

**ENHANCING HEALTH CAMPAIGNS THROUGH  
ENVIRONMENTAL EDUCATION: A CASE OF THE  
'KEEP ZAMBIA CLEAN AND HEALTHY' PROGRAMME**

by

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**A thesis submitted to the University of Zambia in fulfillment of the  
requirements for the degree of Doctor of Philosophy in Environmental  
Education**

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## DECLARATION

I, Bernard Chileshe, do hereby solemnly declare that this thesis represents 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.

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## APPROVAL

This thesis of Bernard Chileshe is hereby approved as fulfilling the requirements for the degree of Doctor of Philosophy in Environmental Education of the University of Zambia.

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## ACRONYMS AND ABBREVIATIONS

AIDS	-	Acquired Immune Deficiency Syndrome
DEFRA	-	Department for Environment, Food and Rural Affairs
ECLAC	-	Economic Commission for Latin America and the Caribbean
ECZ	-	Environmental Council of Zambia
EE	-	Environmental Education
IFAD	-	International Fund for Agricultural Development
IIPS	-	Institute for Insight in the Public Services
JCDH	-	Jefferson County Department of Health
KZCH	-	Keep Zambia Clean and Healthy
LCC	-	Lusaka City Council
LCD	-	liquid crystal display
LWSC	-	Lusaka Water and Sewerage Company
MoE	-	Ministry of Education
MoH	-	Ministry of Health
n.d.	-	no date
NGOs	-	Non-Governmental Organisations
NEF	-	New Economics Foundation
NICE	-	National Institute for Health and Care Excellence
UNEP	-	United Nations Environment Programme

UNESCO	-	United Nations Educational, Scientific, and Cultural Organisation
UNICEF	-	United Nations Children's Fund
UNPY	-	United Nations Programme on Youth
WHO	-	World Health Organisation
WWF	-	Worldwide Fund for Nature
ZESCO	-	Zambia Electricity Supply Corporation

## ABSTRACT

This study theorised that the problem of dirty and unsanitary environments that were characteristic in Zambia stemmed from human behaviour and that dealing with it needed a multifarious approach. The study, therefore, investigated the determinants of pro-environmental behaviour and the tools for behaviour enhancement among the general public in Zambia.

The theoretical framework was informed by the Community-based Social Marketing Theory, the Theory of Planned Behaviour and the Health Belief Model. A Mixed Methods approach was used to collect and analyse data. A questionnaire with a Likert scale was administered to 545 randomly selected participants in two low and four high density residential areas of Lusaka and Mumbwa. The study also used unstructured interviews to collect data from council officials, franchise contractors and officials at the Ministry of Local Government. Document study involved compiling and analysing comments made on the KZCH programme by members of the general public.

Consistent with earlier studies, this study found that there was a gap between possession of environmental knowledge, on one hand, and displaying pro-environmental behaviour, on the other hand. Whereas results for perceived behavioural control (76%), subjective norm (81%) and possession of pro-environmental values (78%) were high, results for pro-environmental behaviour (49 %) were lower. The study attributed the gap to internal and external barriers that impacted on individual and societal environmental behaviour. Interrelations among such multiple factors support the argument (thesis) that to encourage behaviour change, there was need for a holistic approach to implementing the KZCH programme, best facilitated by EE. This not only required increasing environmental knowledge and awareness among members of the general public but also resolving infrastructural impediments, as well as increasing participation through use of behaviour change tools such as incentives, feedback, goal-setting and prompts. The study recommends the use of a proposed behaviour toolkit which appears as Appendix B. Furthermore, the study suggests that future studies could employ behaviour change tools explained in this report in the field in order to determine how effectively they may assist behaviour change in Zambia.

**Keywords:** *Keep Zambia Clean and Healthy; behaviour; behaviour change; barriers; behaviour change tools; behaviour change toolkit.*

# CHAPTER ONE

## INTRODUCTION

### 1.1 Overview

This chapter provides the background to the study. It is organized in eleven subsections, as follows: background to the study, statement of the problem, purpose of the study, objectives of the study, research questions, significance of the study, operational definitions, organisation of the study and a summary.

### 1.2 Background to the Study

Over the years up to 2018, there had been rising concern over the state of cleanliness of the physical environment in Zambia. The sanitary situation in the country had deteriorated to its minimum level partly due to increased problems of poor waste management at individual and community levels. Available literature shows that waste management was one of the major environmental problems faced by Zambia. According to ECZ (2004: 1), the country was faced with a critical waste management problem, which was threatening the health of the people, socio-economic development as well as the environment. In relation to solid waste, littering, uncollected garbage, and indiscriminate dumping of waste were identified as the major concerns. Like in most developing countries, the problem of waste had been exacerbated by rapid urban growth, industrialisation and population growth (Minghua et al., 2009; Durand, 2013). A degraded and unsanitary environment, *inter alia*, leads to ill-health among the population. The backlash of a sick population is a reduced quality of life, reduced productivity and increased death rate. The key question in health behaviour research is how to bring about positive health behaviour among people. However, waste is not just unhealthy, it is also unsightly. It ruins the visual beauty of both natural and human-made environments (Hamlin, 2009). A dirty environment also scares away tourists and investors. This has a negative effect on the country's desired economic development. Furthermore, dirty surroundings do not give Zambians any sense of national pride and can be an embarrassment to the country.

The falling standards of cleanliness in the country have been well documented in Banda (2013) and are evidenced in Figure 1.



Figure 1: Examples of the characteristically dirty surroundings around the country.

(a) Water-soaked waste at Kamwala Trading Area in Lusaka (Field data, January, 2015), (b) A waste clogged drainage system along Mumbwa Road in Lusaka (Lusaka Times, 21st January, 2014), (c) Uncollected garbage at UB Market in Mansa Town (Lusaka Times, 1st March, 2017) (d) waste which has accumulated on an island in Lusaka's CBD (e) Burning debris in Lusaka on January 12, 2018 following a riot by street vendors (Resnick, January 25, 2018), and (f) A heap of uncollected garbage behind a shopping mall in Choma (Lusaka Times, March 28, 2015).

The history of waste management in Zambia dates back to the colonial days and has been documented by scholars such as Tordoff (1979), Harvey and Mukosha (2008) and Banda

(2013). During the colonial times (Zambia then called Northern Rhodesia), village rules were established to govern the people. According to Tordoff (1979), these rules also included those that concerned hygienic practices where the local people were required to clean their domiciles at specific times. It was also a requirement for each household to have a pit latrine and a waste pit. District Commissioners went around villages to ensure that people kept to prescribed standards of cleanliness and hygiene. Banda (2013: 2) explains that,

*after independence, the new nationalist government also tried to find new ways of keeping the country clean. Through the ideology of humanism, the first Republican President, Dr. Kenneth Kaunda was keen to have a clean country for a healthy nation. Citizens were expected to clean their houses early in the morning and an inspection was done around 5 AM. Further, the government used to provide bins and reliable transport for waste disposal. This used to be done by the councils around the country. The councils had more power as they used to collect enough revenue that enabled them to execute their functions effectively. The citizens were also cooperative in the sense that they used to use designated places for waste disposal. This could probably be attributed to the government's use of force to implement its policies in the one-party system.*

Banda (2013) further explains that in the Third Republic, during the reign of former President Chiluba, most of the practices associated with the Kaunda regime were abandoned, including the good hygiene and waste management practices. There was laxity both in the provision of waste management services and in the enforcement of regulations related to waste management. In fact, the republican president even created a vendors' desk at State House and appointed a deputy minister to support the activities of street vendors. As a result of this, people traded on the streets with impunity without any facilities such as waste bins and toilets. Over and above, the people of Zambia developed a negative attitude towards cleanliness and waste disposal. This was coupled with increased population growth and industrialisation (the Chiluba regime employed a capitalist economic system which encouraged industrialisation), both which, as earlier stated, contributed to waste production. The country was, therefore, effectively ushered into a period of increased waste production, a situation which its waste management institutions and infrastructure could hardly cope with. Countrywide, councils began to lose grip on waste management as they lacked the capacity to deal with the ever-soaring amounts of waste. In the words of a blogger on social media, *the 'enabling' environment*

*spiraled out of control; Zambia started to suffer at the hands of, strictly speaking, preventable diseases such as cholera.*

When former President Mwanawasa succeeded President Chiluba in 2001, the situation continued to be desperate (Banda, 2013). In order to change the status quo, President Mwanawasa declared the Keep Zambia Clean and Healthy (KZCH) campaign which was launched on 22<sup>nd</sup> June 2007 (*Times of Zambia*, 22<sup>nd</sup> June 2007). The campaign was a government-backed multi-sectoral and multidisciplinary drive that hoped to include all sectors of society in an ongoing effort to achieve a cleaner and healthier environment. The aim of the programme was to keep the country clean by ensuring people maintained clean, green and healthy surroundings in order to improve the health standards throughout the country (Fundanga, 2009; WHO, 2010; *Lusaka Star*, 10<sup>th</sup> October, 2012;). The campaign was backed by Statutory Instrument (IS) No. 44 of 2007 which compelled residents and institutions to take responsibility of the waste they produced (GRZ, 2017) (Appendix A). The campaign was funded to a tune of K200 million at the time. The *Zambia Daily Mail* of 7<sup>th</sup> September 2013 carried the following report about the KZCH programme:

*It [the KZCH programme] encourages participation of public and private institutions, non-governmental organisations (NGOs), community-based organisations (CBOs) and government line ministries at national, provincial and district levels. Zambian citizens – in their homes, communities, churches, workplaces, or elsewhere – must take interest and participate in restoring a level of cleanliness and good health around them, for which Zambia was once renowned. The purpose of the campaign is to institutionalise a culture of cleanliness and good health, which must be practiced by all Zambians and contribute to personal and national well-being.*

The implementation of the programme, nevertheless, had been both fragile and flimsy as there was little or no indication on the ground to show its effectiveness and impact, especially after the demise of President Mwanawasa in 2008 (Harvey & Mukosha, 2008). Statements made by various stakeholders to this effect effectively problematise the programme. WASHplus, an organisation that supported households and communities to improve water, sanitation and hygiene (WASH), reported that, although the programme had scored many successes, more still needed to be done (WASHplus, 2009). Studies

conducted by Chaampa (2013) and Pasi (2014) also show that the KZCH programme was not working properly. Banda (2013: 3) asserted that “*efforts to rejuvenate [the programme] have been made but have remained abstract ideas as the people did not seem to get involved while other government officials were also making statements without concrete action and systematic approach*”. These statements attest to the fact that by 2010 when this study was conceived, the programme had not started to bear the desired fruits. Under the Patriotic Front government, the programme was re-launched on 2<sup>nd</sup> October, 2015 but nothing concrete appeared to be happening on the ground.

It is obvious from the foregoing that the KZCH programme which was seen as the panacea to the problem of dirty and unhealthy surroundings did not achieve what it was intended to. Mihalic (2004) puts it that a sound programme will not produce the desired results if it is poorly implemented. Gurevitz (2000) observes that the problem with many environmental programmes is that they often take a singular approach to the analysis and solving of environmental problems by placing too much emphasis on knowledge and understanding of environmental issues without considering the importance of engaging in real-life environmental problems. Kollmuss and Agyeman (2002: 241) contend that even today, most environmental non-governmental organisations (NGOs) still base their communication campaigns and strategies on simple models of pro-environmental behaviour based on the simplistic linear assumption that more knowledge will lead to more enlightened behaviour. In the same vein, Bandura (1989: 2) argues that “*human behaviour has often been explained in terms of one-sided determinism. In such modes of unidirectional causation, behaviour is depicted as being shaped and controlled by environmental influences or driven by internal dispositions.*” This approach has become known as the information “deficit” model, since it describes a deficit of knowledge that must be filled, with a presumption that after fixing the deficit, everything will be “better” (Burgess et al., 1998: 1447; Lewenstein, 2003: 2). On the contrary, contextual models acknowledge that individuals do not simply respond to information like empty containers (tabula rasa), but rather process information according to social and psychological schemas that have been shaped by their previous experiences, cultural contexts, and personal circumstances. Bandura (2004:143) proposes a social theory that has a multifaceted causal structure in which self-efficacy beliefs operate together with goals,

outcome expectations, and perceived environmental impediments and facilitators in the regulation of human motivation, behaviour, and well-being.

From this premise, therefore, this study advanced the thesis that in order for the KZCH programme to succeed, there was need for the implementers of the programme to take a multifarious approach. One of the considerations was to first understand people's behaviour systems and then come up with a well-defined and effective pedagogical framework and targeted behaviour change tools in order to institute behaviour change. This approach is important to understanding human behaviour because it helps the implementers of the programme to know what drives people and the motives behind their actions. Saterfiel and Associates (2014) is of the view that human behaviour is quite predictable in many instances and, although personalities can be extremely complex, there are areas that can be understood with a high degree of accuracy. This study proposes that Environmental Education (EE) can play a major role in bringing about behaviour change because of its ability to impart awareness, knowledge, skills, values and attitudes and to help individuals and communities to participate in bringing about environmental literacy. According to Loubser, Swanepoel and Chacko (2001), environmental literacy is the capacity of people to perceive and interpret the relative health of environmental systems and to take appropriate action to maintain, restore or improve the health of those systems.

