology refers to people's perceptions of a particular social reality (Anderson et al, 2003).

Epistemology is about "how we know what we know" (Crotty: 1998:8) or "the nature of the relationship between the knower and what can be known" (Guba and Lincoln 1998:201). Epistemology is concerned with providing a philosophical grounding for deciding what kinds of knowledge are possible and how we ensure it is adequate and legitimate, Maynard (1994). The post-positivist stance is that we have to understand our own place in the world and what we are bringing to the research by way of assumptions about knowledge. Investigating our own epistemologies and understanding how they affect us as researchers is an essential part of the post-positivist approach. As part of this investigation, we come to some understanding of how people construct and maintain perceptions of the world. Examining our epistemology involves looking at the underlying assumptions we use to make sense of our day-to-day lives (Bateson, 1977).

Epistemology is related to Ontology, the study of being, Crotty (1998), or "the nature of reality" (Lincoln and Guba, 1985: 37). Anderson et al (2003), state that ontology refers to people's perceptions of a particular social reality. That is to say a given phenomenon will be interpreted differently depending on how a particular group of individuals perceive it. Crotty notes that an ontological stance implies a particular epistemological stance and vice versa. He highlights the complementary nature of the terms when he cites the ontological notion of realism, which postulates that realities exist outside of the mind, and its complement objectivism, an epistemological notion asserting that meaning exists in objects independent of any consciousness. Our ontological stance was that there were environmental concerns associated with supermarkets business operations these concerns included waste generation and the use of plastic packaging materials. Because these concerns affect both supermarket management teams and members of the general public, our epistemological stance (acquisition and discovery of knowledge), was to gather information from both members of the public and supermarket managers in order to have a clear

understanding of the factors that influenced the observed phenomena as well as the general understanding of how the observed social reality affected society.

3.7 Population

The target population was composed of administrative officers in selected supermarkets. Supermarket employees also made up the target population as well as members of the public, particularly those living or working in proximity to supermarkets within Lusaka district.

3.8 Sampling Design

The study employed purposive sampling design, a non-probability sampling design which involved the expert purposive sampling and the homogeneous purposive sampling techniques. Non-probability sampling methods aim to construct a sample that can generate the most useful insights that can be gained by the researcher into that study's particular focus. Purposive sampling technique is the deliberate choice of an informant due to the qualities the informant possesses. As earlier stated, it is a nonrandom technique that does not need underlying theories or a set number of informants. Simply put, the researcher decides what needs to be known and sets out to find people who can and are willing to provide the information by virtue of knowledge or experience (Bernard 2002, Lewis and Sheppard, 2006).

Expert purposive sampling technique is a type of purposive sampling technique that is used when a research needs to glean knowledge from individuals that have particular expertise (Lopez *et al.*, 1997). This expertise may be required during the exploratory phase of qualitative research, highlighting potential new areas of interest or opening doors to other participants. For instance, a general inquiry was made to any staff member of a supermarket on the stores' methods of solid waste management, the responses were then used to explore the stores policies on solid waste management and other related information that would help to address the research problem. This technique was used to gather information from management teams of the selected supermarkets on various matters relating to the sustainability of their daily business operations.

Homogeneous sampling aims to achieve a sample whose units share the same characteristics. In this respect, homogeneous sampling is the opposite of maximum variation sampling. A homogeneous sample is often chosen when the research question that is being addressed is specific to the characteristics of the particular group of interest, which is subsequently examined in detail

(Mugera, 2013). Homogeneous purposive sampling technique aims to achieve a homogeneous sample; that is, a sample whose units (e.g. people, cases, etc.) share the same (or very similar) characteristics or traits (e.g. a group of people that are similar in terms of age, gender, background, occupation, etc.). In this respect, members of the public were selected on the basis of their proximity to supermarkets (their residential location) and their level of education (high school graduates and those with higher qualifications).

3.8.1 Sample size and sampling process

Fifty members of the public and ten supermarkets from both low and high density areas of the district were sampled for the study. The store managers were the primary informants in the supermarkets mainly because they are usually the people mandated to convey official information about their business to the press or general public. In cases where it was not possible to reach the store manager, other senior member of staff were approached for the same purpose. Members of the general public were also part of the sample because other than being the victims, they also contribute to negative environmental consequences (Adrangi et al., 2010) which are associated with supermarkets daily operations due to their consumer behavior.

3.9 Tools and process of primary data collection

The study utilized a semi-structured interview schedule and an ISO checklist tool shown in Appendices two and three respectively. These tools were used to collect information on the sustainability of supermarkets' daily practices through ISO 14001 and the role of sustainability education in Lusaka district. Information was collected under the following themes: supermarkets awareness of the environmental impacts of their daily operations, existing practices that related to sustainability among supermarkets through ISO 14001, measures supermarkets were undertaking to reduce environmental impacts related to their operations and lastly the role of sustainability education in promoting environmental sustainability practices among supermarkets. The researcher followed topical trajectory in interviews which strayed from the guide when such a digression was appropriate. As noted by Cohen and Crabtree (2006), semi-structured interviews are characterized by the interviewer and respondents engaging in a formal interview, the interviewer develops and uses an 'interview guide; a list of questions and topics that need to be covered during the conversation, usually in a particular order. Physical observations as well as

photographs were taken in order to validate some information which was obtained from the respondents.

3.9.1 Ethical considerations during primary data collection

An introductory letter was obtained from the University of Zambia explaining the purpose of the study as being purely academic and that the obtained information would not be used for any other purpose other than fulfilling the requirements for a graduate dissertation in Environmental Education. A consent form was also provided on which the respondents were required to sign to acknowledging their willingness to provide information to the researcher. No personal information such as names, residential addresses or photographs were obtained from the respondents in order to protect their privacy and identity. The respondents were interviewed in the language they were most comfortable with.

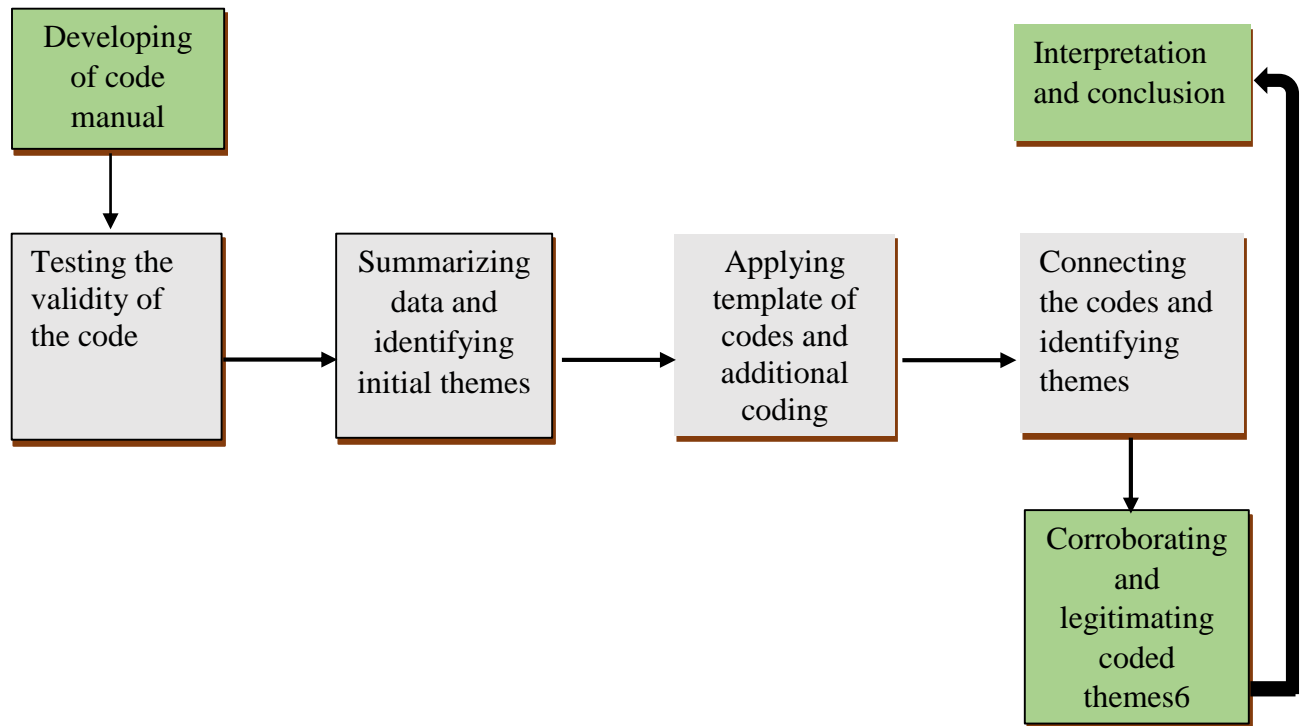
3.10 Analysis and processing of primary data

The research findings were analyzed using the Thematic Analysis method. Thematic Analysis is a type of qualitative analysis. It is used to analyze classifications and present themes (patterns) that relate to the data. It illustrates the data in great detail and deals with diverse subjects via interpretations (Boyatzis 1998). The process involves the identification of themes through “careful reading and re-reading of the data” (Rice and Ezzy, 1999, p. 258). It is a form of pattern recognition within the data, where emerging themes become the categories for analysis. The collected data will be critically analyzed in order to understand what the respondents were bringing up in their responses. The themes were made as abstract as possible so as not to appear as a summary of the data but a general representation of the emerging themes from the raw data. These initial themes were gathered together to develop a coding scheme. According to Saldana (2008), a code is a word or phrase that symbolically assigns a summative, salient, essence-capturing attribute for a portion of data. A list of all the themes, and the ‘codes’ that were applied to the data was then generated.

The coding process involved recognizing phrases and sentences and encoding them, (seeing them as something) prior to a process of interpretation (Boyatzis, 1998). The codes were applied to the whole set of data using the Excel software program. Encoding the information helped to organize the data to identify and develop themes from them. Boyatzis defines a theme as “a pattern in the information that, at minimum, describes and organizes the possible observations and at maximum

interprets aspects of the phenomenon” (p. 161). The coding scheme was amended as the data was being analyzed in detail. The analysis adopted the inductive approach where the data that was collected was analyzed from a precise content then to broader generalizations and finally to theories. This helped to ensure that the themes remained linked to the collected data (Patton, 1990). Figure 4 illustrates the steps in the coding process:

Figure 4: Coding process of the research findings



3.11 Secondary data collection

According to Johnston (2014), secondary data refers to existing data that was collected by someone else for another primary purpose. Secondary data helps the researcher to learn what is already known and what remains to be learned about a topic through reviewing secondary sources and investigations others have previously conducted in the specified area of interest (Ibid). The study obtained secondary data from books, reviews, journal articles, dissertations and print and electronic media. These sources were critically reviewed, analyzed, compared and contrasted to identify information, supplement primary data as well as for the review of literature.

3.12 Data Validation

“The commonest definition of validity is epitomized by the question: are we measuring what we think we are measuring? In a broader concept validity pertains to the extent that a method investigates what it is intended to investigate” Kvale (1989 p 74). With an altered concept of validity "validation" becomes "investigation", "continually checking", "questioning", and "theoretically interpreting the findings". Validation then becomes built into the research process, with continual checks. (Kvale 1989). These steps shall be critically adhered to in the research process to ensure that the research findings are valid. As Joppe (2000) emphasizes, validity determines whether the research truly measures that which it was intended to measure or how truthful the research results are. To achieve this, the study employed the data triangulation approach by combining the analysis with findings from different data sources. Several journal articles, book and theses were referenced to compare results and methodological approaches in similar studies. These referenced materials helped to understand and effectively analyze our findings.

3.13 Limitations of the study

Simon (2011) defines a limitation as a constraint or weakness. In research, limitations include the timing of the research and inaccessibility to the right information. For this study, the following were the limitations:

The first limitation was the limited information from respondents. Supermarket managers were very apprehensive and unwilling to give details of their internal operations such as issues relating to daily operational policies. To address this challenge, the researcher targeted more supermarkets than initially projected in order to compensate for those Supermarkets that may not avail the required information so that the sample population would be maintained. Also, the researcher always presented the introductory letter and the letter of consent to clarify the intended use of the information. Some members of the public demanded financial compensation in exchange for the information they gave out. This was because researchers were perceived to be funded and that they were expected to pay respondents for their cooperation. The researcher succeeded in obtaining information from the respondents by utilizing the introductory letter from school indicating that the study was self-funded and that the issue being addressed was of common interest to all members of the public hence their cooperation would benefit them in the future.

A number of managers were not willing to give out any information on their business operations and those that did, permission had to be sought from their head offices and in most instances this required making several follow ups and phone calls before permission was granted. This greatly delayed the process of data collection. Other managers indicated that they were not obliged to help because the study was for the researcher's personal benefits and would not contribute towards the supermarkets image or increase their customer base.

3.14 Summary

This chapter presented the methodology that was used in the study. A qualitative descriptive survey was used, which utilized a structured interview schedule and an ISO Checklist tool as primary data collection instruments. Purposive Sampling design, involving expert purposive sampling and homogenous purposive sampling techniques, were employed to select ten supermarkets and an additional fifty members of the general public. The obtained results were analyzed using thematic analysis approach. Strict ethical practices were put into considerations during the process of data collection and analysis.

CHAPTER FOUR: RESEARCH FINDINGS

4.1 Introduction

The purpose of this study was to examine Environmental Sustainability of practices among supermarkets through ISO 14001. It further examined the role of sustainability education in influencing people’s actions towards the environment. The chapter presents findings based on the objectives of the study which where to explore supermarkets’ awareness of the environmental impacts associated with their business operations, determine existing practices in line with the ISO 14001 standards, examine specific measures supermarkets had put in place to reduce the environmental consequences of their business operations and lastly establish how sustainability education would promote environmentally sustainable business practices.

4.2 Awareness of Environmental Impacts Associated with Supermarkets

The first objective sought to explore supermarkets’ awareness of environmental impacts associated with their business operations. Results revealed that both members of the public and supermarket managers had knowledge about the environmental effects of supermarkets’ business operations. As observed from Table 2, the majority of respondents indicated that they were aware of the environmental impacts that arose from supermarkets daily business operations.

Table 2: *Awareness of environmental impacts associated with supermarkets business operations*

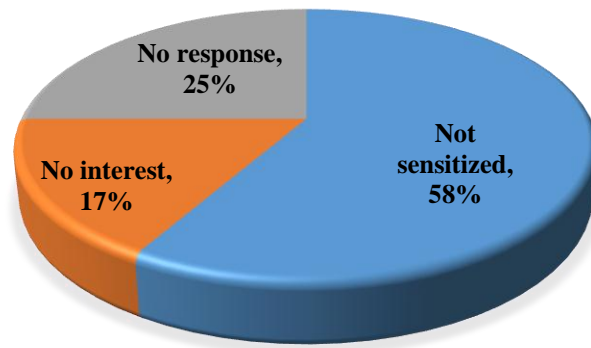
| Responses | <i>Frequency(F) and percentages (%) of respondents</i> | | | |
|-----------|--|----------|--|----------|
| | Supermarkets team | | Respondents from the general public | |
| | F | % | F | % |
| Aware | 7 | 100 | 38 | 76 |
| Not aware | 0 | 0 | 12 | 24 |
| Total | 7 | 100 | 50 | 100 |

Source: Field Data, 2017

All supermarket managers indicated that they were knowledgeable about the environmental effects of their business operations while 76% of the respondents among members of the public indicated that they were aware of the effects associated with supermarkets daily operations. Twenty four percent (24%) stated that they had no understanding of any environmental impacts that were directly linked to supermarkets daily business operations. The reasons for this lack of knowledge

on environmental effects of supermarkets business operations are given in Figure 5 while Figure 6 gives a summary of the respondents understanding of the environmental impacts that arise as a result of supermarkets business operations. As observed in Figure 5, the major reason (58%) why members of the public were not aware of environmental sustainability was a lack of information and sensitization on the subject. Seventeen percent (17%) indicated that they did not have any interest in environmental issues while 25% of respondents did not respond to the question.