The immense role that education can play in bringing about behaviour change has been widely acknowledged by various scholars and interest groups previously. Janse van Rensburg (1999) explains that education has a socially transformative role to play in broadening possibilities for development beyond the economic rationalist frameworks which are impoverishing communities and polluting the environment. Similarly, Fien (1993) affirms that education is the world's greatest resource in bringing about preparedness for change in social systems towards sustainable living. The Namibian Ministry of Education (Namibian MoE, 1995) asserts that education is one of the essential tools for empowering individuals and communities to take meaningful actions and positively shape the future of their own environment and themselves. Nelson Mandela is widely quoted to have said "Education is the most powerful weapon which you can use to change the world" (Mandela, n.d.). Barber, Chijioke and Mourshed (2010)

state that education is an instrument for national building and eradication of illiteracy, ignorance and disease in society. Olaye and Onajite (2015: 35) describe education as a potent tool by which the human capacity can be developed for attainment of sustainable livelihoods in the society. Therefore, the role of Environmental Education in enhancing the KZCH programme can never be doubted in scholarship. Through Environmental Education, people can be helped to build capacity to live more sustainably and to engage in debate and critique of issues, thus make meaning for themselves and develop personal and social action plans (Bartram, 2009; Government Communication Network, 2009). Through Environmental Education, programme implementers will also find a way of combining information dissemination with the use of behaviour change tools, such as commitments, feedback and incentives (Geller, Erickson & Buttram, 1983; Cooper & Meiklejohn, 2003). What is required, therefore, is a fully-fledged Environmental Education programme which includes providing people with awareness, knowledge, skills, and attitudes (determinants of behaviour) and which encourages participation among members of the general public at various levels. In the long-term, this may require changing the organisation and dynamics of the Zambian society - the culture, social institutions, economic system and policies (Quarrie, 1992; Bressers, 2004). The question arising is whether the KZCH programme had used a well-defined and effective Environmental Education pedagogical framework to bring about the desired change.

### **1.3 Statement of the Problem**

Starting from 2007, Zambia had crafted and tried to implement the KZCH programme in order to improve the cleanliness and sanitary conditions in the country. The main thrust of the programme had been information dissemination, based on the belief that people simply needed to be informed about an issue in order to bring about behaviour change (Hungerford & Volk, 1990; WWF, 2005). These methods, based on the deficit model, however, did not completely yield the desired results as attested to by Mr. Mulunda Habeenzu, then Lusaka City Council assistant public relations officer in an interview with the *Lusaka Star* on 10<sup>th</sup> October, 2012. Mr. Mulunda observed that the campaign had not achieved its objectives because most people in the community were not taking it seriously. Aikenhead (1996) is of the view that environmental responsibility is not correlated with knowledge of the environment as most environmental programmes would

like to believe. As indicated in section 1.2, what was required was a fully-fledged Environmental Education programme which combined information dissemination with the use of behaviour change tools, such as commitments, feedback and incentives. However, previous studies have not been conclusive on the role played by Environmental Education in the implementation of the KZCH programme. Such a study needed to define the determinants of behaviour change, the barriers to pro-environmental behaviour with regard to the KZCH programme and then to determine the behaviour change tools that could be used to effectively implement the KZCH campaign. The study also needed to come up with a behaviour change toolkit for the programme. Therefore, lack of such a study constituted a problem and necessitated the current study.

#### **1.4 Purpose of the Study**

The purpose of the study was to investigate the role that Environmental Education plays in the implementation of the KZCH programme by establishing the determinants of behaviour, the barriers to pro-environmental behaviour and the use of behaviour change tools.

#### **1.5 Research Objectives**

The specific objectives of the study were to:

- (a) assess determinants of behaviour with respect to the KZCH programme from a sample of participants.
- (b) identify pro-environmental behaviour among the sample of participants.
- (c) establish barriers that affected pro-environmental behaviours among the sample of participants.
- (d) establish tools needed to promote behaviour change behaviour.
- (e) determine whether there were significant differences in behaviour among different demographic groups.
- (f) design an Environmental Education behaviour change toolkit for the KZCH programme in line with responses to items (a),(b),(c) and (d) above.

## **1.6 General Research Question**

The study addressed the following general research question: ‘What role can Environmental Education play in the implementation of the KZCH programme?’

## **1.7 Specific Research Questions**

The above general question was addressed through the following specific research questions:

- (a) What determinants of behaviour do the sampled members of the general public have with respect to the KZCH programme?
- (b) What pro-environmental behaviour is exhibited by the sampled members of the general public?
- (c) What barriers affected the behaviour of the sampled members of the general public?
- (d) What tools are required to promote behaviour change?
- (e) Is there any significant differences in behaviour among different demographic groups?
- (f) What Environmental education behaviour change toolkit could be used to effectively implement the KZCH programme?

## **1.8 Statement of hypotheses**

- (a) H<sub>0</sub>: There is no significant difference between the responses given by male and female participants in the study.  
H<sub>1</sub>: The responses between male and female participants are different.
- (b) H<sub>0</sub>: There is no significant difference between the responses given by participants from rural and urban areas.  
H<sub>1</sub>: The responses between rural and urban participants are different.
- (c) H<sub>0</sub>: There is no significant difference in the responses given by participants from low and high density residential areas.  
H<sub>1</sub>: The responses between participants from low and high density residential areas are different.

The level of significance was set at  $p < 0.005$  for all the tests.

## **1.9 Significance of the Study**

This study is important because it answers to the criteria given for a good study, that it should be worth investigating, contribute knowledge and value to the field of study, improve practice, and improve the human condition. The topic is worth investigating because clean and sanitary environments are at the centre of human health and wellbeing. Ill-health does not only lead to poor quality of life of people but can also lead to hampered personal and national development as people spend time and resources on procuring treatment. Preventing sickness among people and securing a clean environment for them is critical. For the Zambian government, superintending over a healthy nation makes running the affairs of the state cheaper because the scarce resources are made available for other socio-economic activities.

The study may also contribute knowledge and value to the field of Environmental Education in two main ways. Firstly, it ventures into an area of knowledge which has been vastly researched in the developed West but which has not been markedly attended to in Africa in general and Zambia in particular. It is, therefore, interesting to find out if there is a noticeable difference between the findings in the West and those for Zambia. Secondly, the findings are of value to the Zambian society which today is persistently beseeched with problems of unsanitary conditions and the resultant ill-health. Cholera, for example, has become a persistently present problem which needs to be dealt with.

Concerning improving the human condition, this study ventures into studying human behaviour in relation to the total environment. People's behaviour is at the core of the problem under investigation and, therefore, the solutions that have been suggested are for improving human condition. As various stakeholders take up their roles in ensuring a sustainably clean and sanitary environment, people will live healthier and happier lives.

As indicated earlier, education has a huge role to play in transforming societies. As societies evolve, there is need to come up with strategies to improve education delivery and practice. This study suggests an array of methods that can be used in the execution of the KZCH programme.

It may be appropriate to state at this point that this study is also a reflection of the researcher’s personal interest in ensuring a state of cleanliness of the environment in Zambia.

### 1.10 Conceptual Framework

Miles and Huberman (1994: 18) defines a conceptual framework as ‘visual’ presentation of key variables, factors or concepts and their relationship among each other which have been or have to be studied in the research either graphically or in some other narrative form. For Regoniel (2015), a conceptual framework is the researcher’s understanding of how the particular variables in the study connect with each other. According to him, it identifies the variables required in the research investigation and is, thus, the researcher’s ‘map’ in pursuing the investigation.

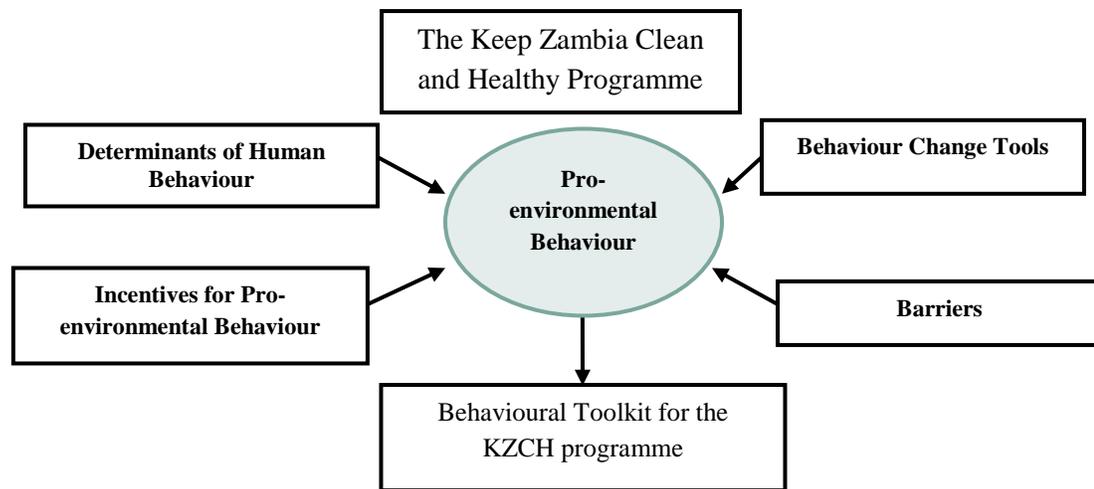


Figure 2: *The conceptual framework for the study*

In this study, theories of human behaviour have had a great impact on the conceptual framework and helped to analyse five key focus areas, as shown in Figure 2. These areas are determinants of human behaviour, pro-environmental behaviour, barriers to environmental friendly behaviour, tools for enhancing pro-environmental behaviour, and pro-environmental behaviour toolkit. This approach was useful to understanding how people related with the KZCH programme and the factors that motivated their participation or lack of it. The study considered the physical, affective and cognitive processes of behaviour and the interplay among these components. The study included

the analysis of the perceptions and attitudes among different socio-economic groups, that is, female and male participants, participants from low and high density residential areas, and those from rural and urban areas.

### **1.11 Operational Definition of Terms**

According to Rice University (2013: 34), an operational definition defines a concept

*in terms of the physical or concrete steps it takes to objectively measure it. The operational definition identifies an observable condition of the concept. By operationalising a variable of the concept, all researchers can collect data in a systematic or replicable manner. The operational definition must be valid, appropriate, and meaningful. And it must be reliable, meaning that results will be close to uniform when tested on more than one person.*

In the context of this study, the following concepts were given operational definitions:

*Pro-environmental behaviour* (used interchangeably with environmentally friendly behaviour) is behaviour that consciously seeks to minimise the negative impact of one's actions on the natural and built world.

*Environmentally supportive behaviour* (used interchangeably with pro-environmental behaviour) is action or actions undertaken with the intention of benefiting or reducing negative human impacts on the natural environment.

A *barrier* is anything that reduces the possibility of a person engaging in the desired behaviour.

A *target* (used interchangeably with audience or target audience) is defined as any individual or group of people who the KZCH programme is aimed at.

A *stakeholder* is any person, or group, who has an interest in the KZCH programme or could be potentially affected by its delivery or outputs.

An *urban area* is any part of the country with better developed infrastructure and enhanced socio-economic opportunities.

A *rural area* is any part of the country which has limited infrastructural development and limited opportunities for employment, health services, education, entertainment and transport. In this study, these areas are seen as socio-economically backward and people living in degeneracy.

A *high density residential area* is any part of a city usually recognised by crowding of housing units in a small area and lack of (adequate) social amenities. It is also an area of economic depravity since it is usually occupied by low income groups.

A *low density residential area* is any part of the city with housing units spaced far apart and supplied with most of the essential social amenities. The area is seen as one for the most educated and economically well-to-do in society.

A *household* refers to a group of persons who normally eat and live together under the same roof (blood relatives or not) and make common provision for essential living needs and have one person heading the household.

The *public* refers to people alienated from dominant political or knowledge regimes in the context of the KZCH programme; everyone except policymakers or the experts.

*Programme implementers* refers to those who the responsibility of driving the KZCH programme rests with; the Ministry of Local government, The Ministry of Health and the Ministry of Environment and Natural Resources.

## **1.12 Structure of the Thesis**

This thesis has eight chapters. Chapter One provides a background to the study. It states the problem that the study sought to investigate and the objectives of the study. It also gives a justification for the study. Chapter Two presents the theoretical framework for the study while Chapter Three presents a review of relevant literature on human behaviour, the determinants of human behaviour and the barriers to behaviour change. In this chapter, gaps which this study sought to fill have also been pointed out. Chapter Four explains the methodology used and justifies the research design. In addition, the chapter describes the methods of data analysis and highlights the truthfulness of the study (that is, the reliability and validity of the study) and ethical considerations.

Chapter Five presents the findings of the study. In this chapter, the findings are also analysed and explained. Chapter Six discusses the findings, their connection to the existing body of knowledge and their implication for the KZCH programme. The last chapter, Chapter Seven, provides the conclusions of the study and gives recommendations based on the research findings. The proposed behaviour change toolkit for the KZCH programme is presented as Appendix B. It suggests the knowledge that target audiences ought to be taught, the methodology that can be used and the process of evaluation. It also points out the barriers to change and how these could be overcome.

### **1.13 Conclusion**

This chapter has presented the background to the study. It has shown that Zambia was beset with the problem of dirty surroundings, a problem which was escalating to higher levels with the passage of time. A dirty and unsanitary environment has ripple effects of ill-health, unproductivity, and unsightly surroundings. Conscious of the situation, the Government of the Republic of Zambia had introduced a programme called ‘Keep Zambia Clean and Healthy’ in an attempt to curb the problem. However, nine years up to 2017, the programme had not yielded the desired results in spite of several efforts made by government.

This Chapter has argued that effective implementation of the KZCH programme required a comprehensive Environmental Education programme which provided people with awareness, knowledge, skills, and attitudes and which encouraged participation among members of the general public at various levels. This chapter has also explained the significance of the study and the structure of this report. In the next chapter a detailed theoretical perspective has been given so as to further understand the issue under study. The theories explain human behaviour and how behaviour change can come about. Later chapters will review issues of human behaviour in order to understand the gaps in the successful implementation of the KZCH programme.

# CHAPTER TWO

## THEORETICAL FRAMEWORK

### 2.1 Introduction

Concerns for clean and sanitary environments have increasingly attracted national attention in Zambia (ECZ, 2001). These concerns are reflected differently within the country's national policies and practices that express the growing advocacy for clean and healthy environments. In other words, the concept of clean and healthy environment is an emergent but increasingly strong voice of all those militating against a dirty environment. The answer, however, is not far-fetched because it is clear that one major impacting factor is how Zambians behave towards clean and sanitary living conditions. It is in this regard that McKenzie-Mohr and Smith (1995: 15) assert that *"the cornerstone of sustainability is delivering programmes that are effective in changing people's behaviour."* The argument in this study is that such programmes should be anchored on Environmental Education because of its capacity to impart awareness, knowledge, skills, beliefs, and attitudes as well as encouraging people to take part in preventing and solving environmental problems.