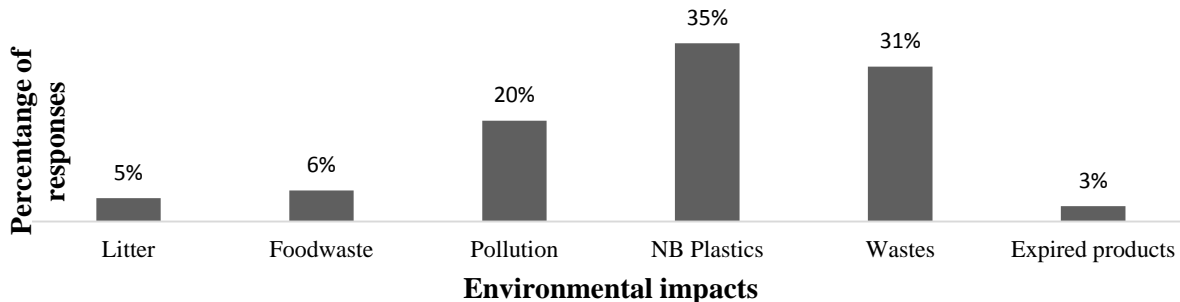
Figure 5. *Reasons for lack of knowledge on Supermarkets effect on the environment*



Source: Field data, 2017

It was interesting to note that some respondents were not aware of any environmental effects associated with supermarkets business operations simply because they did not take interest in matters of environmental sustainability.

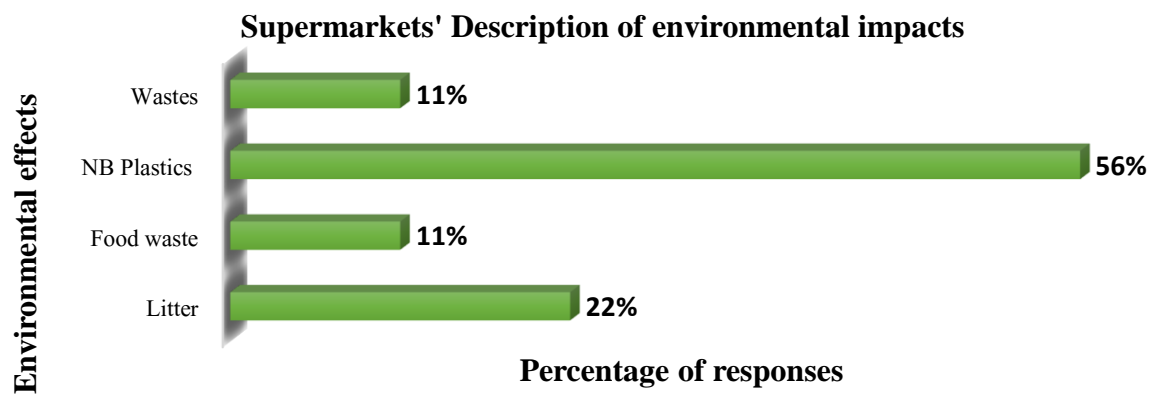
Figure 6. *Description of environmental effects associated with Supermarkets' business operations by members of the public*



Source: Field data, 2017.

All the respondents among supermarkets management teams, indicated that they were aware of the environmental impacts that result from their business operations. As can be seen from Figure 6, the description of these effects were not very different from those put forward by members of the public. Supermarkets recorded fewer impacts as compared to those put forward by members of the general public. This finding was unexpected because supermarket managers were thought to be more knowledgeable about the effects of their business operations on the environment when compared to members of the public.

Figure 7: Supermarkets' understanding of environmental effects associated with their daily business operations



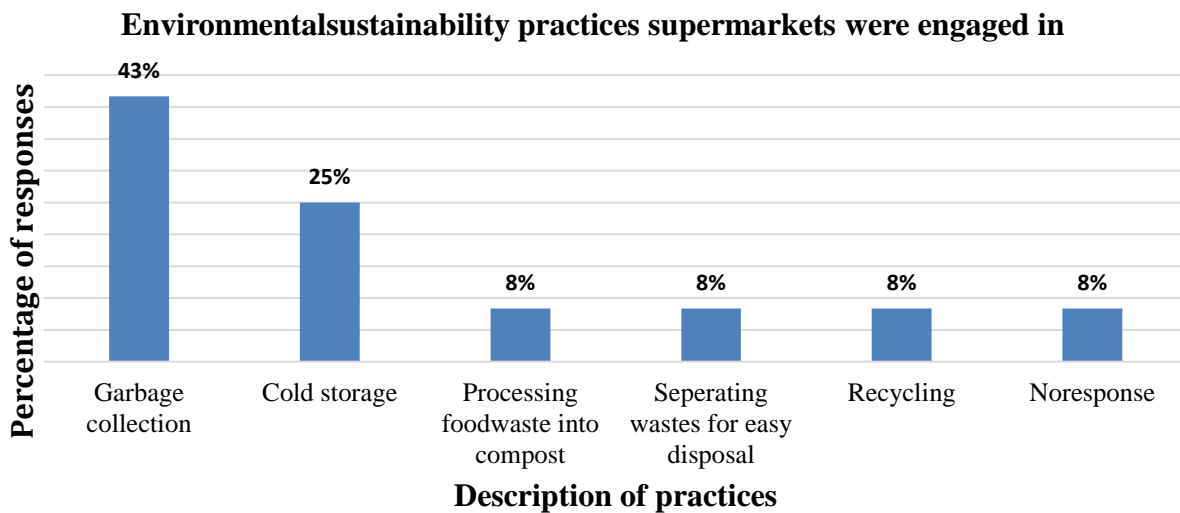
Source: Field Data, 2017

Figures 6 and 7 indicated that the use of non-biodegradable plastics for packaging and other uses were the main environmental problem associated with supermarkets business operations. The use of plastics was cited by 35% of members of the public and 56% of supermarket managers respectively. Littering and the generation of wastes were the other common effects identified by both groups: only 5% of members of the public indicated littering as an environmental effect while the same response was given by 22% of supermarket managers. Thirty one percent (31%) of members of the public identified the generation of waste as another negative effect of supermarkets business operations and the same response was cited by 11% of supermarket managers. Twenty percent (20%) of members of the public also mentioned pollution as another effect with expired products accounting for 3% of the responses.

4.3 Existing practices that relate to Environmental sustainability

The second objective was to determine existing that related to environmental sustainability among supermarkets. The study indicated that there were a number of activities that they undertook in order to address environmental effects of their business operations. Figure 8 gives a summary of the identified practices. Garbage collection stood as the most prevalent activity as indicated by 43% of the respondents. This was followed by the use of cold storage facilities which accounted for 25% of the responses. Other practices included separation of waste for easy disposal, processing of food remains into compost and recycling of wastes each of which accounted for 8% of the responses respectively. Figure 8 further shows that 8% of the respondents did not indicate the type of practices they were engaged in.

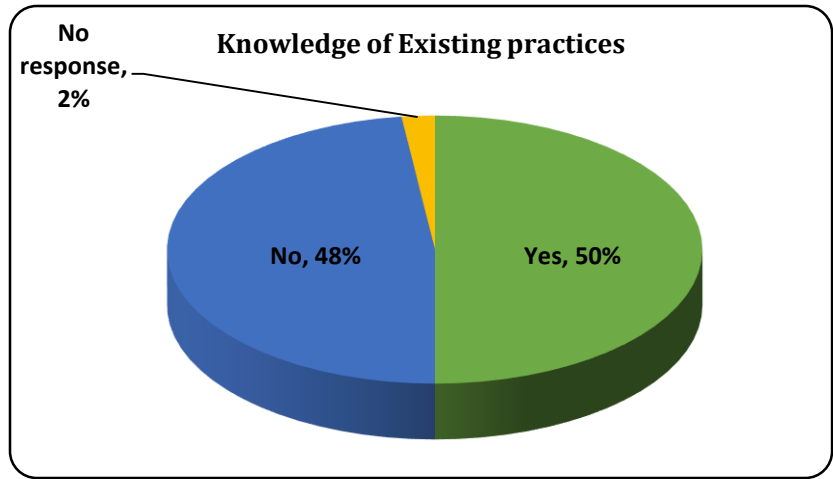
Figure 8: Existing Environmental Sustainability practices among supermarkets



Source: Field data, 2017

Among members of the general public, 50% of the respondents indicated that they were aware of the practices supermarkets were engaged in; 48% did not have any knowledge while 2% did not respond. Figure 9 summarizes levels of awareness of supermarkets' business among members of the general public.

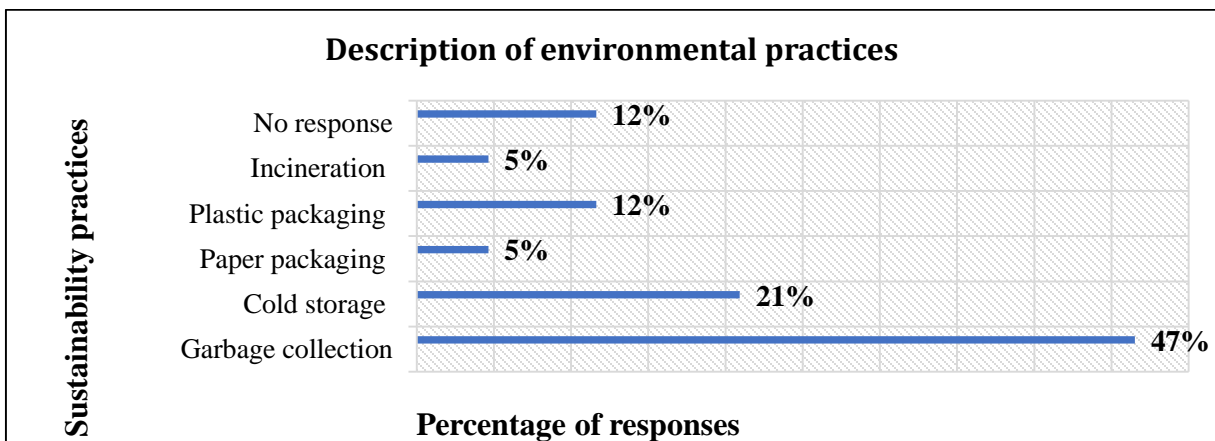
Figure 9: Awareness of supermarkets' business practices among members of the public



Source: Field Data, 2017

With regard to the description of practices aimed at enhancing environmental sustainability, Figure 9 indicates that garbage collection stood out as the most dominant practice cited by 43% of the respondents, incineration was mentioned by 5% of the respondents, 12% indicated the use plastic packaging as an environmentally sustainable practice. Five percent (5%) cited the use of paper packaging materials as one of the current practices being undertaken by supermarkets and 12% of the respondents indicated that the use of cold storage facilities was among the practices which contributed to environmental sustainability. Figure 10 highlights these findings.

Figure 10: Description of environmental effects of supermarkets business operations



Source: Field Data, 2017

4.3.1 Link between existing practices and environmental sustainability

Among members of the public, 27% of the respondents stated that the existing practices would help to prevent environmental pollution, 15% stated that the practices help in the proper management of solid wastes while 2% stated that the existing practices did not promote environmental sustainability. The remaining 56% did not give their views on how existing practices helped to promote environmental sustainability.

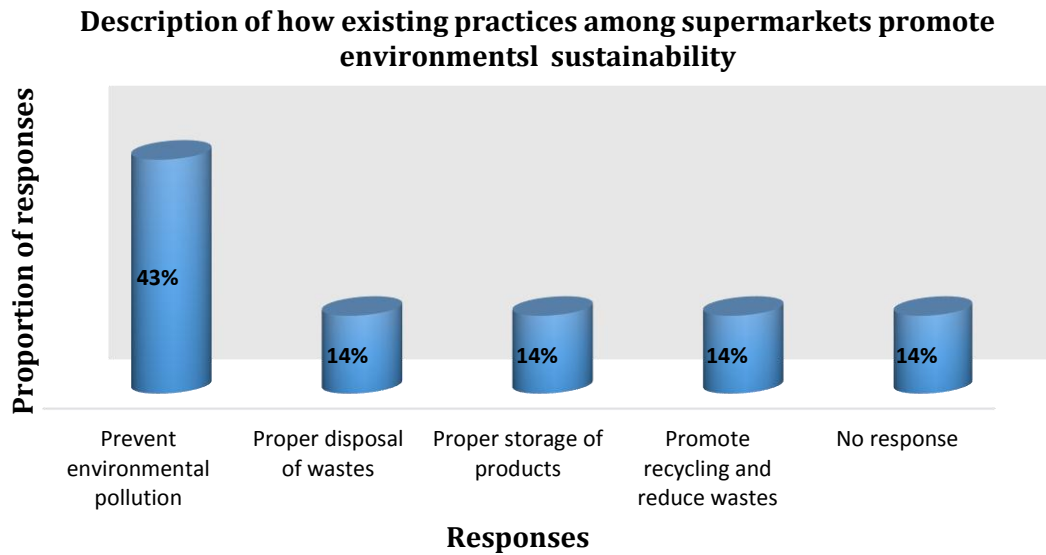
Figure 11: *Publics' understanding of how existing supermarket business practices promoted environmental sustainability*



Source: Field data, 2017.

Figure 12 shows that supermarkets management teams gave out more reasons of how their current practices enhanced environmental sustainability when compared to the responses given by members of the public. Forty three percent (43%) indicated that these practices would help reduce pollution, the other responses were that the existing practices help in the proper disposal of wastes, they promote recycling of wastes as help in the proper storage of goods to reduce wastes. Each of these responses were given by 14% of respondents respectively.

Figure 12: Correlation between existing business practices and environmental sustainability



Source: Field data, 2017

Figure 12 also shows that 14% of the respondents did not indicate how their current business practices contributed towards environmental sustainability. However, the number of respondents who did not explain how their practices promote environmental sustainability was lesser among supermarket management members when compared to those among members of the public.

4.3.2 Understanding of the concept of environmental sustainability

Among members of the public, 43% of respondents defined environmental sustainability as the prevention of environmental degradation, 14% understood it as the protection of the environment for future generations, and another 14% explained it as the implementation of good environmental practices, 8% as the sustainable use of resources while 2% understood the concept as recycling of wastes. Eighteen percent (18%) of the respondents did not respond to the question. These findings are summarized in Table 3.

Table 3: *Understanding of the concept of environmental sustainability among members of the public*

| Responses | Frequency of responses | Percentage respondents |
|---|-------------------------------|-------------------------------|
| Good environmental practices | 7 | 15 |
| Prevent environmental degradation | 21 | 43 |
| Protecting the environment for future generations | 7 | 15 |
| Recycling waste | 1 | 2 |
| Sustainable use of resources | 4 | 8 |
| No response | 9 | 18 |
| Total | 49 | 100 |

Source: Field data, 2017

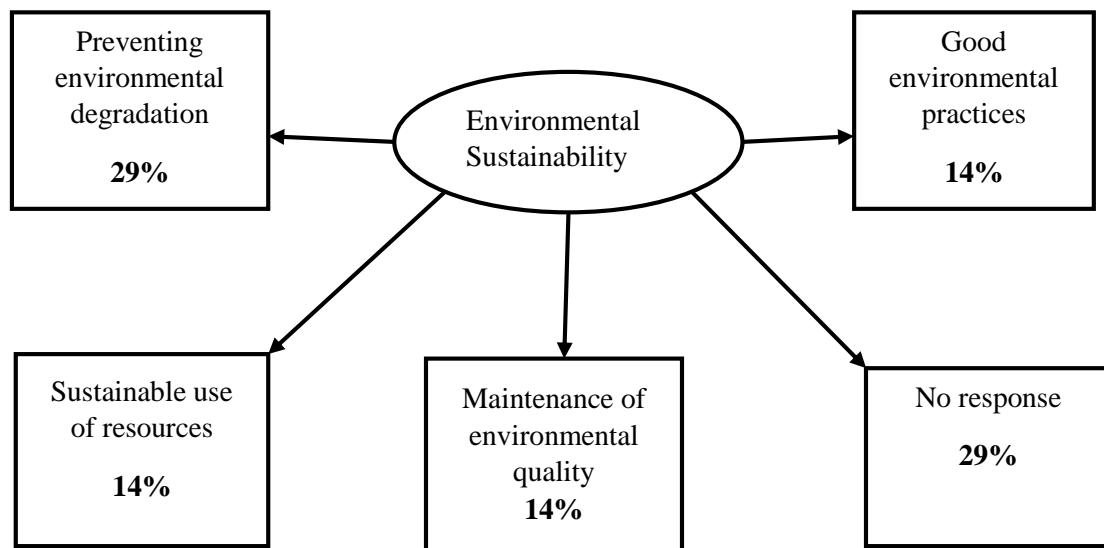
Note: Respondents were allowed to give more than one response

The responses obtained from supermarket management teams were not very different from those put forward by members of the general public. Figure 13 gives a summary of the responses which were obtained from supermarket management teams. Figure 13 also shows that 29% of respondents expressed a lack of knowledge about what their views on what environmental sustainability was. One responded stated that:

“Environmental sustainability is a new concept in Zambia and very little information has been availed to us to understand how we can integrate sustainable business practices into our daily business operations. Besides, my supermarket does not have a policy which allocates funding for such initiatives hence our inability to engage in sustainable business practices”.

Twenty nine percent (29%) stated that environmental sustainability is the preventing of environmental degradation, 14% defined the concept as the maintenance of environmental quality, and another 14% understood environmental sustainability as the sustainable use of resources and engaging in good environmental practices was the definition of environmental sustainability given by 14% of supermarket managers.

Figure 13: Understanding of Environmental Sustainability among Supermarket managers



Source: Field data, 2016

4.4 Measures supermarkets were undertaking to reduce environmental impacts associated with operations

Based on the findings on objective number four which sought to examine specific measures supermarkets were undertaking to reduce environmental effects associated with their business operations, a number of activities ranging from garbage collection to recycling had been put in place. These findings have been summarized in Table 4.

Table 4: Current Sustainability practices among supermarkets

| Response | Frequency of responses | Percentage of respondents |
|--------------------------------|-------------------------------|----------------------------------|
| Refuse bins | 5 | 42 |
| Refuse trucks | 1 | 8 |
| Separating wastes | 1 | 8 |
| Recycling paper | 2 | 17 |
| Maintenance of store equipment | 1 | 8 |
| Reusable shopping bags | 1 | 8 |
| Use of refrigerated trucks | 1 | 8 |
| Total | 12 | 100 |

Source: Field data, 2016

Note: Respondents were allowed to give more than one response

As can be observed from Table 4 above, solid waste management, through the use of garbage disposal bins ranked as the most prevalent sustainability measure among supermarkets (42%). However, some of the practices mentioned above were not in practice at some supermarkets and reasons given were that plans were underway to institute them while other store managers indicated that they were waiting for logistical support from their head offices on how to carry out some of the measures. When asked how they managed their daily activities since most of the efforts required confirmation from their senior supervisors, the following was one of the responses given by the store manager:

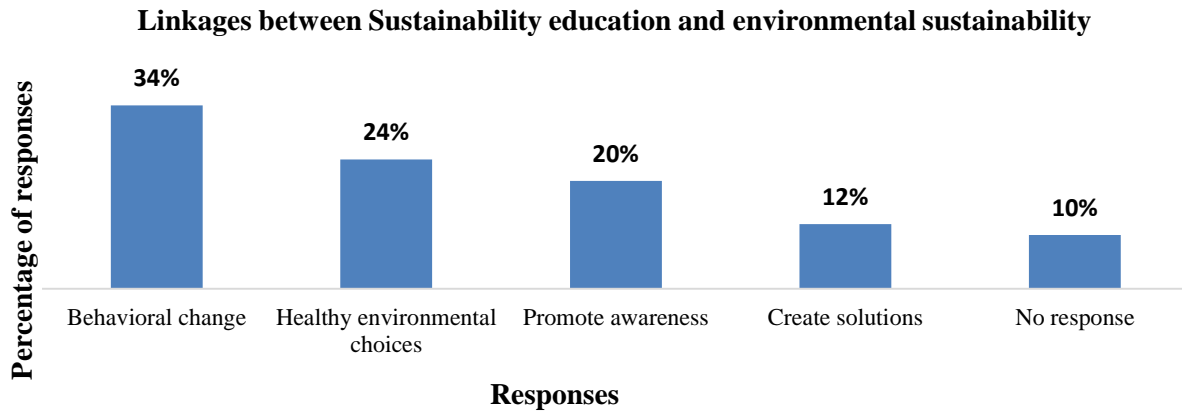
“We have comprehensive documentation on the procedures and actions we are required to take to address any environmental effects that may arise from our business operations but such documents are kept at the head office in the custody of the country manager”.

It appeared that most of the activities mentioned by supermarket managers were part of their sustainability plans but most of them had not yet been implemented. For instance, 17% of supermarkets indicated that they were engaged in the recycling of paper and yet they did not have separate waste disposal bins for easy collection of recyclable materials as was the practice at one of the supermarkets which was engaged in recycling. The use of reusable shopping bags accounted for 8% of the current practices among supermarkets.

4.5 The role of sustainability education in promoting Environmental Sustainability practices among supermarkets

The fourth objective was to establish how sustainability education would promote environmental sustainability among supermarkets as well as among members of the public. Findings indicated that sustainability education had the potential to promote sustainable lifestyles and business practices among supermarkets. The majority of the respondents (92%) indicated that sustainability education can help to address various environmental challenges especially those directly linked to supermarkets daily operations. Eight percent (8%) of the respondents stated that sustainability education would not contribute towards addressing environmental challenges associated with supermarkets' daily operations. Figure 14 gives a summary of the respondents understanding of how sustainability education would help to address environmental problems.

Figure 14: Respondents understanding of the role of sustainability education in promoting environmental sustainability



Source: Field data, 2017

Among supermarkets’ administrative officers, all the respondents stated that sustainability education would help to address environmental challenges and the following were the ways in which it was thought that sustainability educated would address environmental challenges: 50% stated that SE would help to promote behavioral change and improve people’s attitude towards environmental management, 30% felt that SE would help to increase awareness about the various environmental challenges among members of the public while 13% of the respondents believed that SE would help to improve waste management.

4.6 Sustainability Management through ISO 14001

Based on the findings of objective number two which sought to examine sustainability practices in line with the ISO 14001 standards, Table 5 below displays the current practices among supermarkets in Lusaka District. The sustainability management tools in the table form a standardized parameters for the establishment of an Environmental Management System in any business establishment.

Table 5: Environmental Sustainability Checklist tool for assessing Supermarkets' compliance to ISO 14001

| Sustainability Management tools | | Performance Indicators | | |
|---------------------------------|---|---|---|-------------|
| | | Yes | In progress | No response |
| 1 | Establishment of appropriate environmental policies | 57% - Policy on waste disposal, food storage and maintenance of all liquid chemicals handling. - Rain water harvesting, recycling of grey (used) water | 14% - To replace plastic bags with paper and reusable bags | 29% - |
| 2 | Environmental sustainability | 71% • Monthly audits on all aspects of health, safety and hygiene. • The core of the business (no explanation given) • Company contracted to handle wastes • Clearly labelled bins to separate wastes; waste manager to ensure proper separation of waste | 0% - | 29% - |
| 3 | Implementation and operation of EMS | 43% - Waste management training every quarter. - Staff training (Content not specified) - Management teams trained in food handling, storage and disposal | 14% No explanation given on what is being done | 43% - |
| 4 | Checking and corrective action procedures | 43% - Engaged an external auditor to carry out monthly audits on the stores compliance. (most respondents did not give an explanation of the current practices) | 14% No explanations | 43% - |
| 5 | Periodic management reviews of the overall EMS | 29% No explanations given | 29% No details were given | 42% |
| 6 | Environmentally sound development | 57% Occupational health and safety; food transported in refrigerated trucks | 0% | 43% |

Source: Field data, 2017

Among the supermarkets with established environmental management systems, recycling and composting are among their main solid waste management strategies. Figure 5.6.1 below shows part of the waste disposal into separate types of waste in readiness for recycling.

Figure 15: Separation of wastes for recycling and processing into compost.



Source: Field data, 2017.

The compost is processed onsite and is used as natural manure for the lawns and an orchard located on the same premises. Figure 16 shows several composting bins in operation as they process food waste into compost.

Figure 16: Food processing into compost.



Source: Field data, 2017.

4.7 Summary

The chapter presented findings based on the four objectives of the study. Findings revealed that there were a number of environmental concerns associated with Supermarkets' daily business operations, among which were solid waste generation leading to environmental pollution and littering. The most prevalent concern was the use of plastic packaging materials which were being used exclusively among all the supermarkets in the sample population. There were no environmental policy guidelines that regulated supermarkets' business operations. This finding was evidenced by the observed disparities in the measures supermarkets were engaged in to promote environmental sustainability. This explained the reason why there was very little understanding of the concept of environmental sustainability among both members of the public and Supermarket management teams.

CHAPTER FIVE: DISCUSSION OF FINDINGS

5.1 Introduction

This chapter discusses the findings of the study in which we sought to examine environmental sustainability of practices of selected supermarkets through ISO 14001. The chapter discusses the findings under five categories: awareness of the environmental impacts associated with supermarkets daily business operations, existing practices that relate to sustainability measures supermarkets are undertaking in order to reduce environmental impacts associated with daily business operations, the role of sustainability education in promoting environmentally sustainable business practices among supermarkets and lastly, environmental sustainability through ISO 14001.

5.2 Understanding of the concept of Environmental Sustainability

Various definitions were put forward as to what environmental sustainability meant. These definitions indicated that a good proportion of respondents did have an understanding of what environmental sustainability was. The most prevalent definition of environmental sustainability among supermarket managers was that it was the prevention of environmental degradation, and this definition is consistent with Goodland and Daly's (1996) definition of the concept of environmental sustainability. This shows that there was a good understanding of what environmental sustainability was among members of the public and supermarkets managers. However, as Gao and Zhang (2006) observed, environmental knowledge without any positive action did not make any change towards environmental sustainability. The European business environment was a good example of how knowledge about environmental sustainability had translated into good business practices. Literature indicated that supermarkets and other companies in Europe were increasingly shifting or planning to shift towards more sustainability-oriented business models (Walker and Phillips 2009). The rapid growth of consumer awareness and pressure from various stakeholders such as shareholders and policy makers towards organizations' environmental impacts had manifested in increased demand of environmentally-friendly products. Presently this was not the case in Lusaka district.

Goodland and Daly defined environmental sustainability by input and output rule as "keeping wastes within assimilative capacities, harvesting within re-generative capacities of renewable resources, and depleting non-renewable energy resources at the rate at which renewable substitutes

are being developed”. This definition provides a broad set of activities that needed to be performed by individuals and firms to attain environmental sustainability. Surprisingly, some supermarket managers indicated that they did not have any idea what environmental sustainability was all about. One of the managers spoken to stated that environmental matters were a new concept to Zambia and so he did not have adequate knowledge on the subject. Another manager responded by saying their supermarket chain had documented regulations on environmental sustainability but this information had not been availed to them to be implemented at their supermarket hence his inability to understand the concept fully. The implication of this lack of knowledge on environmental sustainability was that such managers could not conduct their business operations in an environmentally sustainable manner due to their lack of knowledge and skills. It would be helpful to conduct mandatory training programs aimed at sensitizing supermarket managers on how their businesses affect the environment as well as suggest solutions on how they can conduct their business operations in an environmentally friendly manner.

5.3 Environmental Impacts associated with Supermarkets daily operations

The section is divided into two parts where the first section discusses the general public’s awareness of environmental impacts associated with supermarkets and the second part will discuss the description of the impacts and their perceived effects on the environment as well as on the health of the general population.

5.3.1 Awareness of Environmental Impacts

This study has shown that the public was well aware of the impacts that arose from supermarkets business operations. This finding was not surprising because most of the environmental issues associated with supermarkets business operations are very obvious and also, supermarkets are located in close proximity with residential settlements making it easy for members of the public to identify business practices that degrade the environment. The results are broadly consistent with studies undertaken by the Guardian (2014), in which it was revealed that one of the largest supermarket chain stores in the UK, Tesco, has taken a leading example in addressing environmental problems associated with their business operations. Other studies, (Clapp and Swanton, 2009; Miller, 2012) also indicate that large chain supermarkets in Europe and the USA are cognizant of the environmental effects that emanate from their business operations. This

finding therefore, affirms our assertion that there were a number of practices associated with Supermarkets daily business operations that contributed towards environmental degradation.

It was interesting to note that some members of the public were not aware of the environmental impacts that result from supermarkets daily business operations. Lack of sensitization on environmental sustainability was cited as the major reason why they did not know how supermarkets business operations negatively affected the environment. This explained why very few members of the public engaged themselves in initiatives aimed at promoting environmental sustainability. The observed lack of sensitization was on all matters pertaining to environmental sustainability and not necessarily regarding supermarkets effects on the environment. It was very possible that such members of the public had observed, or even been directly affected by the consequences of supermarkets daily business operations but because of lack of awareness, such effects had not been linked to supermarkets. Among those spoken to, some stated that:

“There are no environmental awareness messages either by the supermarkets themselves or in the media to educate us on how certain practices among supermarkets affect the environment. The only messages we receive are those pertaining to cholera outbreaks during the rainy season”.

This indicated that not all members of the public were negligent when it came to matters of environmental sustainability but others were genuinely ignorant on the matter due to lack of information on the subject. It was further observed that only other type of information available information was that usually displayed on small placards and sometimes billboards bearing the message ‘Keep Lusaka Clean’. No detailed information was given on how certain practices such as indiscriminate disposal of wastes affected the environment nor were there adequate garbage disposal areas particularly in the central business district of Lusaka. This type of approach had sent a message that as long as an action was hidden from the public eye, then it was acceptable because the ultimate goal seemed to be that of making the city appear clean. This approach explains why most street alleys and supermarket back yards had been turned into refuse dump sites.

Other members of the public did not know about the impacts simply because they were not interested in environmental sustainability. They supported their stance by explaining that such matters were supposed to be handled by the local authorities and other government agencies which had been mandated to handle environmental matters. They believed that as tax payers, their duty

was simply to make financial contributions to the government through taxes while the government would take up the responsibility of handling the technical aspects of environmental protection. Others even justified acts of littering by stating that the councils had employed people to clean the streets and that if streets were always clean, then such employees would be getting paid for nothing.

Other respondents who indicated having no knowledge on supermarkets' effects on the environment did not give reasons to justify their position. They indicated that they were not very conversant with environmental matters and that their knowledge was based on public opinion. It would be helpful to promote sustainability education among members of the general public as well as supermarket management teams in order to change people's attitudes and promote a sense of responsibility and ownership in matters of environmental sustainability.

As Adelakun (2003) states, promotion of environmental quality depends on how individuals and the community see themselves in relation to their environment. It is the ways that people perceive the environment that they will treat it. And it is the way that the environment is treated that it will support life. Adelakun further believes that illiteracy, ignorance, poverty and greediness are some of the major contributors of environmental degradation because each influences people's behavior and attitude towards the environment. This line of thought is in agreement with the aim of the study and aligns with our theoretical construct in which it was argued that one's attitude, perceived social norms and feelings of control together determine one's intentions, which guide behavior (Ajzen, 1991). As has been observed, many people have negative feelings towards positive environmental behavior. Thus, through sustainability education, it is hoped that people's negative perception of the environment would be changed to a positive one, ultimately changing their behavior to that which would promote sustainable environmental practices among business establishments and members of the public in general.