There are a number of social-cognitive theories that attempt to understand the factors behind human behaviour and particularly waste management behaviour which Environmental Education can rely on. The theoretical framework espoused in this study draws on three of these theories, namely the *Community-based Social Marketing Theory*, the *Theory of Planned Behaviour*, and the *Health Belief Model*. As suggested throughout this chapter, each one of these theories has contributed substantially to understanding human behaviour and human behaviour change. The sections that follow describe each theory in detail and try to provide the theoretical sufficiency of each one of them. The purpose of reviewing these theories was to better understand the different theories and models that are used to study human behaviour and behaviour change, and their appropriate applications. A review of the models also helped identify additional variables that could be integrated into the research instruments used in this study (Knabe, 2012).

## 2.2 Community-based Social Marketing Theory

The Community-based Social Marketing Theory was proposed by Andreasen in 1994. However, the first consensus definition of the theory was developed by the International Social Marketing Association (iSMA) in collaboration with the European Social Marketing Association (ESMA) and the Australian Association of Social Marketing (AASM) in 2013 (French & Gordon, 2015). In essence, social marketing uses principles used in selling goods to convince people to voluntarily change their behaviour. Andreasen (1994) explains that, whereas commercial marketing tries to change people's behaviour for the benefit of the marketer; social marketing tries to change people's behaviour for the benefit of the consumer, and, ultimately, of society as a whole.

The Government of Australia (2007: 21) explains that the benefits of using social marketing can be substantial. For this reason, social marketing has become increasingly prominent in both marketing academe and in the social policy arena (French & Gordon, 2015). Among others, the benefits include learning from others' successes and failures, having access to research conducted in preparation for the campaign, finding innovative and cost-effective strategies and discovering ideas for creative delivery mechanisms and materials that can be adapted and/or adopted.

### 2.2.1 Steps in Community-based Social Marketing

McKenzie-Mohr and Schultz (2012: 2) state that social marketing starts with *identifying what behaviour* you want to change. In the context of the KZCH programme, this behaviour is the indiscriminate dumping of waste and littering. The next step is *identifying the target audience*. These are the people whose behaviour you want to change. In the context of the KZCH programme, the target audience is the general public, that is, groups of individual people or the totality of such groupings (Heath, 2006; Johanzsoozi, 2006), separated, or segmented, by age, gender, level of education, or race (Peter & Olson, 2010). For example, in this study, the groups were segmented according to residential area, gender and rural/urban area.

The third step is *identifying barriers blocking the desired change*. These could be physical, social, economic and/or political factors. The barriers could be identified

through interviews, surveys, focus groups or other methods. In this way, the programme implementers will want to find out what makes it difficult or unattractive for people to make these changes. This study used surveys, interviews and archival information to identify barriers.

The next step is *designing a strategy* that utilises information dissemination and behaviour change tools to address the barriers. Anderson and Anderson (2015, paras. 1, 2, 3) assert that entering the marketplace without a clear business and change strategy can lead to failure. The distinction between a *business strategy* and a *change strategy* is that a business strategy determines what in the organisation needs to change while the change strategy explains how those changes will be made to happen. The advantage of designing an effective change strategy is that it will accelerate the desired change and reduce its cost. In addition, it will increase the implementers' effort's efficiency, speed up the launch of the programme, remove unnecessary or redundant activities, and engage the target audience optimally.

The next stage is *pretesting or piloting* the programme design, usually on a small number of people. The essence of pretesting the design is that it could be modified according to the results. This is an important way to pinpoint problem areas, reduce users' burden, determine whether or not users will interpret it correctly, and ensure that the order of content is logical and coherent. In other words, a pretest is a critical examination of the behaviour change design that will help determine if the campaign will function (Converse & Presser, 1986).

Consequent to the pretesting of the programme design is the *full-scale implementation of the programme*. Once the programme has been broadly implemented, there is need to evaluate its impact (IFAD, April, 2009). According to the World Bank (2011, para 1),

*an impact evaluation assesses changes in the well-being of individuals, households, communities or firms that can be attributed to a particular project, programme or policy... The central impact evaluation question is what would have happened to those receiving the intervention if they had not in fact received the programme... Impact evaluation is aimed at*

*providing feedback to help improve the design of programmes and policies. In addition to providing for improved accountability, impact evaluations are a tool for dynamic learning, allowing policymakers to improve ongoing programmes and ultimately better allocate funds across programmes.*

After the evaluation of the programme, both the benefits of change and the efforts to make change easier can be publicised. This allows people to know what is happening and how it will help them. It is important that people understand the benefits of the behaviour change programme.

### **2.2.2 Relevance of theory to the study**

Social marketing theory covers initiatives that primarily seek to change the attitudes and choices of consumers in ways that encourage more sustainable behaviours. Kollmuss and Agyeman (2002: 240) state that “*research on community-based social marketing indicates that the approach has been successful in transcending the gap between knowledge to action that has characterised many local environmental and sustainability projects to date*”. This study found it appropriate to apply the theory since the KZCH programme was about changing people’s knowledge, values and attitudes. However, the theory was only applied up to strategy designing stage because the cross-sectional nature of the study could not allow time for pre-testing and implementing the toolkit which was developed. The theory is featured in Appendix 2 of this study which presents the Toolkit for the KZCH programme.

### **2.2.3 Limitations of the theory**

Hornik (2002) explains that social marketing campaigns can change health behaviour and behavioural mediators, but the effects are often small. According to Malafarina and Loken (1993), because of the social nature of a broad range of consumer behaviour topics (for example, smoking cessation, AIDS prevention and environmental awareness), consumer and market researchers have raised important questions about the compatibility of marketing of social ideas and general marketing concept.

### 2.3 Theory of Planned Behaviour

The second theory used in this study was the Theory of Planned Behaviour (TPB), proposed by Icek Ajzen in 1985. The theory is among the most cited theoretical frameworks for predicting a wide range of behaviours (Hall & Fong, 2007) and has been described as a leading social scientific theory used to study behavioural intent (Knabe, 2012). Developed from the Theory of Reasoned Action (TRA) which was proposed by Martin Fishbein and Icek Ajzen in 1975, it states that if people evaluate the suggested behaviour as positive (attitude), and if they think their significant others want them to perform the behaviour (subjective norm), this results in a higher intention (motivation) and they are more likely to do so (Sheppard, Hartwick & Warshaw, 1988).

Sheppard et al. (1988) have shown that TRA was deficient in some ways. Because of circumstantial limitations, such as personality characteristics (for example, authoritarianism, introversion and extroversion), demographic variables (for example, age and gender) and social status behavioural intention does not always lead to actual behaviour (Knabe, 2012). Since behavioural intention cannot be the exclusive determinant of behaviour where an individual's control over the behaviour is incomplete, Ajzen introduced TPB by adding a new component, 'perceived behavioural control.' By this, he extended TRA to cover non-volitional behaviours for predicting behavioural intention and actual behaviour. This extension is shown in Figure 3.

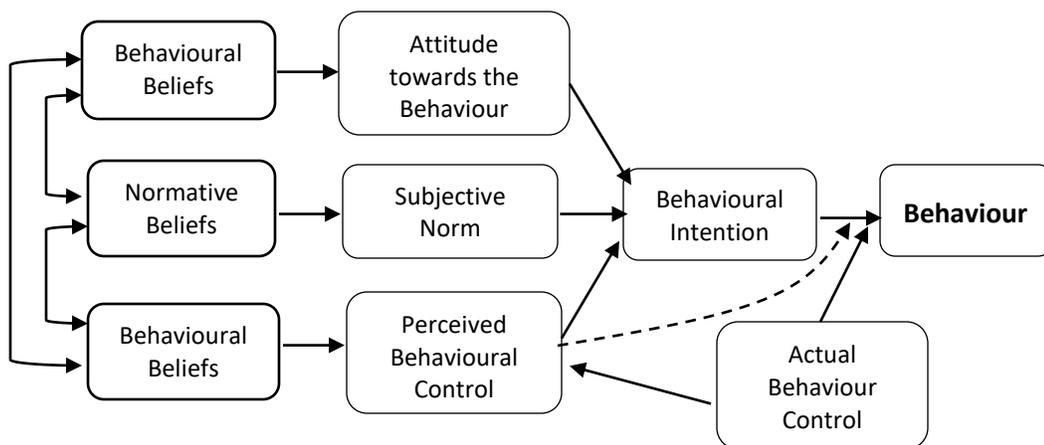


Figure 3: *The Theory of Planned Behaviour*

(Source: Ajzen, 1991)

### 2.3.1 TPB's determinants of behaviour

TPB contends that people, being rational beings, estimate certain factors before deciding to engage or not to engage in a behaviour (*intent factor*) (Chakema & Rhonda, 2009). Therefore, to predict whether a person intends to do something or not, we need to know three predictors or determinants: behavioural beliefs (attitude), normative beliefs (subjective norm), and control beliefs (perceived behaviour control) (Francis et al., 2004). These determinants are discussed below.

*Behavioural beliefs* means whether the person is in favour of doing an action or not. This is called personal expectation or *attitude*. In their respective aggregates, behavioural beliefs produce a favourable or unfavourable attitude toward the behaviour. Therefore, Fila and Smith (2006) define attitude as the degree to which an individual has favourable or unfavourable evaluation of the behaviour. The Government Communications Network (2009) calls this predictor personal or 'micro' factor because it is intrinsic to the individual. It includes such things as their level of knowledge or their belief in their ability to change their behaviour and their habits.

*Normative beliefs* or 'subjective norm' is about how much social pressure the person feels to do a behaviour. It comprises expectations of others and motivation to comply with these expectations. The Government Communications Network (2009) calls these social factors 'meso' factors. They are concerned with how individuals relate to each other and the influence of other people on their behaviour. Fila and Smith (2006) stipulate that subjective norm is about one's willingness to comply with what others hold about performing or not performing a behaviour.

*Control beliefs*, also called perceived behaviour control (PBC), is about whether the person feels in control of the action in question or not. Fila and Smith (2006) explain that PBC describes the perceived ease or difficulty an individual has for performing a behaviour. This perception largely depends on environmental or biospheric factors which are extrinsic to the person and, therefore, the individual has very little control over them. The Government Communications Network (2009) states that these factors include both local ('exo') factors such as the amenities and facilities in the area in which an individual lives, and wider ('macro') factors such as the economy or technology.

The equation for behavioural intention is expressed as  $BI = AAct w_i + SNw_i + PBCw_i$ , where BI is behavioral intention, AAct is attitude toward the behaviour (behavioural belief), SN is subjective norms and PBC is perceived behavioral control while  $w_i$  represents weights that are based on multiple regression analyses (Ajzen, 1991).

Sometimes the term *self-efficacy* has been used synonymously with PBC. Bandura (1986 cited in Fila and Smith, 2008) defined the term as an individual's perceived ability to perform a behaviour. However, Armitage and Conner (1999) differentiated self-efficacy (the individual's internal motivation) from PBC (the extent to which an individual has control over external factors). Studies by Armitage and Conner have shown that when self-efficacy was added to TPB model, it became an important contributor if not the most important predictor of both behaviour and intention. Consequently, Giles and Cairns (1995 cited in Fila & Smith, 2006) suggested that the predictive utility of TPB may be enhanced by replacing PBC with self-efficacy. However, studies by Terry and O'Leary (1995) have repudiated the usefulness of self-efficacy as a predictor of behaviour. Therefore, Fila and Smith (2006) examined self-efficacy and PBC as separate constructs that could influence behaviour.

Cheng, Chen and Chang (2007) have shown that, by changing the predictors discussed above, the chance that the person will intend to do a desired action can be increased and thus increase the chance of the person actually doing it. As a general rule, the more favourable the attitude and subjective norm, and the greater the perceived behavioural control, the stronger should be the person's intention to perform the behaviour in question (National Cancer Institute, 2005). And given a sufficient degree of actual control over the behaviour, people are expected to carry out their intentions when the opportunity arises. According to the National Cancer Institute (2005), intention is thus assumed to be the immediate precursor of behaviour. Table 1 explains TPB further.

Table 1: *Theory of Planned Behaviour*

Concept	Definition	Measurement Approach
<i>Behavioural intention</i>	Perceived likelihood of performing behaviour	Are you likely or unlikely to perform the behaviour?
<i>Attitude</i>	Personal evaluation of the behaviour	Do you see (the behaviour) as good, neutral, or bad?
<i>Subjective norm</i>	Beliefs about whether key people approve or disapprove of the behaviour; motivation to behave in a way that gains their approval	Do you agree or disagree that most people approve of/disapprove of (the behaviour)?
<i>Perceived behavioural control</i>	Belief that one has, and can exercise, control over performing the behaviour	Do you believe (performing the behaviour) is up to you, or not up to you?

(Source: National Cancer Institute, 2005)

Knabe (2012) notes that each of the variables in TPB is hypothetical or latent, and thus cannot be directly measured. Instead, the measurements are inferred from observable responses on a questionnaire. This is an important piece of information since this survey was developed according to the procedures defined by Ajzen and Fishbein (1980).

### 2.3.2 Relevance of TPB to the current study

According to Armitage and Christian (2003 cited in NICE, 2007), there is a large volume of research indicating that TPB has utility in predicting health behaviours. The duo also note that observed statistical relationships between internal constructs based on behavioural, normative and control beliefs have significance across a wide range of contexts. In this study, TPB was relevant because it stipulated some of the determinants of human behaviour which are discussed. These determinants explained the role of an individual and society in the implementation of a behaviour and the environmental constraints that might deter human behaviour change. This information was indispensable to understanding the mechanisms and dynamics involved in the administration of behaviour change programmes such as the KZCH programme. Like for many healthy behaviours, participation in the KZCH programme was not entirely under volitional control and, therefore, perceived behaviour control became a major determinant of behaviour (Fila & Smith, 2006). Information from the theory was featured extensively in

Chapters three, five and six of this study, particularly sections 3.3 where determinants of behaviour are discussed and 5.3 and 6.2 where findings were based on constructs of TPB.