5.3.2 Description of Environmental Impacts

The main finding under this section was that the use of non-biodegradable plastic bags among supermarkets was the major environmental concern linked with supermarkets' daily business operations. It is estimated that around 500 billion plastic bags were being used every year worldwide (Spokas, 2007; Geographical, 2005). This widespread utilization was attributed to their cheapness and convenience to use. The vast majority of these bags were discarded as waste usually after a single use. It is also believed that after their entry into the environment, plastic bags can persist

up to 1000 years without being decomposed by sun light and/or microorganisms (Stevens, 2001; UNEP, 2005). Accumulation of plastic bag wastes causes environmental pollution that can be manifested in number of ways. One of the problems is deterioration of natural beauty of an environment (Anthony, 2003). Another common problem associated with these wastes is death of domestic and wild animals. This necessitates for proactive measures in order to safeguard animal species against extinction (EPHC, 2002; Brown, 2003; Flores, 2008; UNEP, 2005; Verghese et al., 2009; Macur and Pudlowski, 2009; Narayan, 2001). Blockage of sewerage systems is becoming a common problem in cities and towns of developing countries. This, in turn, creates foul smells and favorable habitats for mosquitoes and other vectors that could spread a large number of diseases such as encephalitis, dengue fever and malaria (Ellis et al., 2005).

If plastic bags get access to agricultural fields, they reduce percolation of water and proper aeration in soil. This results in reduction of productivities of such fields (Njeru, 2006). Furthermore, in several poor and developing countries, these bags are frequently used to carry food items. This practice can cause serious health problems since some carcinogenic agents could be generated during the chemical reactions that take place in plastic materials (for example, coloring agents) and the food items due to temperature variations (Narayan, 2001). In recent reports, it has been mentioned that reuse of plastic bags can cause cross contamination of foods by microorganisms (Gerba et al., 2010; Cliver, 2006; Maule, 2000).

It was surprising therefore that despite all these problems associated with their use, all supermarkets in Lusaka district were still using plastics as their primary packaging materials. One respondent observed that the major cause of drainage blockages in Lusaka district was due to the dumping of plastics into drainages or as a result of their being transported by natural elements like wind and water. The resulting effects of blocked drainages were flush floods that were observed on all the major roads in the district particularly during the rainy season. Not only did these floods compromise the lifespan of the roads but were also a danger to road users and in some instances, ponds persisted for weeks after a downpour, providing breeding grounds for vectors such as mosquitos that lead to disease outbreaks like malaria.

These findings harmonize with other studies which examined the effects of plastics on the environment. One such study is Legesse and Muleta's (2011) study which investigated the effects of plastics on the environment. The study concluded that plastic bags were causing severe environmental pollution and posed a risk on both human and animal health. Poor waste management practices and lack of awareness on the negative effects of plastic bags had been cited as the main reasons for the continued use of plastics among different business establishments. What emerges from these findings is that awareness of some of the consequences of business operations on the environment had not necessitated positive action towards addressing the use of plastics bags in supermarkets. It is not clear if efforts were being made to investigate the effectiveness of using alternative types of packaging but it is very unlikely that supermarkets would engage in such ventures due to their perceived negative financial implications on their business. It is a known fact that supermarkets' main concern is profit making but with the current levels of environmental degradation caused by their business operations, it becomes necessary to take immediate action in order to safeguard the quality of the environment. Policy interventions aimed at addressing the use of plastics would be the most logical approach to address the problem.

Other impacts were litter and food waste. Littering had been mainly attributed to indiscriminate disposal of food packages and beverage containers from the supermarkets. Al-Khatib *et al.* (2009) have defined litter as a type of Municipal Solid Waste (MSW), or item that is different and unique and usually thrown away or abandoned because it is no longer important or it has fulfilled its objective. It is usually in form of solid waste that is not deposited in proper receptacles, and includes such items as cans, food remains, plastic bags, glass bottles and other solid items. In addition, litter may be regarded as any other item or object dumped or abandoned in an area or space where its presence in whatever form makes it environmentally unpleasant or untidy whether the item discarded is of importance or not., abandoned scrap vehicles, scrap car parts and metal pieces, broken glasses, particle boards, plastic bottles and lids, tire rubbers.

In Lusaka district, all the major supermarkets sell cooked food items such as nshima, rice and pasta and very affordable prices and these food items are packaged in some form of plastic material. When members of the public buy these food items, they usually consume them from their vehicles and dispose the packages through the windows while the car was still moving. This was the same

with pedestrians who were observed throwing away beverage containers or food packages into drainages or simply along the road ways. Others would prefer to consume their food in the supermarkets but none of the supermarkets, with exception of Food-Lovers had eating areas where people could consume their food and dispose the packaging on the premises. As such, a number of people who buy food from cooked food from supermarkets consume it along the way and dispose the packaging as they move; a tendency which contributed to littering.

Another observation was that there were very few trash-cans in the city center hence people were forced to litter the streets. Others stated that even the bins that were located at the supermarkets were usually full to the brim and sometimes might be left there for two to three days without being emptied. Street kids would then salvage food remains from these bins which also contributed to the problem of littering. Supermarket managers stated that they had contracted companies to empty their bins who at times were not able to do so due to logistical problems. Not only does litter compromise the physical beauty of an area, as is the case with the Lusaka Central Business District (CBD), but is also a contributor to environmental pollution which can lead to vector borne diseases (Vesilind *et al*, 2002). It also increases the cost of cleaning the streets by the local authorities, and currently, the Lusaka city council has failed to manage solid wastes both as a result of littering and illegal disposal of wastes due to increased volumes of wastes. The current high incidences of litter in modern society is assumed to have been triggered by changing consumer patterns such as the emergence of fast foods (Vesilind *et al*, 2002). This change of consumer behavior has been exacerbated by the continued increase of the number of supermarkets in Lusaka district over the past few years hence increased availability of fast food outlets.

Waste and food waste were other factors cited to be creating environmental problems. These wastes include used oil, damaged goods and packaging materials that are usually disposed in undesignated areas. A number of supermarkets have piles of empty boxes were seen packed at the back of the stores. These usually serve as breeding ground for vectors like rats and cockroaches which might contaminate food items in the store but also become a nuisance in surrounding households. It was found out that it is very difficult to dispose of wasted food items firstly because of logistical issues in handling them. At one store, it was observed that it was easier to distribute damaged fruits among members of staff than to transport them to the dumpsite. This is because

some members of staff are willing to consume such products and also, this saves the store the extra resources needed to transport the damaged food items to the dumpsites. It is not very clear what implications consumption of such items might have on human health but it is safe to assume that such acts are a public health risk.

Surprisingly, members of the general public identified more impacts as compared to supermarket managers. It was thought that supermarket managers would present an exhaustive list of impacts associated with their business because they had firsthand information on the challenges they face in connection with their business operations. Members of the general public additionally mentioned pollution and expired products as other environmental concerns which were not mentioned by supermarket managers. Respondents who cited pollution as another environmental problem linked with supermarkets business operations explained the concept as the various ways in which business operations affect the natural processes of the physical environment. This definition is very applicable considering that the respondents did not have professional knowledge on matters of environmental pollution. In fact, environmental pollution is generally defined as any activity, by corporations or individuals, which compromises the health and/or environment of other persons in a localized area, where the causal link is clearly established.

Expired products were also found to be a source of environmental concern. Expired products from supermarkets are rarely incinerated when disposed at the dump sites. It is feared that the chemical preservatives in the food and other products become toxic after the expiry date. If not collected by scavengers or consumed by domestic or wild animals, these chemicals can dissolve and percolate into the ground and thereby contaminate ground water. With the increase number of boreholes in Lusaka district, this might pose as a serious health threat should the chemicals find their way into the water table. The other likelihood is that after being disposed, expired food and other products are collected by residents in surrounding neighborhoods; usually these are high density areas with very low levels of education and high levels of poverty who do not have any knowledge on the effects of consuming such products thereby increasing their susceptibility to various health conditions. Sometimes expired products are never removed from the shelves but continue being sold to unsuspecting customers. The researcher observed this in one of the supermarkets a where a named expired cereal was re-stamped to increase the products' shelf life when in fact the product

had expired. Upon reporting the matter to the Zambian Bureau of Standards, it was later reported that it was the type of stamp which was used to label the product which had a problem and that the date of expiry had not been tempered with. One can only speculate how many other products have been sold beyond their designated shelf life and the risks associated with consuming such products. Improved regulatory standards need to be implemented to monitor the product quality in all supermarkets.

5.4 Existing Practices that related to Sustainability

Supermarkets management teams indicated that solid waste management was the most eminent practice that related to sustainability. Other practices were the use of cold storage facilities, processing of food into compost, separating of wastes for easy disposal, and recycling. Solid waste management has been discussed in the preceding sections, and this is usually carried out by contracted companies that removed waste on a regular basis. For most of the supermarkets that are situated at shopping malls, garbage collection fees are included in the rentals. Cold storage facilities were used to store perishable foods such as meats in order to extend their freshness and prevent them from becoming contaminated. This helped to prevent accumulation of food waste both as an environmental concern as well as to prevent financial losses that might result from the loss of such foodstuffs.

The compost was processed on the supermarkets premises and the finished product used as soil nutrients for the lawns and gardens around the same premises. Specialized equipment had been set up to ensure maximum conversion of food waste into compost while at the same time preventing rodents and other disease vectors from accessing the food waste while it was still being processed. Separating of wastes into separate trash cans facilitated easy collection of waste for processing into compost and for recycling. Paper and plastics were collected for recycling at a different location. A number of supermarkets did not state whether or not they engaged in any activity that would promote environmental sustainability. This indicated that managers in such supermarkets did not have an understanding of what constitutes environmental sustainability and hence could not link any of their practices to environmental sustainability.

The use of paper packages was also cited as one of the current practices that supermarkets were engaged in. While the use of paper was one of the best practices that was being advocated for among supermarkets, this study could not established that such a practice was in existence among

any of the supermarkets in the district. And because Lusaka district had a representation of all the supermarkets that were found in other parts of the country, it was safe to assume that the use of paper packaging was nonexistent among any other super market across the country because business practices among supermarket chain stores were consistent regardless of where the store was located.

While these practices may contribute towards environmental sustainability, what came out from the study was that supermarkets did not take actions that addressed the major concerns from their business operations when compared to supermarkets in other countries. For instance Kroger in the USA had observed that importing food items from distant places contributed towards global warming from the transportation industry; as a result, they instituted a policy to obtain their supplies locally. Similarly, Sainsbury's had a challenge with food waste, to reduce on their solid waste generation, they instituted a program to feed homeless people as a way of reducing on their solid waste generation. Also, Ito Yokado in Japan observed that their supermarkets were using a lot of energy from the national electricity grid and resorted to using energy efficient lighting and equipment in all their supermarket. On the contrary, despite identifying the use of plastic packaging materials as the major environmental concern, none of the Zambian supermarkets have taken any action to address the problem.

It was also noted that supermarkets incinerated their wastes after being disposed. While burning helped to reduce the volumes of waste, literature indicated that such practices were actually harmful to the environment. Burning causes harm to the environment in several ways such as through greenhouse gas emissions that cause climate change (Sabin et. al, 2006) and release of toxic organic compounds into the environment that cause different health risks, such as respiratory health problems (Boadi and Kuitunen, 2005). Thus, the public should be educated or informed regarding the impact of burning of plastic bags and other wastes. Members of the public also mentioned the use of plastic bags as one of the practices that contributed towards environmental sustainability. This was a clear indication of the knowledge gap that existed concerning environmental sustainability among members of the public because it was established in the previous sections that the use of plastics caused a lot of harm to the environment. There is need to promote awareness and educational programs to fill these knowledge gaps to enhance participation

among all stake holders on matters of environmental protection. Other respondents expressed ignorance on how current practices among supermarkets related to environmental sustainability.

5.4.1 Link between existing practices and Environmental Sustainability

Despite being able to mention the current practices among supermarkets, the majority among members of the public did not know how the observed practices could contribute towards environmental sustainability. Other respondents stated that none of the observed practices among supermarkets could help to contribute to environmental sustainability. They stated that all the practices supermarkets were engaged in were aimed at maximizing profits without giving any regard to the consequences their business practices exerted on the environment. Prevention of pollution was also cited as one other way in which the existing practices would help to contribute towards environmental sustainability. Respondents indicated that pollution was a common environmental challenge that could be observed on a daily basis hence the observed practices would help to address the problem. However, the current practices did not include benchmarks to correct issues such as the use of plastics which was cited by supermarket management teams as one of the most common environmental problem associated with their operations. Solid waste management was one other way in which current practices were reducing supermarkets effects on the environment.

5.5 Measures Supermarkets were undertaking to reduce Environmental Impacts associated with their daily business operations.

There were a number of measures that had been put in place to address the most obvious environmental concerns especially those to do with solid waste. As shown in Table 4, the most common practices were those relating to solid waste management. While the removal of wastes from supermarkets' trading areas helped to keep their environments clean and prevent diseases but it was the types of wastes that were being taken away which ended up damaging the environment in other places away from the supermarkets area of business. The study indicated that a very small proportion of supermarkets engaged in the recycling of plastics and with the prevalent use of plastics among supermarkets, this meant that the major portion of wastes that were carried away from supermarkets were composed of plastic materials which eventually ended up polluting the environment. The immediate concern is the reduction or avoidance of generating certain types of wastes such as plastics as these had the most damaging effects on the environment. Maintenance

of store equipment was one of the measures undertaken to promote environmental sustainability. It was not clear however, how such a measure helped to promote sustainability because the most common equipment in supermarkets were refrigerators, baking ovens and cold storage cooling systems. If a fridge or baking oven became damaged, it is not clear how it can directly lead to an environmental concern as much as it would cause financial losses due to slow production of certain products like bread. Supermarket managers also indicated the use of reusable shopping bags as another measure that they were engaged in. However, these bags, when available, were never given to customers for free and were usually sold at a very high price. They had not been promoted to an extent where they can replace the use of plastic bags and observations indicated that shoppers only use them in emergency situations where plastics cannot contain their purchases and not as a way of avoiding the use of plastic bags. Reusable plastics bags seem to be part of supermarkets means of maximizing their profits and not a way of reducing the use of plastic bags to avoid polluting the environment.

Members of the public also noted the same measures as indicated by supermarket management teams. However, some members of the public indicated that the use of plastic bags was part of the sustainability measures supermarkets were engaged in. This finding reiterates the need to promote awareness on the effects of plastics on the environment because as earlier stated, the use of plastic bags was very damaging to the environment. Supermarkets have an advantage in advocating such a message to the public due to their influence and popularity in society as was evidenced during the black Friday shopping promotions.

5.6 The role of Sustainability Education in promoting environmentally Sustainable

Practices among Supermarkets

Our findings indicated that sustainability education could help to contribute towards sustainable business practices among supermarkets. The majority of respondents, 92 percent among members of the general public and all the respondents among supermarket management teams indicated that sustainability education is necessary in helping to address environmental problems that result from supermarket business operations. This finding suggests that the current environmental challenges were mainly due to a lack of knowledge on how to address these problems or indeed how to prevent them. The lack of knowledge on how certain business and domestic actions exert negative pressures on the environment meant that supermarkets would continue to conduct their business

operations using approaches that were not favorable to the wellbeing of the natural environment. This concern was affirmed by one of the supermarkets line managers who stated that matters of environmental sustainability were a new concept to Zambia hence his inability to have a good understanding of issues pertaining to environmental sustainability. Furthermore, he stated that his line of business, referring to supermarkets, did not command serious interest in environmental matters because supermarkets were not a significant contributor to the major environmental problems facing Zambia. But as earlier discovered in our previous sections, this assumption was not a true reflection of supermarkets impacts on the environment. It was hoped therefor, that with increased awareness on environmental sustainability, supermarkets management teams would be made aware of their role and responsibility in protecting the natural environment. This identified gap in knowledge concerning environmental sustainability should elicit a positive response towards educational and environmental awareness programs because all stakeholders appreciated the value of education in the quest towards the achievement of environmental sustainability.