### **2.3.3 Limitations of the theory**

The TPB has several limitations. According to Wayne W. LaMorte of Boston University School of Public Health, while the theory has shown more utility in public health than the Health Belief Model, it is still limiting in its inability to consider environmental and economic influences (LaMorte, 2016). In addition, it does not account for other variables that factor into behavioural intention and motivation, such as fear, threat, mood, or past experience. This is because the theory assumes that all behaviour is rational. However, humans do not always act based on rational thinking. Nevertheless, researchers have over the past several years used some constructs of TPB and added other components from behavioural theory to make it a more integrated model. This is what this study has done in section 2.5 of this chapter.

### **2.4 The Health Belief Model**

Another theory that guided this study was the Health Belief Model (HBM). This model is a psychological health behaviour model developed to explain and predict health-related behaviours (Janz & Becker, 1984). The model was developed by social psychologists Hochbaum, Rosenstock and Kegels at the US Public Health Service in the 1950s to explain why screening programmes offered by the institution, particularly for tuberculosis (TB), were not very successful. The model has been used to develop effective interventions to change health-related behaviours (Conner & Norman, 1996) and remains by far the most commonly used theory in health education, health promotion and health behaviour research (Glanz, Rimer & Lewis, 2002). According to the Boston University School of Public Health (last updated January 6, 2016), HBM derives from psychological and behavioural theory. Its foundations are two components of health-related behaviour, firstly the desire to avoid illness, or to get well if already ill, and secondly, the belief that a specific health action will prevent, or cure, illnesses. Ultimately, an individual's course of action often depends on his or her perceptions of the benefits and barriers related to health behaviour. Figure 4 shows the main constructs of the Health Belief Model.

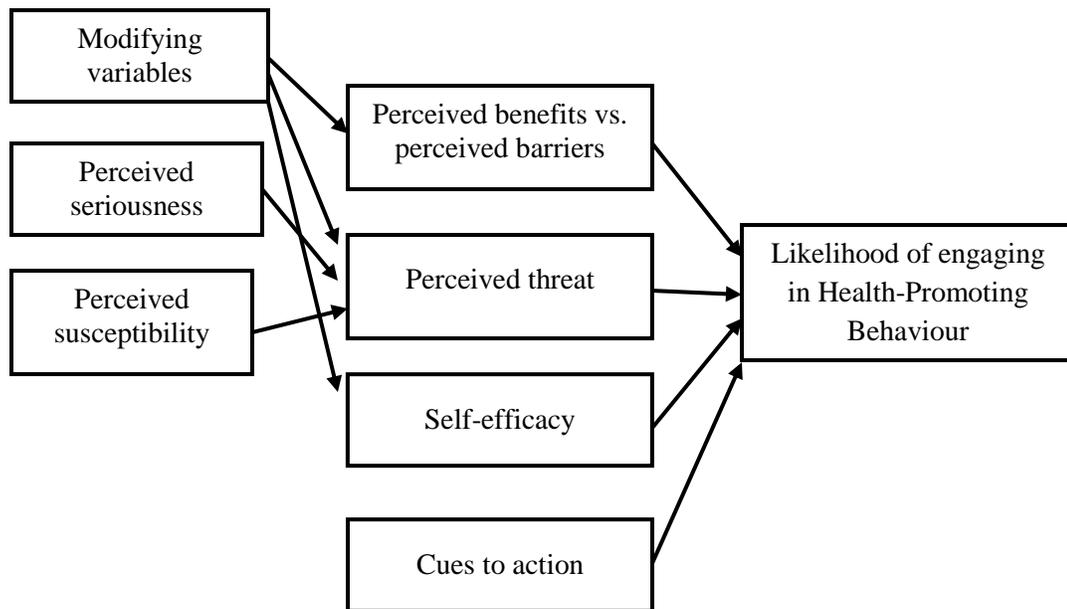


Figure 4: *The Health Belief Model*

Source: Glanz et al. (2002: 52)

#### 2.4.1 Four constructs of the Health Belief Model

HBM suggests four constructs which will determine whether people will engage or not engage in health-promoting behaviour (Rosenstock, 1974; Janz & Becker, 1984). These constructs are perceived seriousness of the disease, personal susceptibility, perceived benefits and perceived barriers.

*Perceived seriousness of the disease* is about an individual's belief about the seriousness or severity of a disease. Although the perception is based mostly on medical information or knowledge, it may also come from beliefs a person has about the difficulties a disease would create or the effects on his or her life in general (McCormick-Brown, 1999). McCormick-Brown explains, for example, that the general perception that influenza is a simple ailment may be further influenced in some people by attacks of asthma which may compound the influenza. The next construct, *personal susceptibility*, has been described as one of the more powerful perceptions in prompting people to adopt healthier behaviours (McCormick-Brown, 1999). This construct acknowledges that the greater the perceived risk, the greater the likelihood of engaging in behaviours to decrease the risk. This, for example, is why people use condoms to decrease susceptibility to HIV infection. It is asserted that it is only logical that when people believe they are at risk for a disease,

they will be more likely to do something to prevent it from happening. Conversely, when people believe they are not at risk or have a low risk of susceptibility, unhealthy behaviours tend to result. In his study of Asian American college students, Yep (1993) found that because the students tended to think that the HIV and AIDS pandemic was not an Asian problem, their perception of susceptibility to HIV infection was low and, therefore, were not associated with practicing safer sex. Therefore, until the general public begins to see a dirty and unsanitary environment as a menace to them, they will do very little to engage in pro-environmental behaviour.

The next construct, *perceived benefits*, is about a person's opinion of the value or usefulness of a new behaviour in decreasing the risk of developing a disease. Understandably, people tend to adopt healthier behaviours when they believe the new behaviour will decrease their chances of developing a disease. For example, people would stop smoking if they believed stopping was better for their health. In the context of the KZCH programme, people need to see the benefits of clean surroundings – health living, absence of visual pollution, and so on, in order for them to engage in the programme.

According to Hayde (2009), change does not come easily for most people because there are barriers that hinder change. *Perceived barriers* to change consist of an individual's evaluation of the obstacles in the way of him or her adopting a new behaviour. According to Janz and Becker (1984), this is the most significant construct in determining behaviour change. Umeh and Rogan-Gibson (2001) list some of the barriers to starting a new behaviour or developing a new habit as fear of not being able to perform the behaviour correctly, having to give up things in order to perform the new behaviour, and embarrassment (from friends, family, and community). However, as suggested under TPB, some barriers can be institutional, such as lack of equipment and infrastructure needed to execute a behaviour.

#### **2.4.2 Modifying variables**

The four constructs of perception are modified by other variables, such as culture, educational level, past behaviour, skill and motivation. These variables differ from one individual to another and influence personal perceptions. However, in HBM, behaviour is

not only influenced by the four constructs and modifying variables but also by cues to action. By cues is meant all those things, events and people that prompt people to change their behaviour. There are many types of cues, including illness of a family member, media reports, mass media campaigns, and advice from others. Other cues include reminder health post cards from a health care provider or health warning labels on a product (Hayde, 2009). Meillier, Lund and Kok (1997) carried out a study in order to evaluate cues to action in health behaviour. Using in-depth interviews, they found that cues to action seemed to arise from social influence, experiences (for example, own illness), or underlying shifts in the possibilities of change (for example, change of partner or other life events). They concluded that a strategy to initiate changes in health behaviour could be to create cues to action through personal experiences in the context of a specific health behaviour or establish contact to people when they are experiencing new life circumstances.

Self-efficacy, which was described under TPB, was added to the four constructs of the model in 1988 by Rosenstock, Strecher and Becker. It is alleged that people generally do not try to do something new unless they think they can do it. In this case, if someone believes that a new behaviour is useful (perceived benefit), but does not think he or she is capable of doing it (perceived barrier), chances are that it will not be tried (Hayde, 2009.) The other version of the concept of self-efficacy is *agency*, defined as “*an individual’s sense that they can carry out an action successfully and that that action will help bring about the expected outcome*” (Darnton, 2008a: 13). According to Darnton, agency appears in TPB as perceived behaviour control (PBC). It is important in influencing behaviour because it determines how much effort people will put in, or whether they will attempt the behaviour or not at all.

Lastly, psychology holds it that *past behaviour* of an individual can contribute to their current and future behaviour. Bentler and Speckart (1981 cited in Albarracin and Wyer, 2000: 5) assert that “people who behave in a certain way at one point in time are likely to do so again.” Therefore, all things being equal, people’s past actions are often a good predictor of their future behaviour. However, Franklin (2013) asserts that some past behaviour does not recur. In her article *The best predictor of future behaviour is ... past behaviour* she poses the question: Does this popular maxim hold water? Citing a case of a

young drug abuser and addict psychotic, Doctor Franklin explains that “if you predict future violence based on a set of risk factors like this, you will be wrong more often than not.” Basing her arguments on research, she states that only about four out of ten (or 40 %) of those individuals judged to be at moderate to high risk of future violence go on to reoffend violently. The truth, therefore, is that some past behaviour does recur and, therefore, there is a possibility that a participant who took part in an environmental programme before would still take part in it in the future.

### **2.4.3 Relevance of the theory to the study**

Lefebvre (2000) asserts that HBM has been one of the more empirically studied theoretical models. It can help to explain why people sometimes engage in high-risk health behaviours even though cognitively they understand the potential negative impact of those behaviours. The model helps us to remember that people’s health choices are based not only on rational thought but also on emotions, habits, social conditioning and personal preference. Janz and Becker (1984) conducted a review of various studies which had been done across numerous health and screening behaviours (for example, receiving flu shots, practicing breast self-examinations, using seat belts, attending screening programmes) in the USA and found not only substantial support for the model, but that the “perceived barriers” component was the strongest predictor across studies and behaviours, that is, it proved to be the strongest predictor of engaging in health behaviours.

The KZCH programme is essentially a health living programme. Therefore, applying HBM to the study of the implementation of this programme would have the potential to provide a relatively comprehensive understanding of the influence of emotions, habits, and social, economic and environmental factors on environmental behaviours affecting the programme (NICE, 2007). If people are going to act for a clean and sanitary environment, they should first perceive the seriousness of living in dirty and unsanitary environments; they should perceive the risk or susceptibility of living in such environments, they should perceive the benefits of living in clean surroundings; and they should understand the barriers hampering their change of behaviour. In addition, the constructs of this model provide programme implementers with a basis for understanding

human behaviour and how it can be changed. In this study, the model was useful during the construction of the behaviour change toolkit, particularly the section which deals with major environmental problems related to dirty and unsanitary environment.

#### **2.4.4 Limitations of the model**

There are several limitations of the HBM which limit its utility in public health. According to LaMorte (2016), the limitations of the model include the following:

- It does not account for a person's attitudes, beliefs, or other individual determinants that dictate a person's acceptance of a health behaviour.
- It does not take into account behaviours that are habitual and thus may inform the decision-making process to accept a recommended action (for example, smoking).
- It does not take into account behaviours that are performed for non-health related reasons such as social acceptability.
- It does not account for environmental or economic factors that may prohibit or promote the recommended action.
- It assumes that everyone has access to equal amounts of information on the illness or disease.
- It assumes that cues to action are widely prevalent in encouraging people to act and that 'health' actions are the main goal in the decision-making process.

These limitations make the HBM's utility in public health narrow. It is more descriptive than explanatory and does not suggest a strategy for changing health-related actions. The individual constructs may be useful, depending on the health outcome of interest, but for the most effective use of the model it should be integrated with other models that account for the environmental context and suggest strategies for change. Therefore, the next section discusses the possibility of an integrated model.

#### **2.5 Towards an Integrated Model**

This section suggests an integrated model which puts together constructs from the three theories discussed above to form a strategy for change.

### **2.5.1 Identifying target behaviour (SM)**

The integrated model recognises that the starting point is identifying the behaviour that needs changing. This construct is a component of the Community-based Social Marketing theory. The central precept of this study is the assertion that the behaviour that needs changing is lack of responsiveness of members of the general public to the implementation of the KZCH programme. This assertion forms the backbone of this study and runs throughout this report.

### **2.5.2 Identifying target audience (SM)**

After the target behaviour has been identified, it is important to identify the target audience. This component is also from the Community-based Social Marketing theory. Since every member of society generates and should be concerned about waste, the target audience identified for this study was the general public. Target audiences identified by past research comprise stakeholders, people or organisations that may have an interest in adequate waste management, including national and local governments; municipal authorities; city corporations; non-governmental organizations (NGO's); households; private contractors; ministries of health, environment, economy and finance and recycling companies (Guerrero, Maas & Hogland, 2013). The understanding of this study was that all these groups constituted the target audience of the KZCH programme.

### **2.5.3 Attitude towards target behaviour (TPB/HBM)**

Through Environmental Education, the target audience receives information about the need for behaviour change. The information is expected to help the target audience to develop a new attitude, depending on their behavioural beliefs (are they in favour of doing action or not?), subjective norm (what do they think others will think about them?), perceived susceptibility (how much risk do they associate with not doing the target behaviour), perceived benefits (what benefits do they associate with taking action?), and self-efficacy (do they feel capable of taking the action?). The findings on these constructs from TPB and HBM are captured in section 5.3 of this report.

### 2.5.4 Action or no action (HBM)

When action is not taken, the process ends. Action can be hampered by modifying variables and barriers, such as culture, lack of infrastructure and equipment. However, when action is taken, it leads to pro-environmental behaviour. Action may be prompted by cues, such as an occurrence of an epidemic or the death of a loved one as a result of an environmental related disease.

### 2.5.5 Pro-environmental behaviour (HBM)

When an action is executed, the target audience may see the benefits of taking action. This may cause the target audience to do the action repetitively so that it becomes a habit. In this way, the target audience will maintain the behaviour. This aspect is depicted in section 5.4 where results for pro-environmental behaviour are presented. The integrative model is shown in Figure 5.