However, some respondents did not think that promoting sustainability education would help to address the various problems relating to supermarkets' business operations. It was argued that the majority of individuals who perpetrated activities that negatively affected the environment, were those who already had the knowledge, tools and resources to conduct their business operations in a manner that would avert most of the environmental problems which had been observed. This observation was attributed to a slack policy system in relation to environmental protection. For instance, the ZABS indicated that currently in Zambia, it was not mandatory for business operators to adhere to international regulatory standards such as ISO 14001. It was not surprising then that some supermarket managers would purposefully engage in actions that were detrimental to the environmental simply because such offences were not liable for prosecution under the laws of Zambia. Alarm was only raised when there were obvious environmental catastrophes such as the incident on the Copperbelt where a track laden with sulphuric acid overturned, emptying its contents into the Kafue River, killing fish and other aquatic animals. There is need to establish monitoring mechanisms that can promote adherence to environmental regulatory standards.

The supermarket has been strategically positioned to champion environmental campaigns as well as promote sustainability education. The growth of supermarkets in Lusaka district means that almost all citizens have some form of interaction with the supermarket either directly through the

purchase of goods, or indirectly by simply consuming goods from them. On a daily basis, hundreds of thousands of people have some form of contact with supermarkets and this interaction could be used to disseminate environmental messages to the public and help to increase awareness and sensitization on various environmental issues. Supermarkets can also channel part of their social corporate responsibilities towards environmental awareness and educational programs through such activities as televised inter collegiate and high school quizzes, walks, marathons and intercompany soccer tournaments.

5.6.1 Linkages between Sustainability Education and Environmental Sustainability

Behavioral change or change of attitude was identified as the most effective channel through which sustainability education would help to correct the prevailing environmental problems. It was indicated by one of the supermarkets managers that it was very difficult for members of the public and supermarkets management teams to effectively engage in activities that promoted environmental sustainability when they had negative perceptions of the environment. The researcher encountered an incident with a respondent who threw a maize cob on the street, meters away from a garbage disposal bin. Upon being questioned why he decided to act in that manner, the responded answered by stating that:

“there are people engaged to clean the streets so it does not really matter where I dispose my waste. If I don’t litter the streets then people who clean the streets will have nothing to clean and hence they will be receiving salaries without working”.

This scenario portrays a general picture of people’s behavior and attitudes towards the environment in Lusaka district. It is perceived that the responsibility to protect the environment is a responsibility of the council and not a duty to be undertaken by every member of society. Indeed change of attitude towards the environment from that of lack of concern to that of taking up ownership and responsibility for the environment would be the first step in addressing environmental problems that result from supermarkets business operations. It was further stated that by being educated on environmental matters, individuals and firms would assume positive behaviors that would enhance environmental protection.

However, scholars such as Blake (1999), have argued that even people that were knowledgeable about an environmental issue as well as the steps needed to address it, often did not take action to

change their behavior. This represents a discrepancy between knowledge and understanding of environmental issues and actively taking steps to reduce one's impact, better known as the "value-action gap" (Blake, 1999). This line of thought implies that simply providing people with knowledge, through sustainability education, would not guarantee a change in people's attitudes and behavior towards environmental protection. On the contrary, Hobsons' (2003) studies indicated that there were options that could help bridge the gap between environmental awareness and behavior by turning knowledge into long term behavior change. One of the ways to achieve this is through the idea of a perceived behavioral control over the action, which is one of the constructs in the theory of planned behavior. This construct refers to an individual's perception of benefits or barriers to performing a specific action and the individual's confidence that he can successfully perform the action (Lindenberg and Steg, 2007).

Through sustainability education, supermarket managers as well as members of the public would be made aware of the benefits of specific environmental behavior such as improved business operations, a reduction in pollution and an overall improvement in the quality of the environment. The first step towards achieving environmental sustainability is to promote sustainability education in both the formal and informal education systems. Through sustainability education, strategies on how to successfully carry out positive environmental actions would be suggested, thereby reinforcing positive attitudes towards the environment, which would consequently help to develop behavioral characteristics which are in consonance with principles of environmental sustainability. Sustainability education therefore presents itself as the most valuable tool in enhancing environmental sustainability among supermarkets and the public as a whole.

Promoting healthy environmental choices was another way in which sustainability education would help to address environmental problems. It was observed that sustainability education would help to identify solutions to the observed environmental problems. Some of members of the public however, did not know the exact ways in which sustainability education would help to protect the environment but did indicate that it would be an effective solution for reducing supermarkets effects on the environment. Despite lacking technical knowledge on how the environment could be harmed by certain actions such as pollution, it was clear that the public had a clear understanding of the effects of such activities on the health of humans and animals as they indicated that an unhealthy environment negatively affected the health of all living organisms. Improving waste

management was also identified as another way through which sustainability education would help to address the effects of their business operations on the environment. In order to make a positive contribution towards environmental sustainability, solid waste management should go beyond the removal of waste from business premises but go a step further to identify new and cleaner ways of handling solid wastes as well as identifying means to reduce the generation of waste. However, most of the supermarkets in Lusaka district indicated that had not yet implemented training or education programs that were aimed at improving their employees' levels of education on environmental matters. This, they said, was due to limited financial resources which made it difficult to train their employees. One of the supermarket employees however, did not agree with this stance. He strongly believed that supermarkets had the financial capacity to train their workers in matters of environmental management and other aspects of store management. He stated that managers were not willing to invest in such training programs because after completion of the training program, employees became more marketable and increased their chances of finding better jobs somewhere else. Such an eventuality was perceived to be a loss on the part of supermarket administrative officers hence their insistence on employing people with very minimum levels of education. The more unskilled an employee was, the less likely they were to leave their current jobs or fight for better conditions of service for fear of being retrenched. This perhaps explains why most supermarkets did not have qualified personnel with the necessary qualifications to effectively handle environmental aspects of supermarkets daily business operations.

5.7 Sustainability Management through ISO 14001

This section discusses supermarkets performance based on environmental regulatory standard ISO 14001; an internationally agreed standard that sets out the requirements for an environmental management system. The section has been divided under the following themes: establishment of appropriate environmental policies, environmental sustainability, implementation and operation of an environmental management system (EMS), checking and corrective action procedures, periodic management reviews of overall EMS, and lastly environmentally sound development. Results from the study indicate a very low compliance towards the establishment of regulatory procedures based on this standard.

5.7.1 Establishment of appropriate Environmental Policies

The majority of respondents indicated that they had established environmental policies aimed at preventing pollution, promoting regulatory compliance and a framework for setting objectives. The most prominent among these policies is one on waste disposal where supermarkets have engaged garbage collection companies to handle their solid wastes. These companies have entered into contracts with the supermarket to collect wastes at designated times to prevent accumulation of wastes. There are also strict regulatory standards on food handling and storage. These included the proper storage of specific types of foods such as the use of cold storage rooms for meat products and other perishable foods. This is conveniently so because mishandling of such food would result in huge losses for the company and the penalties for slackness in these areas are quite severe hence employees are very cautious when handling perishable food items.

One supermarket was involved in water harvesting as a means to reducing their use of municipal water. They are also engaged in recycling of 'grey' or used water as a means of conserving water. One of the recommendations for establishment of an environmental policy is that it has to be documented and communicated to employees and made available to the public. Only one supermarket adhered to this requirement and efforts to access the document from other supermarkets were unsuccessful. Supermarket managers indicated that such documents were kept at their head offices and that only the overall boss had authority to release such documents. This was a very unusual finding because if the supermarket chain had a documented environmental policy document, it would be expected that each store manager would have access to such a document because their daily operations were supposed to be guided by the contents of such a document.

Documented EMSs are intended to serve as references or guidelines for daily business operations as well as for quality control measures for product acquisition against all suppliers in the supply chain. The absence of these policy documents raised the question as to what measures guidelines supermarkets' managers followed in conducting their daily business operations. It becomes a challenge therefore, to ascertain if such policies actually existed in these supermarkets. These policy documents are also supposed to be available to members of the public as stipulated by the ISO 14001 standard but this was not the case.

Among respondents who indicated that they were in progress of establishing an environmental policy, the replacement of plastics with paper and reusable bags was the only area they intended to work on. However, no details were available on how the process would be undertaken. There was no information available such as the timeframe in which they intended to replace the plastics, the source of the new packaging materials or the financial commitments that had been put in place for this transition. The lack of such details signified that plans to replace the use of plastics had not reached an advanced stage because for such an undertaking to be achieved, comprehensive planning and financial commitments needed to be put in place. Supermarkets insistence on lack of finances to invest in environmental programs and education implies with deliberate policy interventions from the government, such efforts would take a very long time, if at all that would happen, integrated into supermarkets business development plans and corporate social responsibility initiatives.

5.7.2 Environmental Sustainability

This section addresses supermarkets engagement in identifying environmental aspects associated with their daily business operations including objectives and targets and measures to meet the targets. As observed in Figure 5, respondents indicated that they had identified environmental issues associated with their business and had set out measures to address them. However, an analysis of the details pertaining to the same gave out a different picture. One of the identified areas was pertaining to health, safety and hygiene. These measures were solely dealing with employee personal hygiene and safety standards while working in the store and not environmental effects associated with the supermarkets' business operations. One of the specifications under health and hygiene was the use of aprons and head gear while handling food, a factor that did not relate to any concern that the supermarket presents on the environment. It was also stated that daily audits were carried out to monitor health, safety and hygiene standards in the supermarket but it was not specified what parameters were being followed to regulate these standards.

One other explanation regarding environmental sustainability was that it was the core of the business but no specific activities were given to illustrate how the supermarkets' business operations were centered on environmental sustainability. No corrective action measures were identified in relation to a given environmental problem nor were there any targets given with regard to addressing any such identified problem. Based on the above, it was not clear how supermarkets

achieved environmental sustainability. Sutton (2004), asserts that environmental sustainability is the ability to maintain certain qualities that are valued in the physical environment. This entails engaging in specific actions and targets that are aimed at achieving measurable goals and targets. In order to have measurable gains in terms of addressing environmental challenges, clear objectives need to be set, including time frames and resources to be utilized as well as the long term plans in terms of policy or technology that would be involved in creating effective solutions towards the identified environmental problems. The only logical explanation for the absence of clear goals and activities among supermarkets would be that supermarket managers did not fully understand the requirements for achieving environmental sustainability and, such requirements had not yet been put in place as stipulated by international standards.

A number of supermarkets used separate bins for different types of solid waste disposal. This was used to facilitate easy collection of garbage for recycling and composting. Materials such as plastics and paper that could not be recycled at the facility were collected by a named company which recycled them. The supermarket did not receive any recycled materials after processing; the only benefit was that they had their waste collected at no fee and the recycling company also benefited by collecting free raw materials for their business operations.

This finding suggests that this approach had the potential of promoting recycling among other supermarkets and contribute towards the reduction of solid waste as well as the costs involved in solid waste management. Similar efforts in other countries had yielded very positive results. For instance, Hannaford, one of the largest supermarket chains in the UK initiated a zero waste programme in 2011 by engaging in a robust recycling programme to reduce waste generation. Within the first year, the program saw a 30 percent reduction in total waste volume and \$1,000,000 in savings. After an exceptionally successful pilot, the program was expanded to all Hannaford stores in the following year (Food Solutions Report, 2016).

Following this trend, recycling companies in Lusaka district can increase the number of supermarkets from which they collected solid waste; the finished products such as paper packaging materials can then be sold at subsidized prices to the same supermarkets from which the waste was collected. Not only would this increase income generation among recycling companies considering the large number of supermarkets in the district but it would also encourage more supermarkets to recycle their waste. Those supermarkets that would not engage in recycling would have to buy the

recycled products at a higher price in order to promote recycling. There is need also to increase community sensitization and training on recycling and composting in order to improve community participation in environmental protection.

Some supermarkets undertook comprehensive measures to ensure that they conducted their business operations in a sustainable manner. Among the efforts put in place was rain water harvesting. This was intended at reducing the amount of rain water that went to waste during the rainy season. By so doing, the supermarket reduced its dependency on municipal water, thereby helping to conserve natural water reserves and reduce the amount of energy needed to pump water by the water utility companies. The rain water was collected using a series of plastic pipes lined along the edges of buildings. These pipes lead into reservoir tanks where the water is stored. During a heavy downpour, up to about 30 cubic meters of water are collected every minute and stored into eight, 12,000 liter plastic tanks. This water is used in the toilets as well as for watering the lawns and orchard. The supermarket also recycles Grey water. Grey water refers to domestic waste water including sewerage, Kitchen water, cleaning water, shower and wash-basin water. Treatment of this water involves a combination of bio filtration, aeration, clarification and ozonation to filter and purify the water as well as kill bacteria. The treated water is reticulated and used to irrigate the lawns and the orchard.

A number of measures have also been put in place to ensure energy conservation. The facility has set up solar panels which supplement energy production and this reduces the amount of energy the facility taps from the national grid. Also, corridors, bathrooms and toilets have been fitted with motion sensors so that lights only switch on when they are needed. The facility only uses 15 watt LED lights which use 67% less energy than the 46 watt light bulbs used in most commercial buildings. If such measures were implemented in all the supermarkets across the district, there would be very little environmental damage resulting from supermarkets business operations.

5.7.3 Implementation and Operation of an EMS

Over half of the supermarkets in the study area did not have an operational EMS while others indicated that the EMS was in progress. There were no details given however, on the extent of the progress towards implementing an EMS. Those respondents who indicated having an operational EMS had the following procedures in place; waste management training every quarter, staff training and management teams trained in food handling, storage and disposal. Waste disposal

companies had been engaged to handle supermarkets' wastes; the training that the employees undergo involves the handling of waste from the store to the collection bays for the garbage trucks to collect. This is usually done by casual workers who operated in the warehouses or supermarket store rooms packing where merchandise was stocked. However, the general training that all workers underwent did not include a component on environmental sustainability or strategies on the implementation effective EMSs. Each individual was trained based on the needs of the department they operated from. Those that worked on the tills were simply trained to operate the money machines, those in the bakery underwent training to operate industrial ovens and so on. Matters to do with general business operations were handled by supermarket managers. Collective action in the implementation of effective EMSs was necessary if supermarkets were to achieve sustainable environmental solutions for their businesses. Environmental management systems provide tools for the identification of environmental concerns associated with any type of business. An EMS also allows for the identification of solutions to address the identified problems. Thus, all employees need to be involved in the implementation of EMS in all supermarkets.

An EMS is a set of management tools and principles designed to create the administrative procedures that an organization needs to integrate environmental concerns into its daily business practices. It is comprised of many components and procedures which are undertaken over a period of time in order to improve the business performance on the environment. It was therefore expected that those supermarkets that indicated that their EMS were in progress would outline a brief explanation of the planning phase to address such matters as environmental aspects to be targeted, objectives and targets, the actual environmental management program, legal and other such aspects. The absence of such information may well indicate that the process of establishing an EMS in such an organization may not have started.

Supermarkets indicated budgetary constraints as the major hindrance towards the establishment of an EMS in their organizations. However, Pataki and Crotty (2012) show that the major cost of implementing an EMS was staff time. Staff time included information collection, preparation of procedures/worksheets, facilitation of EMS sessions, participation in EMS development, and training of personnel in new procedures. Other costs include technical resources to analyze environmental impacts and improvement options and resources required to implement changes.

However, in general, the costs of implementation will be offset by savings resulting from decreased instances of noncompliance, lower record keeping costs due to improved environmental performance, reduced cost of materials due to increased production efficiency, new customers/markets and reduced waste disposal/treatment costs. An additional cost savings may include lower environmental insurance premiums.