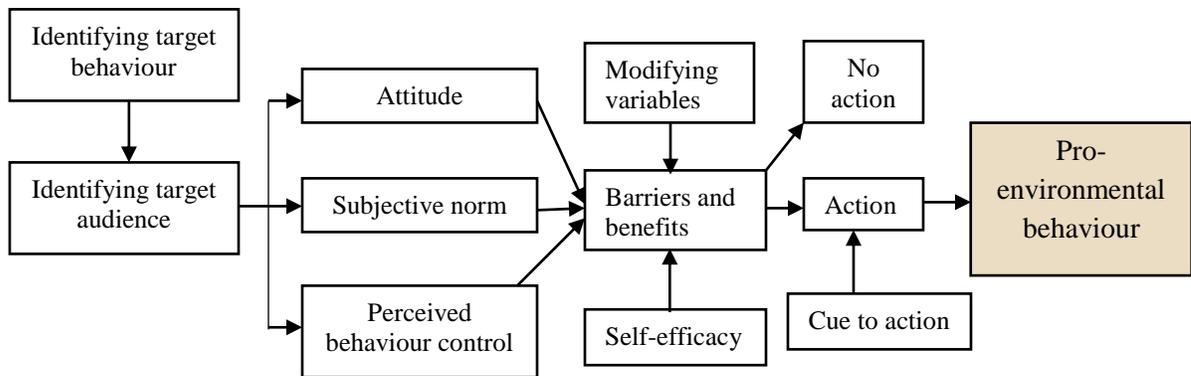


Figure 5: *Integrative Model of Environmental Behaviour*

## 2.6 Conclusion

Theories reviewed in this chapter shed some light on possible factors which may have influenced participation in the KZCH programme, the focus of the current study. The theories have the strength that they are based on extensive empirical studies conducted in different parts of the world. They have also been extensively used by different researchers for a long period of time on studies related to human behaviour similar to the current study. Undoubtedly, they present themselves as an invaluable tool for use in this study. However, the theories also have some limitations in relation to the current study. One such limitation is that they were developed mostly from empirical studies largely

undertaken in developed countries such as the United States of America. Therefore, the influences on behaviours identified by the three theories may not be the same factors which influenced the participants who were interviewed here in Zambia, concerning the KZCH programme. This is because the context for behaviour in Zambia may be different from that in the developed countries where the theories were developed. As such, it is not known whether or not the participants who were interviewed in this study were exactly influenced by motives and challenges identified by the theories described in this chapter.

# CHAPTER THREE

## LITERATURE REVIEW

### 3.1 Introduction

This chapter provides a review of literature related to the study. It is noted that the problem of poor sanitation and dirty surroundings in Zambia is a consequence of human behaviour resulting from what people do or not do (Davidson, 2011). McKenzie-Mohr and Schultz (2012) assert that behaviour change is central to the quest for sustainable development and a sustainable future. Further, McKenzie-Mohr and Smith (1995: 83) affirm that “the transition to a sustainability future will require that the vast majority of the people be persuaded to adopt different lifestyles.” This chapter argues that telling people about good waste management practices is part of the role of Environmental Education and is indispensable to the call to “Save Planet Earth.” The chapter discusses literature on the determinants of human behaviour, the tools that can be used to change behaviour, and the barriers to behaviour change. It is argued that since the role of Environmental Education is to transform society, it is crucial for those implementing the KZCH programme to have an understanding of elements of human behaviour and behaviour change. According to Molapo, Stears and Dempster (2014), Environmental Education, can be used to foster behaviour change since education is a vital factor in promoting environmental responsibility. This can be done by altering people’s perceptions and behaviours and empowering them with skills so that they begin to respond positively to the environment. Environmental Education can also talk to those in power so that they begin to provide the necessary infrastructure and human resources for cleaner and more sanitary environments.

### 3.2 Human behaviour

Human behaviour has been a subject of many studies. As a result, different definitions of the term exist depending on different scholars and contexts. The Business Dictionary (2015), for example, defines human behaviour as the *response* of an individual person or group of people to an action, environment, person, or stimulus. The responses can be *physical* or *emotional actions* that humans engage in, whether biologically, socially or

intellectually. For Heimlich and Ardoin (2008: 220), human behaviour is “both the *physical activities* performed by human beings and the complex intermingling of *affective* and *cognitive processes* that guide human decisions in the short- and long-term”. Both definitions by the Business Dictionary and Heimlich and Ardoin’s (2008) talk about physical activities, affective processes and cognitive processes. It can, therefore, be concluded that human behaviour has both physical and cognitive-emotive elements. Consequently, to fully understand the mechanisms behind human behaviours and, by extension, to more effectively move people toward environmentally friendly behaviour, it is critical to explore the interplay among the physical, cognitive and affective components of behaviour (Heimlich & Ardoin, 2008). Similarly, Bandura (1999) explains that,

*Social cognitive theory explains psychosocial functioning in terms of triadic reciprocal causation (Bandura, 1986). The term causation is used to mean functional dependence between events. In this model of reciprocal causality, internal personal factors in the form of cognitive, affective and biological events; behavioral patterns; and environmental events all operate as interacting determinants that influence one another bidirectionally.*

Literature classifies human environmental behaviour into two: *intent-* and *impact-*oriented (Poortinga, Steg, & Vlek, 2004). Intent-oriented behaviour is undertaken by the actor with the intention to help the environment while impact-oriented behaviour is defined by the amount of impact that the action has on the environment.

### **3.3 Determinants of Human Behaviour**

The determinants of intent and impact oriented behaviour differ. While intent-oriented behaviour may be influenced by attitudinal (or internal) variables, such as values, beliefs, perceptions and norms, impact-oriented behaviour may be influenced by socio-demographic (or external) variables, such as age, gender, level of education, household size and income (Poortinga et al. 2004). King (2010) is of the view that determinants such as values, beliefs and norms are difficult to change while others, such as age and gender, are impossible to change. While values and beliefs are acquired, age and gender are givens. It is, therefore, critical to understand which determinants are influencing

behaviour. For the current study, understanding the determinants is important because, as Azjen (1971) argues, it helps to design interventions to change target behaviour.

The section that follows will briefly discuss some of the influential determinants of human behaviour, differentiated into internal and external factors. Mention should be made that the distinctions between the different factors are somewhat arbitrary and one factor does not operate to the exclusion of other factors. For example, Kollmuss and Agyeman (2002: 248) argue that environmental knowledge is a subcategory of environmental awareness and that emotional involvement is what shapes environmental awareness and attitude. This difficulty in defining and delimiting the different factors is due to the fact that most are broadly and vaguely defined, interrelated, and often do not have clear boundaries.

### **3.3.1 Internal factors**

The preceding section indicated that internal (or attitudinal) factors include knowledge, values, beliefs, perceptions and norms. They are internal or intrinsic because their influence comes from inside the person, that is, the actor can choose to act for or not to act for the environment. For example, an individual can choose to recycle waste or to throw it on an open dump. Thørgersen (2005) defines these factors as individual factors. Therefore, this study endeavoured to explain how determinants of human behaviour related to decisions made by people concerning the KZCH programme.

#### *(a) Knowledge and awareness*

*Knowledge* is the first determinant of human behaviour and is connected to behavioural beliefs in TPB. In the 17<sup>th</sup> Century, John Locke defined knowledge as the perception of the agreement or disagreement of two ideas (Locke, 1689). Since that time, other scholars have tried to define and redefine knowledge. For example, Davenport and Prusak (1998: 5) defined knowledge as “the fluid mix of framed experience, contextual information, values and expert insight that provides a framework for evaluating and incorporating new experiences and information.” Berger and Luckmann (1966: 13) defined knowledge as “the certainty that phenomena are real and that they possess specific characteristics.” Here, reality is defined as a quality appertaining to phenomena that people recognise as

being independent of our own volition, that is, we cannot ‘wish them away’. People acquire knowledge in different ways but once they have acquired it, it will help them to receive, interpret and evaluate new information. It will further help them to generate and implement appropriate actions which will yield the intended results (Achterbergh & Vriens, 2002).

Scholars like Nonaka and Takeuchi (1995) have contended that knowledge manifests itself in two ways: *explicit knowledge* (knowledge that can be expressed into formal language) and *tacit knowledge* (personal knowledge held in individual experiences). Sometimes, it might be necessary for the target audience to reconcile the two types of knowledge, that is, the explicit knowledge that they have to learn and the tacit knowledge that they already possess. This may require unlearning the tacit knowledge in order to learn the explicit knowledge.

One viewpoint is that knowledge is necessary for people to behave environmentally friendly. For example, Oteng-Ababio (2012 cited in Yoda, Chirawurah, & Adongo, 2014) conducted a study of waste management practices in Ghana and noted that there was a growing perception that inadequate education about the importance of proper sanitation accounted for poor waste management practices in that country. UN-Habitat (2011: 2) also notes that “many people seem to regard drains as acceptable places for dumping wastes, apparently *unaware of the risks* of flooding and mosquito-borne diseases.” UN-Habitat contends that it might be possible to change some attitudes with a concerted campaign of public education which brings about awareness. In relation to the environment, awareness is defined as ‘knowing of the impact of human behaviour on the environment’ (ECLAC, 2000). For example, people could be made to be aware that open dumping may lead to multiplication of vermin which might cause ill-health to them and other people.

Considering the foregoing, knowledge and awareness appear to be essential when dealing with human behaviour and concern for the environment. However, there is also a viewpoint that only a small fraction of pro-environmental behaviour can be *directly* linked to environmental knowledge and awareness. For example, Fliegenschnee and Schelakovsky (1998, cited in Kollmuss & Agyeman, 2002) state that as much as 80% of the reasons for pro-environmental or non-environmental behaviour can be attributed to

*situational factors* and other internal factors than to awareness and knowledge. This argument is further strengthened by a study conducted by Kempton, Boster, and Hartley (1995 cited in Kollmuss & Agyeman, 2002) in the USA which surveyed different groups of people, including strong environmentalists and strong anti-environmentalists. Kempton and his colleagues found that the average knowledge about environmental issues was somewhat low both among strong environmentalists and non-environmentalists. They then concluded that environmental knowledge by itself is not a prerequisite for pro-environmental behaviour. Similarly, Hungerford and Volk (1990) argue against the view that making human beings more knowledgeable about the environment and its problems will motivate them to act responsibly. A study done in Lesotho by Molapo et al. (2014) also found that while the participants (pupils in secondary school) showed sound knowledge of the environment, they did not appear to have the necessary attitudes to initiate action to deal with environmental problems. This is not surprising because, according to Preuss (1991, cited in Kollmuss & Agyeman, 2002), knowledge and values only lead to *abstract willingness* to act; it is habit which leads to *concrete willingness* to act (see section on motivation).

This, however, is not to say that awareness and knowledge have no place in bringing about pro-environmental behaviour. A few studies have actually found that both knowledge and awareness are important influences on pro-environmental behaviour (for example, Grob, 1991 and Kaiser et al., 1999). A study by Guerrero et al. (2013: 228) in more than thirty urban areas in 22 developing countries in four continents found “that when citizens receive information about the benefits of recycling, how to sort the waste and they participate in the designing of the programmes, they are more likely to participate in recycling campaigns.” Clearly, people have to have basic knowledge about environmental issues and the behaviours that cause them in order to act pro-environmentally in a conscious way. Whereas Kempton et al.’s (1995) study indicated that most people do not need to know enough about environmental issues to act in an environmentally responsible way, other studies have shown that very detailed technical knowledge does not seem to foster or increase pro-environmental behaviour (Diekmann & Preisendoerfer, 1992; Fliegenschnee & Schelakovsky, 1998, cited in Kollmuss & Agyeman, 2002). This, at least, shows that people may not need technical information but

earnestly need basic knowledge and understanding of environmental knowledge to act environmentally friendly.

(b) *Values*

Scholars have indicated that *values* are also internal determinants of human behaviour, although there is a claim that they only contribute to abstract willingness to act (Preuss, 1991 cited in Kollmuss & Agyeman, 2002). Values have been conceptualised as ideals or *overarching life goals* that people strive to obtain. They include elements such as freedom, democracy, equality, wisdom, honesty, broad-mindedness and responsibility (Rokeach, 1968). Studies done by Dunlap, Grieneeks, and Rokeach, (1983), Karp (1996), Schultz and Zelezny (1999) and Stern (2000) have all suggested that people's behaviour towards the environment is related to their values. The Worldwide Fund for Nature (WWF, 2005) states that there is a large body of empirical evidence that the values people hold and the goals people pursue are critically important in motivating ambitious change. Since the KZCH programme was an ambitious behaviour change programme, it can be concluded that values were an important factor in bringing about environmental behaviour change.

Several studies have shown how values contribute to the formation of various environmental attitudes and behaviours (Rokeach, 1973; Poortinga, et al., 2004; Oteng-Ababio, 2012, cited in Yoda, et al., 2014). For example, Oteng-Ababio found that poor attitudes emanating from lack of concern about environmental issues accounted for poor waste management practices in Ghana. Scholars also seem to agree on a three-tier nomenclature for classifying values. Fuhrer et al. (1995) characterised a person's values to operate at the *microsystem* (comprised of an individual's immediate social network, made up of the family, neighbours, peer-groups, and so on), the *exosystem* (which includes institutions such as the media, church and political groupings) and the *macrosystem* (comprising the cultural context in which the individual lives). According to Fuhrer et al., the microsystem, comprising the significant others, is the most influential system as far as behaviour is concerned while the macrosystem is the least influential. On the other hand, Steg et al. (2014) categorised values into *egoistic*, *altruistic* and *biospheric values*. Egoistic values are also called self-enhancement values. They demand

that individuals focus their attention on their personal costs and benefits (and not societal needs) when making choices. Therefore, people with strong self-enhancement values act pro-environmentally only when the perceived individual benefits of such actions exceed the perceived costs. Altruistic and biospheric values are collectively called self-transcendence values or values above the self. These values imply that people consider group or social interests first when making choices (that is, they are self-less and self-sacrificing). Biospheric values show a concern for the quality of the biophysical environment for its own sake, without linking this quality to the welfare of human beings. However, from the standpoint of *non-sacrifice*, being moral consists in rationally pursuing one's life-promoting values, neither sacrificing oneself to others nor sacrificing others to oneself (The Objective Standard, 2015). Steg et al. (2014) have also suggested another type of values: *hedonic values*. These are values which give comfort and pleasure to the one who beholds them. For example, walking instead of driving is a pro-environmental value but may cause discomfort and loss of time to those who undertake it. Therefore, travelling by car is perceived to be more comfortable and pleasurable even by those who are strong environmentalists (Kempton et al., 1995). The choice then is between walking (altruistic) and driving (egoistic).