5.7.4 Corrective Action Procedures

The poor performance on the establishment of EMS implied that there would be a corresponding low performance on checking and corrective action procedures. Many supermarkets indicated that they were still in the process of establishing EMSs and so did not carry out any corrective action procedures. These figures correspond to those recorded under implementation of an EMS. This illustrates the consecutiveness of the various stages of implementing an EMS, when one stage is missed, it becomes a problem affecting the next stage. Corrective action procedure is the fourth stage in the cycle of an EMS after the establishment of an environmental policy, planning and implementation. It involves monitoring and measurement, nonconformance and corrective and preventative action, records and EMS audits. Among respondents who indicated undertaking corrective action procedures, less than 15% of them engaged an external auditor to carry out monthly audits on the stores compliance while the rest of them did not give details pertaining to the actions they were taking. It was not established what standards the auditing company was using in carrying out the procedure but the parameters for measurement were set by the same supermarket being audited. This means that the supermarket had the time to address those areas which the auditor would come and check thereby compromising the credibility of such an audit report. Environmental audits would be more representative of the actual performance of the supermarkets if they were carried out by independent regulatory bodies which would set the parameters and timings of the audits.

5.7.5 Periodic Management Reviews of the overall EMS

An assessment of current practice in relation to management reviews showed that the majority of supermarkets did not have management reviews. Surprisingly, even those supermarkets that indicated that they performed periodic reviews did not present any details of what the reviews established. As earlier stated, the EMS process followed a particular sequence such that when

certain elements were missing, the whole system crumbled. This was evidenced by the inconsistencies in the type of activities among supermarkets. These inconsistencies were a clear indication of the absence of effective and operational EMSs among supermarkets. Management reviews were necessary in the cycle of an EMS because the dynamics of a business environment constantly changed. So, regardless of the nature of audit reports, top management must review the need for change to policy, objectives and procedures. Such a commitment by top management is essential to guarantee the credibility and effectiveness of the EMS.

5.7.6 Environmentally Sound Development

As seen from Table 5, respondents indicated having instituted measures aimed at achieving environmentally sound development. This was mainly observed in the area of occupational health and safety. Employees were expected to wear protective clothing such as gum boots and laboratory coats when working in certain parts of the store like the cold room and the bakery. This was done to minimize injuries and exposure to extreme temperatures or chemicals used for cleaning in the store which could be harmful to human health. The use of refrigerated trucks had helped in the preservation of perishable foods like fish and meat. This practice was very consistent among all supermarkets mainly because the trucks supplying such products were not owned by the supermarkets but by the food suppliers and any costs of damage to these perishable foods during transportation would be incurred by the supplier. This meant that the responsibility to ensure that meats and other perishable products reached the supermarkets in a healthy state was the sole responsibility of the food supplier.

5.8 Theoretical Underpinnings of the Study

According to Sunday (2013), theory frames what we look at, and how we think. It increases our awareness of interconnections and of the broader significance of data. It provides basic concepts and directs us to the important questions that may arise during the process of data collection. Theory suggests ways for us to make sense of the research data (ibid). To fully understand our findings in our study, we applied theoretical constructs as put forward by Azjen (1991) in his theory of planned behavior which was adopted as the theoretical basis of our study.

Findings indicated that all supermarket managers and a good proportion of members of the public were aware of the environmental impacts associated with supermarkets daily business operations. Despite this observation, only 43% of the target supermarkets indicated having established

operational Environmental Management Systems under which solid waste management and management trainings were the main activities; no details of the training program were available. The most logical explanation to this negative finding was that the low performance on sustainability practices among supermarkets in Lusaka district was as a result of business managers embracing environmental concepts which did not reflect the actual damage that their businesses were exerting on the environment. As Moran and Tame (2013) observed, a result of failing to engage employees in social and sustainability initiatives is the failure for an organization to achieving organizational sustainability goals. A rigorous sustainability education campaign among supermarket managers, employees and members of the public would be the right step towards addressing the various environmental concerns that emanate from supermarkets daily business operations.

However, scholars such as Blake (1999), have argued that even people that were knowledgeable about an environmental issue and knew the steps needed to address them, often did not take action to change their behavior. This represents a discrepancy between knowledge and understanding of environmental issues and actively taking steps to reduce one's impact, better known as the "value-action gap". This line of thought implies that simply providing people with knowledge, through sustainability education, would not guarantee a change in people's attitudes and behavior towards environmental protection.

On the contrary, Hobsons' (2003) indicated that there were options that would help to bridge the gap between environmental awareness and behavior by turning knowledge into long term behavior change. According to Hobson, one of the ways to achieve this is by changing an individual's perceived behavioral control (PBC) over the action. PBC is one of the constructs in the theory of planned behavior which refers to an individual's perception of benefits or barriers to performing a specific action and the individual's confidence that he can successfully perform the action (Lindenberg and Steg, 2007). As demonstrated by this study, members of the public indicated that they did not see the need to engage in good environmental practices because the majority of the people did not act that way hence engaging in positive environmental actions would not make any difference on the state of the environment. On the other hand, supermarket managers indicated that the concept of sustainability was new to them and that they did not have the best knowledge to allow them engage in sustainable business practices.

These findings indicate the respondent's believed that sustainable business actions or positive environmental behaviors were difficult to achieve hence their inability to engage in such practices. Sustainability education would therefore help supermarket managers as well as members of the public become aware of the benefits, as well as help them acquire the necessary tools and competences to enable them engage in positive environmental behavior which would lead to an improved environmental quality. Through sustainability education, strategies on how to successfully carry out positive environmental actions would be suggested, thereby reinforcing positive attitudes towards the environment, which would consequently help to develop behavioral characteristics which are consonant with principles of environmental sustainability (UNESCO, 2014). Sustainability education therefore presents itself as the most valuable tool in enhancing environmental sustainability by changing the observed perceived behavioral control towards positive environmental behavior.

The observed low compliance to sustainable business practices can also be attributed to what Ajzen (1991) referred to as attitudes towards the behavior. Attitude toward the behavior refers to the overall evaluation of performing the behavior by the individual based on expectancy beliefs about the likelihood that the behavior will result in particular consequences, and on evaluations of the desirability of the consequences (De Groot and Steg, 2007). Based on this, this study showed that both members of the general public and supermarket management teams had negative attitudes towards environmental sustainability. An individual's attitude towards a particular behavior determines the outcome of how an individual behaves towards a particular action. Prager (2012) adds by stating that awareness and intention lead to action.

It can be concluded therefore, that the people's awareness of the consequences of their actions on the environment did not lead to intentions of positive action towards environmental sustainability. As Adelakun (2003) observes, promotion of environmental quality depended on how individuals and the community saw themselves in relation to their environment. It was the ways that people perceived the environment that they treated it. And it the way that the environment was treated that it supported life. Adelakun further believes that illiteracy, ignorance, poverty and greediness are some of the major contributors of environmental degradation because each influences people's behavior and attitude towards the environment. Thus, it is hoped that through sustainability

education, people's negative perceptions of the environment would be changed to a positive one, ultimately changing their behavior to that which will promote sustainable environmental practices.

Furthermore, the low levels of compliance to good environmental practices in Lusaka District means that there is very little social pressure among both members of the public and supermarket managers to engage in sustainable environmental practices. This observation is what the proponent of our theoretical stance referred to as subjective norms. Subjective norms are based on perceptions of expectations of relevant reference groups concerning the behavior and the motivation to comply with these reference groups. The study revealed that there were very few reference groups from which individuals and supermarkets would base their environmental actions on hence the proliferation of unsustainable environmental actions which were observed.

5.9 Summary

Though the study was conducted in one line of business, the results should be generalizable to other sectors. The findings suggest that this approach would be beneficial in other sectors of the economy by critically assessing other business operations and their implications on the environment. This can help to increase awareness of the business implications on the environment and foster best practices in all industries as a means towards achieving sustainable development.

5.9.1 Practical applications of the study

This study reinforces the recommendation by UNEP, 2010 in which it was stated that there is an urgent need to promote sustainable consumption due to the current levels of environmental degradation that require immediate action. In order to achieve this, the education system needs to be reoriented towards the adoption of consumption and production patterns that safeguard human rights and community well-being as well as the regenerative capacities of the earth and to ensure that economic activities at all levels promote human development in an equitable and sustainable manner (UNEP, 2010).

Sustainable production and consumption habits can only be attained if organizations incorporate sustainability in their daily business operations. The study further brings to light the need for institutional intervention in guiding supermarkets to conduct their businesses operations in a manner that protects human and animal health and also the health of the natural environment. Having revealed the low levels of sustainability education in the country, this study necessitates

the need to introduce deliberate policies and programs that will help to increase sustainability education through formal and informal education programs. These findings can help inform policy development to promote best practices and standards that will guide business operations among supermarkets as well as guide training and education to improve sustainability education among all sectors of the economy and among members of the general public.

CHAPTER SIX: CONCLUSIONS AND RECOMMENDATIONS

6.1 Introduction

This chapter presents the conclusions of the study and puts forward recommendations based on the findings of the study.

6.2 Conclusions

The study concluded that both supermarket management teams and members of the public were aware of effects that supermarkets had on the natural environment. These impacts resulted from the types of materials used in packaging and distribution of products as well as in the disposal of waste products. The study also concluded that very few efforts were being made by supermarkets management teams in the formulation of long term measures and goals to address the effects of their business on the environment.

A number environmental sustainability practices were identified among supermarkets are engaged. The most common practice was that of solid waste management which was consistent among all the supermarkets. Garbage collection companies were engaged to handle the waste on behalf of the supermarkets. Very few supermarkets were engaged in recycling and composting. This meant that large volumes of recyclable waste was disposed in landfills or simply incinerated - practices that contributed towards land and air pollution.

With the exception of very few supermarkets, the majority had not put in place deliberate measures in their business operations to counter their impacts on the environment. The only activity which was consistent among them was that of solid waste management. No comprehensive aimed at addressing the use of plastic packaging materials was identified among all the supermarkets. This was attributed to a lack of environmental policies that govern business operations among supermarkets. This had led to inconsistent management strategies for environmental protection. However, among supermarkets that had implemented operational EMSs, a few had done an exceptional job by integrating sustainability practices such as recycling, composting and water harvesting to reduce the effects of their business operations on the environment.

The study also demonstrated that there were very low levels of sustainability education among both members of the public and supermarkets management members. This limited knowledge on sustainability education was the major factor in the observed negative attitudes towards environmental management leading to increased levels of littering and indiscriminate disposal of

solid wastes. The lack of training in environmental management issues among supermarkets management teams also contributed to the low levels of participation in environmental protection efforts among supermarkets.

6.3 Recommendations

Based on the findings of the study, the following recommendations are put forward:

1. Licensing of supermarkets / shopping malls should incorporate strict environmental regulatory standards which should guide the business operations of the supermarkets. This will allow regulatory authorities to easily carry out audits and identify those establishments that did not comply with the set standards. This recommendation comes out of the finding that despite being aware of the effects of their business operations on the environment, supermarket management boards did not take any meaningful action to address those effects. If a regulation was put in place which would result in the revocation of a trading license among those found wanting, supermarket will improve their adherence to national environmental regulations.
2. Regulatory bodies such as ZEMA through the Ministry of Environment and Natural Resources Management should consider enacting legal instruments to allow international regulatory standards such as ISO 14001 become legally binding in Zambia for all business establishments whose operations have a likelihood of exerting negative pressure on the environment. This is based on the finding that Zambian laws do not have clauses that address environmental aspects of supermarket business operations. Furthermore, business establishments are not mandated to adhere to international environmental regulations which entails that there is no policy guideline to regulate supermarket business operations. Such a situation does not promote environmental sustainability.
3. Licensing boards that authorize the construction of shopping malls should consider the inclusion of waste processing plants as a mandatory part of every shopping mall. These waste management plants can include recycling and composting plants either on the same premises or somewhere else to process the wastes that are generated from the shopping malls as a way of reducing environmental pollution. This is because of the finding that all supermarkets used plastic packaging materials which are very harmful to the environment.

Recycling plastics will help to reduce the amount of plastics being disposed in the environment.

4. Sustainability education should be introduced as part of the curriculum from primary to tertiary education. All supermarkets should also have environmental departments that oversee all matters relating to environmental implications of their business operations. These departments should be run by qualified personnel who should also undergo regular training to familiarize themselves with current trends and practices in environmental management. This relates to the finding that levels of sustainability education were very low in Lusaka district. The study revealed that sustainability education would help to address a number of the challenges relating to environmental sustainability hence the need to promote SE.

REFERENCES

- Adams, W.M. (2001). *Green Development: environment and sustainability in the Third World*. London: Routledge.
- Adrangi, B., Dhanda, K. K., and Hill, R.P, (2004) A Model of Consumption and Environmental Degradation: Making the case for sustainable consumer behavior. *Journal of Human Development*, 5(3), 2004
- Aggarwal, Y.P. (2008) *The Science of Educational Research: A Source Book*. Kurukshetra, Nirmal Book Agency
- Ajzen, I. (1985). From Intentions to Action: a theory of planned behavior. In J. Huhl, & J. Beckman (Eds.), *Will; performance; control (psychology); motivation (psychology)* (pp. 11–39). Berlin and New York: Springer-Verlag.
- AJZEN, I. (1991) *The Theory of Planned Behavior*. Academic Press. Inc. University of Massachusetts at Amherst.
- Ajzen, I. (1991). *The Theory of Planned Behavior*. *Organizational Behavior and Human Decision Processes*, 50(2), 179-211.
- Ajzen, I., and Fishbein, M., (1980) *Theory of Reasoned Action*. *Encyclopedia of Behavioral Medicine* pp 1964-1967. Springer
- Al-Khatib, I. A., Arafat, H. A., Daoud, R., and Shwahneh, H. (2009). *Enhanced solid waste management by understanding the effects of gender, income, marital status, and religious convictions on attitudes and practices related to street littering in Nablus – Palestinian territory*. *Waste Management*, 29(1), 449-455.
- Al-Odeh, M., & Smallwood, J. (2012). *Sustainable Supply Chain Management: Literature Review, Trends, and Framework*. *International Journal of Computational Engineering & Management*, 15(1): 85-90.
- Anderson, L.M., Fielding, J. E., Fullilove, M., Scrimshaw, S.C., and Carande-Kulis, V. G., (2003) *Methods for Conducting Systematic Reviews of the Evidence of Effectiveness and Economic Efficiency of Interventions to Promote Healthy Social Environments*. *Am J Prev Med* 24(3), 25–31.
- Anthony, A., L. (2003) *Plastics and the Environment*. Research Triangle Institute Research Triangle Park, NC
- Asda, (2010) *How we do business?* <http://your.asda.com/waste>, Accessed 02.05.2016
- Baker N. (2004). *How green is your supermarket?*<http://www.libdems.org.uk/media/documents/supermkts090304.doc> Accessed 23.04.16
- Barton, H. (2000). *Conflicting perceptions of neighborhood: In Sustainable Communities*. Barton H (ed.), London: Earthscan
- Bateson, G. (1977) *Steps to an Ecology of Mind*. London: Paladin

- Bentley G, Hallsworth AG and Bryan A (2003). The countryside in the city – situating farmers' market in Birmingham *Local Economy* 18, 109-120, 2003
- Bernard, H.R. (2002) *Research Methods in Anthropology: Qualitative and quantitative methods*. 3rd edition. AltaMira Press, Walnut Creek, California.
- BIO Intelligence Service (2009) *Waste Prevention Overview on Indicators*. European Commission, Regional Environmental Center.
- Blake, J. (1999) *Overcoming the 'Value–Action Gap' in Environmental Policy: Tensions between National Policy and Local Experience*, *Local Environment*, 4(3), 257–278
- Boadi K.O, Kuitunen M (2005). *Environmental, Wealth, Inequality and the Burden of Disease in the Accra Metropolitan area*. Ghana. *Int. J. Environ Health Res.* 15 (3): 193-206.
- Bohman, J. (2005). Critical Theory: Contemporary. IN: Smelser, N. J. & Baltes, P. B. (Eds.): *International Encyclopedia of the Social and Behavioral Sciences*. (Vol. 3, pp. 1966-1973)
- Botkin D.B. and Keller E.A. 2005: *Environmental Science: Earth as a living planet*. Fifth Edition. John Wiley and Sons, Inc: USA.
- Boyatzis, R. (1998). *Transforming qualitative information: Thematic analysis and code development*. Thousand Oaks, CA: Sage.
- Braun, V. and Clarke, V. (2006) Using thematic analysis in psychology. *Qualitative Research in Psychology*, 3 (2). pp. 77-101. ISSN 1478-0887 Available from: <http://eprints.uwe.ac.uk/11735>
- Brown S (2003). 'Seven Billion Bags a Year'. *Habitat Australia*, 31(5): 28.
- Brown, D.T, Ratledge, E.C., (2011) *Energy, the Environment and Delaware Jobs: Defining and describing green business*. University of Delaware, 116 p., retrieved 15 July 2016; http://128.175.63.72/projects/DOCUMENTS/Green_business.pdf
- BusinessDictionary.com <http://www.businessdictionary.com/definition/environmentalsustainability.html> Accessed 16.05.16
- Chakanikova, O., & Mont, O. (2011). *Overview of sustainability initiatives in European food retail sector (Working paper)*. International Institute for Industrial Environmental Economics, Lund, Sweden
- Christelis, T. A. (2013) *An Analysis of the state of Green Business in the South African Retail Sector*. Thesis Report, University of Cape Town.
- Christini, G., Fetsko, M., and Hendrickson, C. (2003) Environmental Management Systems and ISO 14001 Certification for Construction Firms. *Journal of Construction Engineering and Management*, 3(330) , 2003
- Clapp, J. and Swanton, L. (2009). *Environmental Policies*. Vol.18, No. 3, May 2009, P. 317, Centre for International Governance Innovation, Waterloo, Canada.
- Clover, D.O., (2006). Cutting Boards in Salmonella Cross-Contamination. *Journal of AOAC International*, 89(2), 538-542.
- Clover, D.O., (2006). Cutting boards in Salmonella cross-contamination. *JAOAC Int.*, 89: 538-542.

- Cohen D, Crabtree B. (2006) *Qualitative Research Guidelines Project*.
<http://www.qualres.org/HomeSemi-3629.html> Accessed 16.02.16
- Cohen, L., Manion, L., and Morrison, K. (2007) *Research Methods in Education*. (6th Edition).
 London: Routledge
- Collins, A., and Flynn, A., (2007) Engaging with the Ecological Footprint as a Decision-Making Tool: Process and Responses. *Local Environment*, 12(3), 295–312, Routledge, Cardiff, UK.
- Colucci-Gray, L., Camino, E., Barbiero, G., and Gray, D. (2006). *From scientific literacy to sustainability literacy: An ecological framework for education*. *ScienceEducation*, 90, 227-252.
- Conner, C., and Armitage, C. J. (1998) Extending the Theory of Planned Behavior. *Journal of Applied Social Psychology*, 28(15), 1429-1464.
- Corcoran, P., Blaze, M. V., Roerink A., (eds.) (2005). *The Earth Charter in action: toward a sustainable world*. Amsterdam, KIT Publishers.
- Cortese, A. D. (2010). Education for Sustainability as the Mission of Higher Education. *Sustainability: The Journal of Record* 3(1): 48-52.
- Croston, G., (2009) *Starting Green: An Ecopreneur's Toolkit for Starting a Green Business-from Business Plan to Profits*. Entrepreneur Press, Irvine, CA
- Crotty, M. (1998) *The Foundations of Social Research Meaning and Perspective in the Research Process*. SAGE Publications Ltd, Melbourne, Australia
- CRP (2016) Walmart's Federal Campaign Contributions. www.opensecrets.org Accessed 30.06.2016.
- CSO (2012) *2010 Census of Population and Housing*, National Analytical Report. CSO, Lusaka.
- Dakov, I. and Novkov, S. (2006). *Sustainable Supply Chain Management: Scope, Activities and Interrelations with other Concepts*. 5th International Conference, Business and Management, Vilnius, Lithuania, p.640–645.
- Dale, A. (2001). *At the edge*. Vancouver, BC: UBC Press.
- Daly, H. E. (1999). *Ecological Economics and the Ecology of Economics*. Cheltenham: Elgar Publications.
- Daly, H. E. and Cobb, J. B. (1989). *For the Common Good*. Boston, MA: Beacon
- Davies, T. and Konisky, D.M, (2000) *Environmental Implications of the Foodservice and Food Retail Industries – Discussion Paper 00-11*. Washington, DC
- De Groot, J., Steg, L. (2007) General Beliefs and the Theory of Planned Behavior: The Role of Environmental Concerns in the TPB. *Journal of Applied Psychology* 37(8), 1817-1836
- Deng, H., Huang, J., XU, Z., and Rozelle, S., (2010) Policy support and emerging farmer professional cooperatives in rural China. *China Economic Review*, 21 (2010) 495–507. Elsevier, Beijing.
- Dodgson J and Lane B (1997) *The Costs of Road Congestion in Great Britain: A NERA briefing paper*, National Economic Research Associates.

- Du Plessis, C. (2000). *Cities and Sustainability: Sustaining Our Cultural Heritage*. In *Cities and Sustainability: Sustaining Our Cultural Heritage*, Conference Proceedings. Brandon P, Lombardi P, Pereira S (eds.). Sri Lanka: Kandalama
- Edwards, C. (2006) *Life cycle assessment of supermarket carrier bags: A review of the bags available in 2006*, Reading: Environment Agency, Bristol, UK
- Ellis, S., Kantner, S., Saab, A., and Watson, M., (2005). Plastic grocery bags: The ecological footprint. Environmental changes are spreading infectious diseases-UN study, Victoria, pp. 1-19
- Elsayed M.A, Grant J.F & Mortimer N.D (2002) *Energy use in the United Kingdom Non-Domestic Building Stock: 2002 Catalogue of Results* Resources Research Unit, School of Environment and Development, Sheffield Hallam University.
- Emongor, R. and Kirsten, J.F (2006) Supermarkets in the Food Supply Systems in Southern African Development Community: A Case Study of Zambia. *Journal of Applied Sciences*, 6(4), 2006.
- Emongor, R. and Kirsten, J.F (2006) The impact of South African supermarkets on agricultural development in the SADC: a case study in Zambia, Namibia and Botswana. *Agrekon*, 48(1), 2009
- EPHC (2002). "Plastic shopping bags in Australia", National plastic bags working group report to the national packing covenant council. Sydney, Australia.
- Ernst and Young (2013) *Role of HR in Driving Sustainable Business Practices*. Ernst & Young LLP. Published, India. Explorations in the context of sustainability (PhD thesis). Centre for Research in Education and the Environment, University of Bath
- Erol, I., Cakar, N., Erel, D., & Sari, R. (2009), Sustainability in the Turkish Retailing Industry, *Sustainable Development*, 17, 49-67.
- Eyuboglu K.T., Uslu O., Oz M.D. (2010) *Attitudes of University Students Towards Economic and Sustainable Development, in Istanbul*, International Review of Business Research Papers Vol. 6. No.3. August 2010, 123 -128
- FAO (2003) *Report of the Expert Consultation on a Good Agricultural Practices (GAP) Approach* Rome, ITALY
- Fitzgerald, S., Luck, E., and Morgan, A. (2007). *Strategies for Sustainable Supply Chain Management: Supplier Interaction Devices*. Blekinge Institute of Technology, Karlskrona, Sweden.
- Friends of the Earth briefing (2002) *Supermarkets and great British fruit*. Friends of the Earth, London.
- Gadotti M. (2009) *Education for Sustainability. A Contribution to the Decade of Education for Sustainable Development*, Ed,L, São Paulo, Brazil
- Gadotti, M. (2008) *Education for Sustainability: A critical contribution to the Decade of Education for Sustainable Development*, Green Theory and Praxis: The Journal of Ecopedagogy, 4 (1): 15–64.
- Gao, S. S. & Zhang, J. J. (2006), Stakeholder Engagement, Social Auditing and Corporate Sustainability, *Business Process Management Journal*, 12(6), 722-740.

- Gao, S.,S and Zhang, J.,J (2006) "Stakeholder engagement, social auditing and corporate sustainability", *Business Process Management Journal*, 12(6) ,722-740, <https://doi.org/10.1108/14637150610710891>
- Garnett .T (2003) *Wise Moves Exploring the Relationship between Food, Transport and CO2 Transport* .2000 Trust, London
- Gbedemah. F. S (2004) *Environmental Management System (ISO 14001) Certification in Manufacturing Companies in Ghana: Prospects and Challenges*. Lund University, Sweden
- Gerba, C.P., Williams, D., and Sinclair RG (2010). *Assessment of the potential for cross contamination of food products by reusable shopping bags*. Obtained through internet: <http://uanews.org> [Accessed on 26 April, 2017]
- Gilbert, R. (2003). Ecotourism and education for sustainability: A critical approach. *International Review for Environmental Strategies*, 4(1), 75-83
- Glass, G.V and Hopkins, K.D. (1984) *Statistical Methods in Education and Psychology*. Englewood Cliffs, NJ, Prentice Hall.
- Goodland, R., and Daly, H. (1996) Environmental Sustainability: Universal and Non-Negotiable. *Ecological Applications*, 6(4) ,1002-1017
- Guba, E. G., & Lincoln, Y. S. (1998). *Competing paradigms in qualitative research*. In N. K. Denzin & Y. S. Lincoln (Eds.), *The landscape of qualitative research: Theories and issues* (pp. 195-220). Thousand Oaks, CA: Sage.
- Haigh M. (2005) *Greening the University Curriculum: Appraising an international movement*. J. Geogr. Higher Educ. 2005, 29, 31–42. H
- Hallam, D., Liu, P., Lavers, G., Pilkauskas, P., Rapsomanikis, G., and J. Claro (2004). *The Market for Non-Traditional Agricultural Exports*. Commodities and Trade Technical Paper. Rome: FAO.
- Hantuba, H. (2003) *Linkages between Smallholder Farm Producers and Supermarkets in Zambia*. FAO, Rome.
- Hartwick, J., & Barki, H. (1994). Explaining the role of use participation in information system use. *Management Science*, 40(4), 440–465.
- Henningsson S, Hyde K, Smith. A & Campbell M (2004) *The Value of Resource Efficiency in the Food Industry: A waste minimization project in East Anglia, UK* *Journal of Cleaner Production* 12: 505-512
- Hetherington, K (2000) *New Age Travelers: Vanloads of Uproarious Humanity*, London: Cassel.
- Higgins, P. (1996). *Outdoor education for sustainability: Making connections*. *Journal of Outdoor Adventure and Experiential Learning*, 1(4), 4-11.
- Higgins, P. and Kirk, G. (2006). *Sustainability education in Scotland: The impact of National and International Initiatives on Teacher Education and Outdoor Education*. *Journal of Geography in Higher Education*, 30(2), 313-326.
- Holweg. E, Lienbacher, E., and Zinn, W. (2010) *Social Supermarkets-a new Challenge in Supply Chain Management and Sustainability*. *Journal of Supply chain Management*, Vol. 11, No 4, 2010.

http://www.foe.co.uk/resource/briefings/supermarket_british_fruit.pdf Accessed on 12.11.15

<http://www.un.org/geninfo/bp/enviro.html> Accessed 19.12.15

Husserl, E. (1962). *Ideas towards a pure phenomenology and phenomenological philosophy* (W. R. Boyce Gibson, Trans.). New York: Collier. (Original work published 1913)

IISD (1996) *Global Green Standards: ISO 14000 and Sustainable Development*

INCPEN (2001) *Towards Greener Households: Products, Packaging and Energy*. London

ISO (1997) *Friendship Among Equals: Recollections from ISO's First Fifty Years*
ISO Central Secretariat 1. Rue de Va rembe Case Posrale 56. CH-1 211 Geneve 20.
Switzerland.

IUCN (2002) *Education and Sustainability Responding to the Global Challenge*. IUCN, Gland, Switzerland

Jabareen, Y. (2008). *A new conceptual framework for sustainable Development*. *Environment, Development and Sustainability*, 10, p.179–192

Jean S. Waters (1998) *Environmental Management Systems* Pollution Prevention Institute, Kansas, USA.

Johansson et al (1993) *Renewable fuels and Electricity for a Growing World Economy: Defining and achieving the potential*. In: Johansson, T. B., Kelly, H., Reddy, A. K. N., & Williams, R.H. (Eds.) *Renewable Energy. Sources for fuels and electricity*. Washington, D.C: Island Press.

Johnston, P. M (2014) *Secondary Data Analysis: A Method of which the Time Has Com*. University of Alabama, USA.

Koch T (1995) *Interpretive approaches in nursing research: the influence of Husserl and Heidegger*. *Journal of Advanced Nursing*. 21, 5, 827-836.

Kristyn Wilcox(2007) *ISO 14001: An analysis*. University of California, San Diego

Kroger (2015) *Improving Today to Protect Tomorrow*. Sustainability Report. Chain store Guide, Tampa, FL, USA.

Kwong, K. L (2014) Investigation of Policies, Environmental Impacts, Consumption and fate of Plastic Bags. *The Plymouth Student Scientist*, 7(1): 100-139

Langley, D. and Van den Broek, T. (2010) *Exploring social media as a driver of sustainable Behavior: Case Analysis and Policy Implications*, Oxford, United Kingdom.

Lather, P. (1994). *Critical inquiry in qualitative research: Feminist and Post-structural Perspectives: Science 'after truth.'* In B. Crabtree, W. L. Miller, R. B. Addison, V. J. Gilchrist, and A. Kuzel (Eds.), *Exploring collaborative research in primary care* (pp. 103-114). Thousand Oaks, CA: Sage.

LCC (2010). *Waste Management in Peri-Urban Areas*. LCC, Lusaka.

Lee, Y., & Kozar, K. (2005). Investigating factors affecting the anti-spyware system adoption. *Communications of the ACM*, 48(8), 72–77.

- Legesse, A., and Muleta, D., (2011) Survey on the usage of plastic bags, their disposal and adverse impacts on environment: A case study in Jimma City, Southwestern Ethiopia. *Journal of Toxicology and Environmental Health Sciences*, 3(8) pp. 234-248
- Lewis, J.L. and S.R.J. Sheppard. 2006. Culture and communication: can landscape visualization improve forest management consultation with indigenous communities? *Landscape and Urban Planning* 77:291–313.
- Liang, S., and Chang, W. (2008). *An Empirical Study on Relationship between Green Supply Chain Management and SME Performance in China*. International Conference on Management Science and Engineering, pp. 611-618, 2008.
- Lopez, A., S. Atran, J.D. Coley, D.L. Medin and Smith E.E.. 1997. *The tree of life: Universal and Cultural Features of Folk Biological Taxonomies and Inductions*. *Cognitive Psychology* 32:251-295.
- Lotz-Sisitka, H. and Zazu, C. (2012). *Context Counts: Contextual profiling and responsiveness in environmental education research*. Research report. Howick: SADC REEP/Rhodes University Environmental Learning Research Centre.
- Lugg, A. (2007). Developing sustainability-literate citizens through outdoor learning: Possibilities for outdoor education in Higher Education. *Journal of Adventure Education and Outdoor Learning*, 7(2), 97-112.
- Macur, B. M., Pudlowski, Z. J., (2009). Plastic bags- a hazard for the environment and a challenge for contemporary engineering educators. *World Trans. Engineer. Technol. Educ.*, 7(2): 122-126.
- Maier, S., and Vanstone, K. (2005) *Do good environmental management systems lead to good environmental performance?* Ethical Investment Research Services, London, UK
- Mangal Gogte (2009) Are Plastic Grocery Bags Sacking the Environment? *International Journal for Quality research* 3(4), 2009
- Marambanyika, T. and Mutekwa, T. (2009) *Effectiveness of ISO 14001 Environmental Management Systems in Enhancing Corporate Environmental Sustainability at Unilever South East Africa in Harare, Zimbabwe*. *Journal of Sustainable Development in Africa* 11(1) 2009
- Markets Act number 37 (1994) National Assembly of Zambia, Lusaka, Zambia
- Mathison, S. (1998) *Why triangulate?* University of Southern California, USA.
- Maule, A., (2000). Survival of verocytotoxigenic *Escherichia coli* O157 in soil, water and on surfaces. *Symposium Series, Society for Applied Microbiology*, (29): 71S-78S.
- Maynard, M. (1994). Methods, practice and epistemology: The debate about feminism and research. In Mary Maynard and Jane Purvis (Eds.), *Researching women's lives from a feminist perspective* (pp.10-27). London: Taylor and Francis.
- McConnell-Henry T, Chapman Y, Francis K (2009) *Husserl and Heidegger: Exploring the Disparity*. *International Journal of Nursing Practice*. 15, 1, 7-15.