(c) *Norms*

*Norms*, defined by sociologists as understandings that govern individuals' behaviour in society (Papendorf, Machura & Andenæs, 2011), are the third internal determinant of human behaviour. They are "the visible and invisible rules of conduct through which societies are structured" (Rice University, 2013: 73); they are "social attitudes of approval and disapproval, specifying what ought to be done and what ought not to be done" (Sunstein, 1995: 11). Put this way, people's conception of appropriate behaviour is very much a function of the particular society and social role in which they find themselves. Therefore, like values, norms are products of culture and social learning. In this light, UN-Habitat (2010: 50) explains that "attitudes to littering (the throwing of wastes on the street or on the ground in open spaces) vary greatly from place to place. In some cultures, it is acceptable to throw wastes on the street... but in another country ordinary citizens pick up litter that is found on a street, or tell the person who dropped it to pick it up." Therefore, social psychologist Robert Cialdini concluded that whether

people put things in a waste bin or litter instead is partly a function of social norms and the observed behaviour of other people (Cialdini et al., 1990).

Scholars have divided norms into groups: formal or informal, mores or folkways, descriptive or injunctive. They are *formal* if they are established, agreed upon and written, such as laws. They are *informal* if they are casual behaviours that are generally and widely conformed to without agreement (Rice University, 2013: 62). Norms are *mores* (pronounced mor-ays) if they represent the moral views and principles of a group of people (and are usually legally protected with laws). Murder, for instance, is considered immoral in many parts of the world, and is punishable by law (a formal norm). In contrast, *folkways* are norms without any moral reinforcements but they direct appropriate behaviour in the day-to-day practices and expressions of a culture. For example, folkways indicate whether to shake hands, squat, speak, clap hands, when greeting another person. Norms are descriptive when they describe what most people do while injunctive norms prescribe what people ought to do (Cialdini et al., 1990; Sunstein, 1995: 9). For example, most people drive to work although the more desirable thing is to walk, cycle or use public transport. According to Sunstein (1995: 9), norms create a division between the judgments and desires that people display publicly and the judgments and desires that they would display if there were no norms or if the norms were different. Sunstein, therefore, argues that, in a way, social norms curtail people's freedoms. This is when freedom is understood very broadly as the power to do whatever one would like to do.

The major mechanism through which social norms are enforced is *social sanctions* (Sugden, 1986; Coleman, 1990). If someone behaves in a way inconsistent with social norms, public disapproval may produce in him/her shame, guilt and/or a desire to hide (Young, 2007). Sometimes the unpleasant feelings brought about by violations of social norms are intense, and the social consequences of those feelings, and of anticipating them, can be substantial (Sunstein, 1995). Furthermore, governments also exert influence on social norms. Sunstein (1995: 9) asserts that,

*A good deal of governmental action is designed to change norms, meaning, or role, and in that way to increase the individual benefits or*

*decrease the individual costs associated with certain acts. In fact, social norms can operate as taxes on or as subsidies to behaviour.*

This explanation is important because it shows how powerful governments can be in influencing environmental behaviour change. They can use tools such as education, persuasion, tax, subsidy, fines, time imposition, imposition of place and manner restrictions, or straightforward coercion to affect environmental behaviour (Sunstein, 1995).

Sometimes social norms can be counterproductive and may foster bad behaviour rather than good one. For example, there are instances in some residential areas in Zambia where everyone throws waste in an open space and it appears to be the norm. Therefore, Zimbardo (1976) observes that people should be aware of when conformity to a group norm is counter-productive and should not be followed, and when independence should take precedence and be adopted regardless of social rejection by that group.

*(d) Motivation*

As indicated under the Health Belief Model in Chapter Two, *motivation* is one of the cues that can spur people to action. What motivation do people have to compost their waste or to incinerate it? The term motivation is used here to describe both the reasons for an action (that is, the motive) and the enthusiasm for doing the action (how motivated is the actor?) (Dixon, 2008). In psychology, motivation has been defined as “the psychological forces or energies that impel a person towards a specific goal” (Sheldon et al. 2003: 45, cited in Dixon, 2008). Thus, people will act partly because there is a strong inner force which is compelling them to do so. This force is shaped by intensity and direction and, if there are options, these two determine which behaviour is chosen. Choosing between open dumping and recycling is, thus, a matter of choosing between the two impelled by the desire to meet the desired goal. Motivation can certainly benefit environmental programmes because it gives people the passion and drive to accomplish goals. Clearly, the antithesis of motivation is business-as-usual or ‘I don’t care’ attitude.

Moisander (1998) draws a line between two types of motivation: the broader *primary motive* that let humans engage in a whole set of behaviours, such as striving to live pro-

environmental lifestyles, and the narrower *selective motive*, that influences one specific action, such as not throwing litter in an open public area. According to Moisander, both types of motivation are important although primary motive is a long-term resolve to act for the environment while selective motive can be a one-off action. Moisander also shows that not all motivation is environmentally friendly because some types of motivation can stifle pro-environmental behaviour. For instance, the desire to live an environmentally friendly life (primary motive) may be superseded by non-environmental internal barriers, such as personal comfort and time/cost considerations. People, for example, throw litter on the nearest waste heap because it is more convenient than taking the waste to a communal collection point and they burn waste because it is a cheaper way of disposing of garbage. Moisander hypothesises that primary motives, such as altruistic and social values, are often covered up by the more immediate (hedonic) selective motives which evolve around one's own needs (such as being comfortable, and saving money and time).

(e) *Habits*

Related to values and norms are *habits*. Like for values, literature shows a positive relationship between habits and environmental behaviour. According to NEF (2005),

*when we do something out of habit, we use little or no cognitive effort. Most of us do not spend a long time each morning deliberating on what to eat for breakfast or how to travel to work: such daily routines quickly become ingrained habits. Even when we consciously think about what we do, it can be difficult to change our behaviour.*

Habits are, therefore, behaviours that people do repetitively so that such behaviours become part of them or become routine or *causistic* (Heimlich & Ardoin, 2008: 219). Routine behaviours can either be pro-environmental or not. In the case where they are not, there is need for change. However, like for other determinants of behaviour, it is not always easy to foster the required change. Heimlich and Ardoin explain that when dealing with cases which are routine,

*the challenge for educators seeking behaviour change is not to change the behaviour, but rather to change the routine that exists around that behaviour. In other words, changing behaviours is not about changing one act; it is about altering the routines in which the acts are embedded.*

Dietz, Michie, and Oughton (2011) explain that bad habits can be reinforced by several interlinked factors. For example, using personal transport in preference to public transport is a habit that can be perpetuated by a host of factors, such as lack of a bus route in the area or not knowing when the bus runs. The bad habit is further reinforced by the rewarding feeling that a journey by own car is comfortable, expedient, convenient, easy and hassle-free. Open dumping can be reinforced by factors such as unavailability of designated waste collection points, waste bins and waste collection services. NEF (2005) suggests that “when aiming to change people’s behaviour, the role habits play should be considered. Are there any habits that are likely to be barriers to behaviour change, and if so, how strong are they likely to be? How can any such habitual behaviours be raised to people’s conscious awareness?”

(f) *Skills*

Another internal determinant of behaviour is the type of *skills* that people have. Howland (2013) defines a skill as the *learned ability* to carry out a task with predetermined results, often within a given amount of time, energy or both. On the other hand, the Business Dictionary (2015) defines a skill as an ability and capacity *acquired* through deliberate, systematic, and sustained effort to smoothly and adaptively carryout complex activities or job functions involving ideas (cognitive skills), things (technical skills), and /or people (interpersonal skills). It can be concluded that skills are acquired, not inborn, and can be improved upon as one continues to use them. Where people have weaknesses in certain skills areas, improvement can be fostered through training, professional development or obtaining coaching or mentoring from those who understand the skill (Hansen & Hansen, 2015).WebFinance (2015) indicates that skills are different from competences. While a competence is a *cluster* of related abilities, commitments and knowledge, a *skill* enables a person (or an organisation) to act effectively in a job or situation. It can, therefore, be said that competences are bigger than skills.

Members of the general public may require certain skills in order to effectively participate in the KZCH programme. Lack of technical skills among personnel within municipalities and government authorities has been cited as one of the problems of waste management in many cities in developing countries (Hazra & Goel, 2009). Bandy et

al.(2008) explain that, for the National Implementation Research Network (NIRN) in the USA, *staff training* at all levels was identified as one of the core drivers of a successful programme implementation drive. In a similar vein, Mihalic et al. (2004) explain that skills and experience are required to enhance the quality of implementation of a programme. The implication of this statement is that when there is a new programme, such as the KZCH programme, one of the things that should be done is to give people knowledge and skills to enhance their participation in the implementation of the programme. This role can be ably done using Environmental Education.

(g) *Attitude*

The next internal factor is *attitude* or behavioural belief, as categorised by TPB. Petty and Cacioppo (1981: 7) define attitude as the “enduring positive or negative feeling about some person, event, object, or issue.” Closely related to attitudes are beliefs, which refer to the information (or knowledge) a person holds about a person, event, object, or issue (Newhouse, 1991). For that reason, McGuire, Lindzey and Aronso (1985) define attitudes as “the evaluations *and associated beliefs* and behaviours towards some object.” On their part, Rosenberg and Holland (1960: 3) define attitudes as “predispositions to respond to some class of stimuli with certain classes of responses” and, like Eagly and Chaiken (1995), recognize attitudes as having cognitive, affective and behavioural (conative) facets. This means that an attitude begins with a thought about something, which in turn ushers in a feeling and, ultimately, a given behaviour or action. One characteristic of attitudes is that they are not stable or static but continue to change due to social influences as people meet, communicate and interact with one another as well as an individual’s motivation to maintain cognitive and affective consistency when dissonance occurs. According to McLeod (2008), dissonance occurs when two attitudes or when attitude and behaviour are in conflict. The importance of this point to this study is that the attitudes seen among people are mutable – they can be changed. Therefore, the indifferent attitude towards environmental wellbeing that is seen in Zambia can be changed to become amenable to pro-environmental behaviour. Nevertheless, many findings show that little consensus exists on how, and to what extent, attitude can affect and predict environmental behaviour (Heimlich and Ardoin, 2008). Many studies have found environmental attitudes to have varying but usually very small impact on pro-

environmental behaviour. Preuss (1991 cited in Kollmuss & Agyeman, 2002) has explained that this is because attitudes only provide abstract (mental or intangible) and not concrete willingness to act. Further, Diekmann and Preisendoerfer (1992) have explained that the discrepancy between environmental attitude and pro-environmental behaviour is because people choose pro-environmental behaviours that demand the least cost in terms of money, time and effort. Their study concluded that people who care about the environment tend to engage in low cost activities such as recycling but do not necessarily engage in activities that are more costly and inconvenient, such as driving or flying less. In this regard, therefore, it is the cost rather than the attitude which mattered. The implication for environmental programmes, such as the KZCH programme, is to encourage high cost behaviour which inspires people to go beyond doing the less severe but doing bigger things for the environment. The big question is: are people ready for self-sacrifice?

*(h) Genetic predisposition*

*Genetic predisposition* is yet another external factor of human behaviour. Predisposition is the capacity humans are born with to learn things such as language and the concept of self (Daley, 2008; Myers, 2012). Daley states that a correlation exists between genetic predisposition and behaviour since the former may determine the personality and, therefore, the behaviour of an individual. Evidence obtained from studies of identical twins reared apart and of adopted children have shown that many personality traits have approximately 50% genetic determinant (McGue & Bouchard, 1998). McGue and Bouchard assert that these traits include intelligence quotient, mental and perceptual speed, danger-seeking, depression, authoritarianism, extroversion and introversion, neuroticism, self-control and hostility, among several others. All these traits can have a bearing on how someone relates with others and with the biophysical environment and can, therefore, be key to understanding how different people approach participation in environmental programmes, such as the KZCH programme.

The argument for genetic predisposition is, however, just one arm of the spindle that describes human behaviour. The case in point is the age-old nature-nurture debate: is it the individual's genetic makeup or the environment/culture in which they are raised that

determines their behaviour? For example, do people litter because ‘it is in them’ to litter or because it is a behaviour emanating from the environment/culture in which they find themselves? Caitlin (last updated February 2005) observes that research conducted regarding the debate has concluded that both genes and environment do play a role in the behaviour of an individual, that it is more often an interaction between genes and the environment that predicts behaviour. For example, having a genetic predisposition for a certain behaviour does not determine the actions of an individual until the individual is exposed to the right environment, then his/her chances are greater for engaging in the behaviour. Therefore, it can be hypothesised that people may have certain genetic dispositions towards the environment but these behaviours will not manifest until the right environmental conditions become available. These conditions can be ecological, social, political or economic. In this vein, it can be argued that providing conducive conditions (such as necessary infrastructure) would enable people to act pro-environmentally.

(i) *Locus of control*

Another internal determinant of human behaviour is self-confidence, also called *self-efficacy* in social cognitive theory or *perceived behavioural control* in TPB (Dixon, 2008). McLeod (2008) calls self-confidence *self-concept* while Newhouse (1991) calls it *locus of control*. Millet (2005) explains that perception of control has been shown to be a most powerful concept within the field of psychology over the past half millennia. According to Millet, the concept of internal versus external control of reinforcement was developed by Julian Rotter and his colleagues in 1966 and is based on Rotter’s (1954) social learning theory. It was developed to explain the tendency of some individuals to ignore reinforcement contingencies, or, in other words, not responding as was predicted to rewards and punishments.