- McGregor, S.L.T., and Murnane, J. A. (2010). *Paradigm, methodology and method: Intellectual integrity in consumer scholarship*. International Journal of Consumer Studies, 34(4), 419-427. Posted with Permission from Wiley- Blackwell
- McKeown, R. and Hopkins, C. (2005). *Environmental Education and Education for Sustainable Development: Two Paradigms, One Crucial Goal*. Applied Environmental Education and Communication, 4, 221–224.
- McPhail, J., C. (2003) *Phenomenology as Philosophy and Method Applications to Ways of Doing Special Education*. SAGE Publications.
- Meerburg, G. B. (2009) Rodent-borne diseases and their risks for public health. *Critical Reviews in Microbiology*, 35(3), 2009.
- Meerburg, G. M, Singleton, G. R, and Kijlstra, A. (2009) *Rodent-borne diseases and their risks for public health*. Critical Reviews in Microbiology 35(3), 221-70
- Miller et al (2008) *Malls in Zambia: Racialized retail expansion and South African foreign investors in Zambia*. African Sociological Review 12, 1, pp. 35-54
- Miller, D., Nel, E., and Hampwaye, G. (2008) *Malls in Zambia: Radicalized retail expansion and South African foreign investors in Zambia*. African Sociological Review 12(1) :35-54
- Miller, R.M. (2012). *Plastic shopping bags: An analysis of policy instruments for plastic bag reduction*. /Thesis submitted to the Universiteit Utrecht for the degree of Msc in Sustainable Development, 2012.
- Ministry of Education, (2010) *Education Sector National Implementation Framework III.2011 - 2015*. Education for All: Accelerating Poverty Reduction through Rural Investment, Human Capital and Infrastructure Development.
- Mintel, (2007), *Impact of the Environment*, Available at: <http://academic.mintel.com/sinatra> Accessed 10.04.2016
- Mitchell, S. (2012) *Walmart's Greenwash*. Institute for Local Self-Reliance, Minneapolis, USA
- Miyata, S., Minot, N. and Hu, D. (2009). Impact of Contract Farming on Income: Linking Small Farmers, Packers, and Supermarkets in China, *World Development* (37), 2009, 1781-1790.
- Morelli, J., (2011) *Environmental Sustainability: A Definition for Environmental Professionals*. *Journal of Environmental Sustainability*, 1(1), 2011. Rochester Institute of Technology, NY.
- Morrisons, (2011) *Preventing Waste*, Available at: <http://www.morrisons.co.uk> Accessed 05.05.2016
- Mueller-Bloch, C., and Kranz, J. (2015) *A Framework for Rigorously Identifying Research Gaps in Qualitative Literature Reviews*. University of Göttingen, Göttingen Germany
- Mugera, W. (2013) *Non-Probability Sampling Techniques*. University of Nairobi, Kenya.
- Muneku, A. C. (2003) *Social Observatory Pilot Project*. Africa Labor Research Network (Shoprite Zambia). Zambia Congress of Trade Unions.
- Mwirigi, F. (2010). *The Challenge of Building Sustainable Supply Chain Relationships among Small Firms in Developing Economies: The Case of Kenya*. International Review of Business Research Papers, 6(4), 189 – 201.
- Namafe, C. (2008). *What selected basic schools in western Zambia are best at in environmental and sustainable education?* Southern African Journal of Environmental Education, 25, 59-80.

- Narayan P (2001). Analysing plastic waste management in India: Case study of poly bags and PET bottles. Lund: Lund University, pp. 37-49
- National Assembly of Zambia (2014) Business Regulatory Act No.3 of 2014. National Assembly, Lusaka.
- Njeru, J., (2006). The urban political economy of plastic bag waste problem in Nairobi, Kenya'. *Geoforum*, 37: 1046-1058.
- Olsen, W. (2004) *Triangulation in Social Research: Qualitative and Quantitative Methods Can Really Be Mixed*. Causeway press, Ormskirk. United Kingdom
- Ombati T.O (2015) Strategies for Sustainable Supply Chains among Supermarkets in Nairobi. *International Journal of African and Asian Studies* 7, 2015
- Orr, D. (1992). *Ecological literacy: Education and the transition to a postmodern world*. Albany, NY: State University of New York.
- Osborn, D., Cutter, A., and Ullah, F., (2015) *Universal Sustainable Development Goals. Understanding the Transformational Challenge for Developed Countries*. Stakeholder Forum, WA, USA.
- Preston, L. & Griffiths, A. (2004). Pedagogy of connections: Findings of a collaborative Action research project in outdoor and environmental education. *Australian Journal of Outdoor Education*, 8(2), 36-45.
- Ratan et al. (2010). *Sustainable Supply Chain Management: International Conference on Software, Knowledge, Information Management and Applications*, Paro: Bhutan.
- Report for DEFRA by AEA Technology (2005). *Food Industry Sustainability Strategy draft consultation*. <http://www.defra.gov.uk/corporate/consult/fiss/draft-fiss.pdf> Accessed 19.03.16
- Rice, P., and Ezzy, D. (1999). *Qualitative research methods: A health focus*. Melbourne, Australia: Oxford University Press.
- Ricoeur P. (1991) *O si-mesmo Como um outro. (The self as another)*, Papirus, Campinas, Brazil
- Ritchie, Stephen M., & Rigano, Donna L. (2001). *Researcher-participant positioning in classroom research*. *International Journal of Qualitative Studies in Education*, 14, 741-756. R
- Robinson, K. A., Saldanha, I. J., and McKoy, N. A. (2011) "Development of a Framework to Identify Research Gaps from Systematic Reviews," *Journal of Clinical Epidemiology* 64(12): 1325– 1330.
- Sabin, G. H., Guendehou, Koch, M., Hockstad, L., Pipatti, R and Masato Yamada, M. (2006) Incineration and Open Burning of Waste. *IPCC* 5(1) , 2006
- Sainsbury's (2012) *The Rise of New Fashioned Values*. J Sainsbury plc, London
- Salari, N. (2012) Meaning of the term DESCRIPTIVE Survey Research. *International Journal of Transformations in Business Management (IJTMBM)* 2012. 1(6)
- Saldana, J. (2008) *An Introduction to Coding*. SAGE Publications

- Scott W. (2009) *Environmental Education Research: 30 Years on from Tbilisi*, Environmental Education Research, 15(2) 155-164 Apr 2009
- Shoprite (2016) Sustainability Report www.shopriteholdings.co.za accessed 27.07.17
- Shultz et al (1995) Who Recycles and When? A Review of Personal and Situational Factors. *Journal of Environmental Psychology*. 15, 105-121
- Simon, M. K, (2011). Dissertation and Scholarly Research: Recipes for success. Seattle WA.
- Sprinz, D. F. (2014) *Long-Term Environmental Policy: Challenges for Research*. The Journal of Environment & Development 21(1) ,67– SAGE Publications
- Sterling, S. (2003) Whole Systems Thinking as a Basis for Paradigm Change in Education:
- Sugii, T. (2008). *Plastic Bag Reduction: Policies to Reduce Environmental Impact*. Tufts University, Massachusetts, USA
- Sunday, C. E. (2013) *The Role of theory in Research*. University of Western Cape
- Sutton, P. (2004) *A Perspective on Environmental Sustainability*, Green Innovations, Australia.
- Taneja, G. and Girdhar, R. (2012) A Review of Environmental Sustainability Practices of Major Organized Retailers in India. *OJAS* – 1(1), October 2012
- Taylor. J (2002). *Sustainable Development: A dubious solution in search of a problem*. Policy Analysis, No. 449, p.1-49
- Tesco (2008) Corporate Responsibility Review
- Thorne, S. (2000). Data analysis in qualitative research. *Evidence-Based Nursing*, 3(3), 68-70.
- Tikly, L., Barret, A.M., Nikel, J. and Lowe, J. (2010). *Understanding quality Education*. Consortium on Implementing Education Quality in Low Income Countries. Working paper no. 18b. University of Bristol, U.K. and University of Bath. www.edqual.com. Accessed 17.05.16
- Trail, W. D (2006) The Rapid Rise of Supermarkets? *Development Policy Review*, 2006, 24 (2): 163-174
- UN (1992) Agenda 21: United Nations Conference on Environment & Development Rio de Janeiro, Brazil, 3 to 14 June 1992.
- UN (2000). *Supply Chain Sustainability: A Practical Guide for Continuous Improvement*. UN Global Compact and Business for Social Responsibility. Geneva
- UN Conference on Development (1992). *Earth Summit*. Rio de Janeiro
- UNDP (1998) Human Development Report. Rome, ITALY
- UNEP (2005). Report on employing economic instruments in solid waste management in Kenya, UNEP, New York, USA,
- UNEP (2010) *Education for Sustainable Consumption*. Recommendations and Guidelines. UNEP
- UNESCO (2002) *Education for Sustainability – From Rio to Johannesburg: Lessons Learnt from a Decade of Commitment*. Geneva
- UNESCO (2004) *Education for Sustainable Development: United Nations Decade 2005–2014*; UNESCO: Paris, France.
- UNESCO (2012) *Education for Sustainable Development*. 7, place de Fontenoy, 75352 Paris 07 SP, France,

- United Nations (1987). *Our Common Future: The World Commission on Environment and Development*. Oxford: Oxford University Press.
- Urban, B., and Govender, D. P., (2012) Empirical Evidence on Environmental Management Practices. *Engineering Economics*, 23(2), 209-215
- USEPA (2009). *Sustainable Materials Management: The Road Ahead*, US EPA, Pennsylvania, USA
- Verghese, K., Lewis, H., Fitzpatrick, L., Hayes, G. M., (2009) Environmental Impacts of Shopping Bags. Report for Woolworths Limited, Ref. number: SPA1039WOW-01. pp. 1-36
- Wackernagel, M. and Rees, W.E. (1996). *Our Ecological Footprint: Reducing Human Impact on the Earth*. Gabriola Island, BC: New Society Publishers.
- Walker, H. and Phillips, W. (2009) 'Sustainable procurement: emerging issues', *Int. J. Procurement Management*, Vol. 2, No. 1, pp.41-61.
- Walmart (2014) *Responsible Sourcing*, Wal-Mart Stores, Inc. Bentonville, AR 72716-0830
- Walmart (2016) *Global Responsibility Report*. Wal-Mart Stores, Inc. WA
- Webster, J., and Watson, R. T. (2002) "Analyzing the Past to Prepare for the Future: Writing a Literature Review," *MIS Quarterly* 26(2) : 13-23
- Whitelaw, K (1997) *ISO 14001 Environmental Systems Handbook*. Elsevier, Massachusetts, USA
- Winter, G. (2000). *A comparative discussion of the notion of validity in qualitative and quantitative research*. *The Qualitative Report*, 4(3&4). Nava Southeastern University, USA.
- Wright, T. (2009). University presidents' conceptualizations of sustainability in higher education. *International journal of sustainability in higher education* 11(1): 61-73.
- Wu, M.T., Wu, C.F., Chen B. H., Chen, E.K., Chen Y.L, Shiea, J. (2013) Intake of Phthalate-Tainted Foods Alters Thyroid Functions in Taiwanese Children. *PLoS ONE* 8(1): e55005. <https://doi.org/10.1371/journal.pone.0055005>
- ZABS (2016) *Standardization and Quality Assurance*. ZABS, Lusaka
- Ziba, F. and Phiri, M. (2017) *The Expansion of Regional Supermarket Chains: Implications for local suppliers in Zambia*. Zambia Institute for Policy Analysis and Research.

APPENDICES

Appendix 1: Letter of Consent

Dear Respondent,

I am Bryan Sinyangwe, a graduate student of Environmental Education at the University of Zambia (ID 2013130863). This semi-structured interview schedule on environmental sustainability practices of supermarkets and the role of sustainability education is intended to gather information on the subject solely for academic purposes. This information will not be published in print or electronic media nor shall it be publicized in any other context other than being a research dissertation for the award of the said graduate program or as a recommendation for policy makers for the improvement of our environment. The respondent is not required to give any personal information other than appending their signature as a commitment to give true and honest information.

Respondents signature.....

Appendix 2. Semi-structured interview schedule

A semi-structured schedule on Environmental sustainability of practices of selected supermarkets through ISO14001 in Lusaka District

A. Supermarkets’ awareness of the environmental impacts of their daily operations

- 1. Are you aware of environmental impacts associated with your supermarkets’ daily operations?

Yes No

- 2. If yes kindly describe as many as possible
.....
.....
- 3. If no, give reasons.....
.....

B. Existing practices that relate to sustainability among selected supermarkets in Lusaka

- 1. What is your understanding of the concept of Environmental Sustainability?
.....
.....
- 2. What are your existing practices in terms of food storage, waste disposal, packaging e.t.c is your supermarket engaged in?.....
.....
- 3. How are these practices related to sustainability?.....
.....

C. Measures supermarkets are undertaking in order to reduce environmental impacts related to their operations and to ensure environmental sustainability

- 1. Do you know of any measures that supermarkets undertake in order to reduce environmental impacts related to their operations and ensure environmental sustainability?

Yes No

- 2. If yes kindly describe them.....
.....
- 3. Can they promote environmental sustainability? Yes No
- 4. If no why?.....
.....

D. The role of sustainability education in promoting environmental sustainability practices in supermarkets

1. Do you think sustainability education can help to address some of the environmental challenges associated with supermarkets?

Yes

No

2. If yes how?.....

.....

3. If your response to question 1 above is no, explain why?

.....

.....

.....

Appendix 3: ISO Check List Tool

| Sustainability Management Tools | | Standards for Evaluation | Performance Indicators | Description of current practices |
|---------------------------------|---|---|--|----------------------------------|
| 1 | Establishment of an appropriate environmental policy | The policy should be documented and communicated to employees and made available to the public, and which includes a commitment to continual improvement and pollution prevention, regulatory compliance and a framework for setting objectives | Does the supermarket have an environmental policy? Yes <input type="radio"/> No <input type="radio"/> In progress <input type="radio"/> | |
| 2 | Environmental Sustainability | Identification of environmental aspects related to the supermarkets daily business operations including objectives and targets and measures to meet the targets | Documented program and team in charge of garbage disposal, food storage and handling and packaging standards. Yes <input type="radio"/> No <input type="radio"/> In progress <input type="radio"/> | |
| 3 | Implementation and operation of EMS | Definition, documentation and communication of roles and responsibilities and appropriate training for the management system. | Clear existing procedures and activities to address the identified environmental concerns Yes <input type="radio"/> No <input type="radio"/> In progress <input type="radio"/> | |
| 4 | Checking and corrective action procedures | Regular monitoring and measurement of implementation of organizations environmental policy procedures and activities. | Procedures have been developed and implemented for checking the performance of the EMS Yes <input type="radio"/> No <input type="radio"/> In progress <input type="radio"/> | |
| 5 | Periodic management reviews of the overall EMS | Ensure the suitability, adequacy and effectiveness of the EMS in the changing business environment | Are there regular reviews of the EMS? Yes <input type="radio"/> No <input type="radio"/> In progress <input type="radio"/> | |
| 6 | Environmentally Sound Development (ESD) | Institute environmental aspects in all areas of business operations including transportation, packaging, health of employees and the welfare of the general community | Are there deliberate policies and instruments that protect the health and welfare of workers and customers as well as contribute to a clean environment? Yes <input type="radio"/> No <input type="radio"/> In progress <input type="radio"/> | |