At individual level, self-confidence is understood to be an important factor in determining behaviour change as it represents an individual’s perception of whether or not they have the ability to bring about change through their own behaviour (Baumeister, 1999; Millet, 2005). According to Newhouse (1991) and Millet (2005), people with a strong internal locus of control believe that their actions can bring about change; that they

can influence outcomes through their own abilities, efforts, skills and characteristics. On the other hand, people with an external locus of control feel that their actions are inconsequential, that outcomes are contingent upon external forces such as luck, chance and fate, and that change can only be brought about by powerful others. Such people are much less likely to act pro-environmentally since they feel that their actions ‘do not make a difference anyway’. In this case, environmental programmes should promote positive thinking of self-efficacy among target audiences. Table 2 shows the constructs and questions for and about locus of control or self-confidence.

Table 2: *The theoretical domain of locus of control*

<i>Domain</i>	<i>Construct</i>	<i>Questions</i>
Beliefs about one's capabilities (Self-efficacy)	Control of behaviour and material and social environment	How difficult or easy is it for you to give up smoking/eat healthier/take more exercise?
	Perceived competence	What problems have you encountered in trying to do x?
	Self-confidence/professional confidence	How confident are you that you can do x despite the difficulties?
	Empowerment	What would help you?
	Self-esteem	How capable are you of maintaining x?
	Perceived behavioural control (Optimism/pessimism)	How well equipped/comfortable do you feel to do x?

(Source: Adapted from Dixon, 2008: 5)

According to Huitt (2011), people develop and maintain their self-concepts through the process of taking action and then reflecting on what they have done and what others tell them about what they have done. Frank (2011) states that whether the sense of self is positive or negative depends upon *our experiences* in life and our perceptions and assessment of ourselves. This explanation is presented diagrammatically in Figure 6.

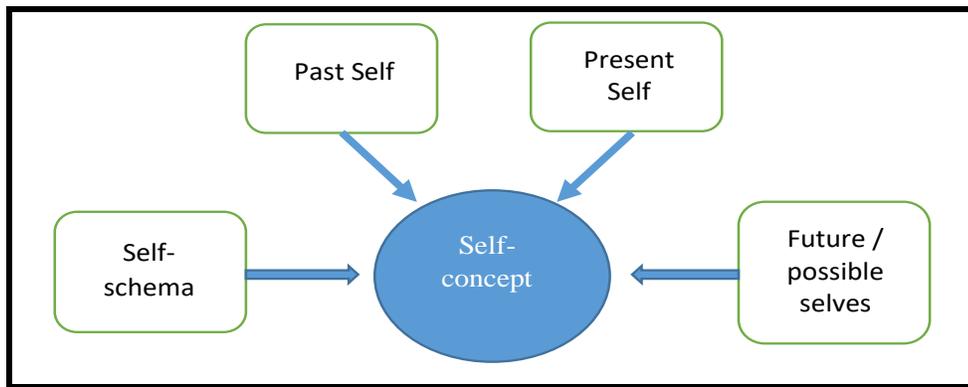


Figure 6: *Self-concept*

(Source: Bee, 1992)

(j) *Responsibility and priority*

*Responsibility* is another internal determinant of human behaviour. Just as people have rights, they also have priorities and responsibilities. Srinivasan and Tikoo (1992) affirm that what people feel responsible about is informed by their values, norms and attitudes and is further influenced by their locus of control. Once the responsibilities have been identified, they are then prioritised. According to Steg et al. (2014), most important to people is their own well-being and the well-being of their families. Therefore, the motivation to do environmentally friendly behaviours is checked by personal priorities and can only be increased by aligning the behaviours with those personal priorities. In a case where environmental action contradicts personal priorities, the action will less likely be undertaken. Examples of pro-environmental behaviours which are in conflict with personal priority are walking to the place of work even where one could drive, living in a small house even where one could afford a big house or walking a hundred metres to a communal bin when one could throw waste on the roadside or over the fence. In such cases, people have to think about responsibility and not priority. For people to participate in pro-environmental programmes, such as the KZCH programme, they should begin to see these programmes as both their priority and responsibility. They should be able to see the benefits accruing from a clean and healthy environment as their main concern and charge. Evidently, this does not appear to be the current thinking among many Zambians hence the need for Environmental Education.

In conclusion, this section has discussed the internal determinants of human behaviour. The section has shown that there are a lot of decisions that people make at personal and institutional level that affect how they behave towards the environment. Clearly, Environmental Education has a role to play to bring about change in how people perceive and interact with the environment. The next section will discuss external factors, that is, those determinants that, to a large extent, do not depend on but may affect the individual.

### **3.3.2 External factors**

Scholars have indicated that, apart from the internal factors discussed above, there are also external or extrinsic factors that determine human behaviour. Thørgersen (2005) defines external factors as those things that, on their own, individuals can do nothing about. They include rules and regulations, social structure, and several demographic variables. This section clarifies these factors and how they affect human behaviour.

#### *(a) Rules and regulations*

*Rules and regulations* have been cited as an external factor that affects human behaviour. Behaviour governed by rules and regulations is similar to causuistic behaviours discussed under habits in that it can become routine (Heimlich and Ardoin, 2008). Usually, rules and regulations are part of a legal framework in which the generation and handling of waste by different stakeholders are spelt out. UN-Habitat (2010: 195) defines a legal framework as a “system of laws, regulations and enforcement mechanisms that defines the obligations, duties and rights of citizens.” Past research has documented how an adequate legal framework contributes positively to the development of an integrated waste management system (Asase et al., 2009) and how the absence of satisfactory policies (Mrayyan & Hamdi, 2006) and weak regulations (Senget al., 2010) are detrimental to it. This is a likely problem in most developing countries, such as Pakistan (Mahar, 2010) and Zambia (Sibanda, 2010).

Two dimensions to rules and regulations are that they have to be enacted and then enforced (World Bank Group, 2002). Enactment can be done by an authority figure or a social construct such as a norm. Enforcement ensures that people who violate the rules

and regulations are held accountable. The usefulness of and need for regulation are summarised in this statement by OECD (2013: 3):

*Ensuring effective compliance with rules and regulations is an important factor in creating a well-functioning society and trust in government. It is a key element in safeguarding health and safety, protecting the environment, securing stable state revenue and delivering other essential public goals. This is critically important from a social perspective and as a foundation of economic growth. The challenge for governments is to develop and apply enforcement strategies that achieve the best possible outcomes by achieving the highest possible levels of compliance, while keeping the costs and burden as low as possible. Effective compliance can only be achieved if regulations are realistic and adequate for a given country – and no amount of enforcement will make unrealistic rules work. At the same time, in order for enforcement activities to deliver their expected results, they need to be properly resourced ...*

According to the World Bank (2006) and UNESCO (2009), poor or lack of enforcement is usually due to a perennial lack of resources, unsatisfactory or inefficient systems or inability on the part of staff. Lombard and Mamosa (2003) and Chinamo (2003) cite inefficient financial resources and lack of interdepartmental coordination (particularly in issues relating to staffing, planning, operations and maintenance) as some of the problems local governments would have in relation to enforcing waste management regulations. For East Africa, Okot-Okumu (2012) attributes ineffective enforcement of existing laws on waste management to inherent weaknesses of the laws themselves while UN-Habitat (2011) attributes the problem to laxity on the part of law enforcement officers and the courts, and to antiquated laws which require revising. Nevertheless, there is a caveat against using rules to enforce certain types of behaviours. For example, Heimlich and Ardoin (2008: 220) argue that

*although it may appear that environmental educators want [pro-environmental behaviour] to become causuistic – or automatic and socially reinforced – Environmental Education also encourages critical thinking, which runs contrary to the subconscious aspect of causuistic behaviours. With critical thinking, we desire behaviours to be post-conscious rather than subconscious. This means that one's actions should be conscious enough that individuals are able to identify a behaviour that can or should change when situations or circumstances change.*

The above quotation shows that the challenge with rule-enforced behaviour is that it does not allow critical thinking and may, therefore, be deemed to be against the tenets of

Environmental Education, democratic living, and the principles of social marketing. For example, one of the principles of social marketing is “to influence the *voluntary behaviour* of target audiences to improve their personal welfare and that of the societies of which they are a part” (Andreasen, 1994: 110). In addition, people despise coercion because it belittles them and leaves them powerless (Handy, 1993). In this regard, rules and regulations are only helpful when the target audience takes part in coming up with them. According to NEF (2005), when people take part in decision-making, they feel involved and effective to make a change. Therefore, people should be helped to believe that they have it within their power to change their behaviour in a desired way. Involving people bequests them ownership of environmental programmes and may help them to manage the programmes more willingly, without dissent.

In Zambia, waste management is regulated within the broader framework of the Environmental Protection and Pollution Control Act (EPPCA) (ECZ, 2001). This Act provides for sound management of waste to ensure protection of the environment and human life. Under the EPPCA, the Waste Management Regulations of 1993, Statutory Instrument (SI) No. 71 and the Hazard Waste Management Regulations (SI No. 125 of 2001) provide for specific procedures and practices for waste generation, storage, transportation and final disposal. There is also the antiquated and outmoded Public Health Act of 1930 and the Local Government Act of 1991. The KZCH programme is supported by Statutory Instrument No. 100 of 2011, which compels residents and institutions to take responsibility of the waste they produce (GRZ, 2017). As stated by UN-Habitat (2011) cited on page 48 above, these regulations need to be consistently revised and enforced in order for waste management to be done effectively.

(b) *Social structure*

The second external determinant of human behaviour is *social structure*. Some scholars have discussed this determinant by looking at two dichotomies that exist in society: individualistic versus collectivistic interests and evil versus good. Karp (1996) has described the conflict between individual and collective interests. According to him, individuals in society are not only expected to look out for their own welfare (egoism) but also the welfare of society as a whole (altruism). It has already been stated, however,

that in most cases, conflict arises between pursuing individual or self-interest and realising the collective good of society. These conflicts can be a recipe for *social dilemmas* since individual persuasions may disadvantage the common good of society (de Tocqueville, 1945; Karp, 1996). Karp (1996) also observes that, as groups of people, humans prefer environmental protection but few of them wish to pay the associated cost. Consequently, although 93 % of participants in Banda's (2013) study indicated that they were aware of the dangers of living in a dirty environment, only 51% felt it was their responsibility to clean the environment. Hardin (1968) describes this as the '*tragedy of the commons*'. Therefore, Karp is of the view that pro-environmental behaviour may well arise from promoting collective rather than individualistic interests, although some scholars have argued that there is no morality in perpetrating collective goals since self-sacrifice which comes with them does not lead to the prosperity and happiness of the individual (The Objective Standard, 2015).

The *theory of evil versus good* was proposed by Philip George Zimbardo, an American psychologist, following his 1976 studies in the USA (Zimbardo, 2008). These studies revealed that humans are not born with tendencies toward good or evil, but with mental templates to do either. As such, ordinary good men and women can be induced into behaving in "evil ways" by turning on or off one or another social situational variable. Consequently, the same human mind that creates the most beautiful works of art and extraordinary marvels of technology is equally responsible for the perversion of its own perfection; it can create but can also destroy as necessary. Zimbardo theorises that people are bound to act in a certain way when the environment in which they live conveys a sense of anonymity to them. As long as they feel that they are anonymous, that no one knows who they are, that no one recognises their individuality and, thus, their humanity, they become potential assassins and vandals, a danger to people and to property. To this effect, Zimbardo proposes removing social and environmental conditions that make people feel anonymous and replacing them with conditions that make people feel special, of personal value and self-worth. That feeling will enable ordinary people to resist such evil forces as graffiti and open dumping of waste and will promote environmental behaviours such as good neighbourliness, good hygiene, heroism, civic responsibility and resistance against situational temptations to engage in different kinds of non-

environmentally friendly behaviour. Environmental Education can be a pathway through which this can be achieved because it has a transformative function to change society towards sustainable living (van Rensburg, 1999).

(c) *Institutional factors*

*Institutional factors* are another variable that affects human behaviour (Gibson, McKean & Ostrom, 2000; Engel & Weber, 2007). By institutional factors is meant infrastructure and organisation or management capacities. Infrastructure includes such things as brooms for street sweeping, recycling facilities, incineration bays, waste bins, refuse collection trucks, dumpsites, public transport and (clean) toilets. On the other hand, organisation or management capacities include leadership skills and professional knowledge. Researchers who have investigated these factors (Mihalic, et al., 2004; Mryayan & Handi, 2006; Guerrero et al., 2013) have found that management deficiencies and lack of infrastructure and information in municipalities are key challenges in waste management. They have also found that information available from the public domain on waste management was very scanty. Engel and Weber (2007) also report that, on pragmatic terms, some scholars have argued that institutions are ill-equipped to bring about change or social betterment.

(d) *Economic considerations*

*Economic considerations* also have a strong influence on people's decisions and behaviours (Kollmuss & Agyeman, 2002). According to Darnton (2008b), economic theory provides the basis for considerations of human behaviour, especially those behaviours featuring a choice based on costs and benefits. Being rational and economical animals, people will weigh costs against gains or benefits. For example, if they have to decide between two possible items, one expensive energy-efficient and the other cheap but not energy efficient, they will only choose the energy efficient item if the payback time for the energy saved is very short (Kollmuss & Agyeman, 2002). In Zambia, ordinary bulbs are far cheaper than energy saving bulbs. As a result, people may prefer to buy the ordinary bulbs even when they know energy saving bulbs are more efficient and last longer. In the words of Darnton (2008b), this is "*standard economic theory which*

*uses the working assumption that individuals tend to behave rationally, with the aim of maximising the benefit to themselves.”*

Economic factors are intertwined with socio-cultural, political, infrastructural, and psychological factors which equally play very important roles in shaping people's behaviours (Ackermann, 1997). Hewitt (2008) asserts that people in small, highly populated countries such as Switzerland and the Netherlands tend to be more resource conscious than societies in large, resource-rich countries such as the USA. At personal or family level, this might mean that people with less money may spend less lavishly, choosing items to purchase more carefully than the rich. This factor is linked to disposable income which is discussed later on in this chapter.

*(e) Political will*

Another external determinant of environmental behaviour is *political will*. UN-Habitat (2010: 195) defines political will as “*the interests and intentions of local and national government decision-makers with respect to a particular issue. The degree of motivation and interest that they have to make changes in a particular aspect of their administration.*” A perusal of literature shows that, although political will is a difficult term to define, it is a very strong influence on behaviour and in the execution of programmes, including programmes promoting environmentally friendly behaviour (CMI/U4, 2010). According to Kumar (2007), the political system prevailing in a country decides, promotes, fosters, encourages, shelters, directs and controls the countries environment. Politicians and those in leadership positions have power to influence others and make things happen (Valle, 2006). For example, Mihalic et al. (2004) found that *administrative apathy* or a lack of administrative support to implementing staff tended to make them lose motivation and interest in the programme. Ntambo (2013) also states that some political leaders use their authority for personal reasons or to disrupt processes that should be the responsibility of technocrats. Therefore, people often cite lack of political will as the culprit for poorly performing and failing programmes. For example, UNEP (2013: 12) states that “*lack of political will makes waste management among the most significant planning challenges faced by developing and transition economy countries in the 21<sup>st</sup> century.*” As indicated earlier (section on norms), government cannot avoid

affecting how people behave in society (Sunstein, 1995). Because of the power they wield, governments have the ability to influence or control the behaviour of people. In addition, government leaders are decision-makers and are also at the helm of resource mobilisation for programmes. Through these actions they influence what happens and what does not happen. However, the difficulty is how to determine the existence or absence of political will. It is also difficult to distinguish between will (willing and unwilling) and capacity (able and unable) (CMI/U4, 2010). For example, is it political will if politicians build a road in a particular area, or is it for the enhancement of their influence and reputation? CMI/U4 (2010) argues that if a politician believes that constructive reform (and even destructive reform) serves self-serving purposes, he or she is likely to pursue it. On the contrary, if reform appears not to serve those ends, the politician will do little or nothing to pursue it. Therefore, if political will is to work for the success of environmental programmes, politicians should direct their energies at serving people and the natural environment (that is, self-transcendent) instead of pursuing narrow, self-serving interests. Unfortunately, what is often seen is political expedience at the expense of people and the environment.

The second challenge is where politicians have the political will but lack the capacity to implement programmes. This lack of capacity has, unfortunately, been misconstrued to mean lack of political will. In developing countries like Zambia, it is difficult to draw a line between lack of political will and lack of capacity. As indicated by UNEP (2013: 12), these countries incessantly lack institutional capacity and are bedeviled by perennial financial constraints. In such a scenario, it is difficult to ensure political will. However, as the old adage would have it, *'where there is a [political] will, there is a way'*. Cabinet Office (n.d.) asserts that politicians (and other leaders) should lead by example by simply changing their own behaviour. This is important because actions of high-profile leaders send implicit messages about the behaviours government condones. Therefore, it is not about the *'do as I say, not as I do'* hypocrisy. In addition, government policy should not give mixed messages about whether certain types of behaviour are encouraged or not. Just as individuals seek consistency, there is need for consistency in the behaviour of government and its representatives.

As observed earlier (section on norms), government could use education, persuasion, tax, subsidy, fines, or impose time, place and manner restrictions. It could also simply use force or straightforward coercion. Singapore and Rwanda, for example, have managed to maintain clean and sanitary surroundings by imposing heavy fines on residents (*MBC Times, The 12 Cleanest Cities in the World 2015*). Political leaders should also understand the programmes that they are presiding over. A study by Gunggutet al. (2013) shows that some programmes have failed to succeed because of lack of campaign internalisation or understanding among local authority top leadership. Guerrero et al. (2013: 228) assert that “*decision makers, responsible for planning and policy making, need to be well informed about the situation of the cities in order to make positive changes, developing integrated waste management strategies adapted to the needs of the citizens considering their ability to pay for the services.*” UNEP (2013) is also of the view that improved governance is essential to ensuring that governments and other institutions mobilise capacities to address challenges, recognise opportunities and reap the benefits of sound waste management.

The literature reviewed above has shown that there is not one factor but several factors that determine human environmental behaviour. However, it was not known how these factors influenced people’s environmental behaviour in Zambia. Filling up this gap was essential since the knowledge gained would be used to prepare the Environmental Education toolkit for the KZCH programme. The next section reviews literature on pro-environmental behaviour. As explained in section 3.2, studies already done on the KZCH programme did not specifically study the environmental behaviours which had been responsible for lack of effective implementation of the programme. For example, the study by Sibanda (2010) focused on the availability of a legal framework for waste management in the country, Banda (2013) concentrated on studying the importance and effectiveness of the KZCH programme (focusing narrowly on Mutendere township in Lusaka), Ntambo (2013) studied the effectiveness of using franchise contractors in waste management (concentrating on Lusaka), Mwiinga (2014) focused her study on the views and perceptions of participants (from Choma town) towards open dumping, while Siachiyako (2016) studied public participation in waste management (focusing on Lusaka’s Mtendere Township). Therefore, no exhaustive and extensive study had been

done to include as many aspects of environmental behaviour as the current study had done.

### **3.4 Environmental behaviour, behaviour change and barriers to behaviour change**

This section defines environmental behaviour, behaviour change, and barriers to behaviour change. Behaviour was earlier on defined as the physical activities performed by humans as well as the cognitive and affective processes that guide those actions (Heimlich & Ardoin, 2008). How humans behave towards the environment can, therefore, be called environmental behaviour. According to Krajhanzl (2010: 251, 252), because people are almost constantly in interaction with their environment, almost all human behaviour could be called environmental behaviour. In a narrow sense, however, environmental behaviour is such a behaviour which has a significant impact on the environment. *Intentional* environmental behaviour is a case where a person is aware of the environmental impact of his or her action but still goes ahead to execute the action, regardless of whether the action is positive or negative.

Cacioppo, Petty and Crittes (1994: 261) define behaviour change as “modification of an individual’s general evaluative perception of a stimulus or set of stimuli.” They assert that changes in a person’s general and enduring favourable or unfavourable regard for some person, object or issue fall under the rubric of behaviour change. In a study they conducted at the Ohio State University in the 1990’s, Cacioppo et al. surmised that behaviour change represents a specific form of self- and social control that does not rely on coercion. They, however, discount changes in knowledge or skill (which they call education) and changes in behaviour that require another person’s observation or sanctions (which they call compliance). Nevertheless, some scholars have indicated that behaviour change includes change in knowledge and skills and that rules and regulations can be used to bring about behaviour change (Heimlich & Ardoin, 2008) (see section on rules and regulations in this chapter).

Most studies on behaviour change seem to advance three levels at which behaviour can be changed. For example, the Institute for Insight in the Public Services (IIPS, n.d.: 4), consistent with TPB, suggests three worlds at which behaviour change takes place: my

world (or personal level), our world (or society level) and the world (or environmental level). This implies that behaviour change can be fashioned by critical awareness of the self, others, and the environment (Kumagai & Lypson, 2009: 782). This, according to the IIPS, will cover a range of different shifts in knowledge, values, beliefs, attitudes, behaviours and perceptions.

Tapia-Fonllem et al. (2013) refer to behaviours aimed at diminishing the impact of human behaviour on the environment as *frugal behaviour*. For the purpose of this study, the behaviours discussed in the section that follows have been described as pro-environmental. When people engage in them, their actions are seen to be environmentally friendly, frugal or parsimonious and characteristic of a sustainable lifestyle.

### **3.4.1 Prevention of waste generation or waste minimisation**

*Prevention of waste generation or waste minimisation* is the first and most preferred step in waste management and, therefore, appears at the top of the *waste management hierarchy* (Hansen, Christopher & Verbuecheln, 2002; DEFRA, June 2011). People who practice waste minimisation can be said to be portraying pro-environmental behaviour. As the terms depict, waste minimisation aims to eliminate waste before it is produced and reduce its quantity and toxicity (State of Queensland, 2015). Gaines and Stodolsky (1993) outline the methods of prevention as reuse of second-hand products, repairing broken items instead of buying new ones, designing products to be refillable or reusable such as cotton instead of plastic shopping bags, encouraging consumers to avoid using disposable products (such as cutlery, food cans and bottles), and designing products that use less material to achieve the same purpose (for example, light weighting of beverage cans). According to Miranda et al.(1994) and Fullerton and Kinnaman(1996), policies for waste reduction include Extended Producer Responsibility (EPR), unit pricing (or Pay As You Throw/PAYT), container deposit legislation and landfill taxes.

### **3.4.2 Reuse and recycle**

*Reuse and recycle* are part of the waste management process of recovery. Reuse is the second step on the waste management hierarchy, and involves giving products a second life before they become waste or reintroducing waste as an input into a manufacturing

process, usually without any physical or chemical change (Business Dictionary, 2015). Recycling is the third step on the hierarchy. It is a recovery operation by which waste materials are reprocessed into products, materials, or substances whether for the original or other purposes (Dalzell, 2000; Woodford, 2007). Woodford argues that reuse and recycling save materials, reduce the need to landfill and incinerate, cut down pollution, provide jobs for millions of people and help to make the environment more attractive. The policy for reuse and recycling is the principle of *cradle-to-cradle* (C<sub>2</sub>C) as opposed to *cradle-to-grave* (C<sub>2</sub>G). While C<sub>2</sub>C encourages reuse and recycle of materials, C<sub>2</sub>G encourages discarding products that have reached the end of their useful lives without necessarily putting them back into service. Useful concepts include waste as a resource (Herbert, 2009) and zero waste (Snow & Dickson, 2001).

### **3.4.3 Using a waste bin to discard waste**

Putting up receptacles in strategic areas where people can deposit their waste is the starting point in conventional waste collection. A study conducted by Yoda et al. (2014) in Ghana found that 42.6% of the participants reported that they used a community bin to dispose of waste. These scholars called *using a waste bin* an ‘appropriate method of solid waste disposal’ and, therefore, it constituted a pro-environmentally friendly behaviour. There are different receptacles currently in use including waste bins, polythene bags and larger receptacles such as dumpsters or skips.

### **3.4.4 Shopping with a reusable bag**

The ‘paper or plastic bags: which is better?’ question is an age-old question. Some people have indicated preference for paper bag with the argument that it is biodegradable. Plastic is seen as one of the most littered items in the world and takes a long time to disintegrate. Plastic also poses a danger to animals; once ingested by an animal, plastics cannot be digested or passed and remain in the animal’s intestines, preventing food digestion and leading to a very slow and painful death of the animal (Planet Ark, 2011). On the other hand, those who speak against paper bags feel that the use of disposable paper bags contributes to deforestation since the overuse of paper leads to the depletion of trees (McGrath, 2008). Taylor (2016) states that he once thought paper would be preferable over plastic, but had recently learned that pulp was not preferable to reusable cloth bags.

Therefore, *shopping with reusable cloth bags* has been strongly advocated for as being environmentally friendly. Taylor states that “It’s time to sack plastic bags. I’ve discovered that going green by using reusable shopping bags, food bins, and baskets is simple and fun”.

### **3.4.5 Telling friends and family members about the need to keep the environment clean**

Another way of demonstrating pro-environmental behaviour is to *tell friends and family members about the need to keep the environment clean*. This is a way of sharing knowledge, values, skills and pro-environmental behaviour among those who may share similar social backgrounds or life experiences (Boyle, Mattern, Lassiter, & Ritzler, 2011; Green, 2001). According to Sloane and Zimmer (1993), research suggests that people are more likely to hear and personalise messages, and thus to change their attitudes and behaviours, if they believe the messenger is similar to them and face the same concerns and pressures. This method can support people in developing positive group norms and in making healthy decisions about various subjects (DiClemente, 1993). As such, those who share information with friends, colleagues and family members about the environment can be said to be acting in an environmentally friendly manner.

### **3.4.6 Backyard burning**

*Backyard burning* refers to the burning of household waste by people on their own property, either outside in the yard or garden, or inside in ovens. People burn waste for various reasons-either because it is easier than hauling it to the local disposal site or to avoid paying for regular waste collection services (UNESCO, 2005). In rural areas where no waste collection services are available, backyard burning may be the only way that people could get rid of their waste. Even in urban areas where restrictions to waste burning exist, however, many people continue to burn their waste as a means of cheap waste disposal. Current research indicates that burning waste can increase the risk of heart disease, aggravate respiratory ailments such as asthma and emphysema, and cause rashes, nausea, or headaches (Woodford, 2010). It can also produce harmful quantities of dioxins, a group of highly toxic chemicals that settle on crops and in rivers where they eventually wind up in people’s food and affect their health (Hesperian Foundation, 2005;

Narayana, 2009). Therefore, those who do not practice backyard burning on account of these problems can be said to be practicing pro-environmental behaviour.

### **3.4.7 Dumping waste in a rubbish pit**

A *rubbish pit (umug'anda)* is a pit dug near a house or community compound where general waste is disposed of. Like for open dumpsites, the problem with a pit is that, if located near to an underground water source, toxic chemicals from the pit could leach into the water and contaminate it (Hassan & Ramadan, 2005). Also, if not fenced off, scavenging animals would have access to it. An ideal way of operating a rubbish pit, then, would be that, at the end of the day, new waste is covered with a layer of clean soil 0.1 metre deep and when the pit is full, the waste is covered with a final layer of soil to prevent vermin from breeding there (Christensen, 1989; Bogner et al., 2007). Hence, unless carefully used, a pit is not a good method of disposing of waste. People who avoid using a rubbish pit can, therefore, be considered to be environmentally friendly.

### **3.4.8 Indiscriminate dumping of refuse**

According to Akindutire and Alebiosu (2014), *indiscriminate dumping* of refuse is unsightly, risky and exposes people to diseases. In some urban areas, particularly in developing countries, people are often seen throwing their waste on roads, around open park areas or even their neighbours' yards at night. This syndrome is called 'not in my backyard' or NIMBY. In a study of household waste management conducted by Yoda et al. (2014) in Ghana, it was found that 39.0% of households indicated that they disposed of their waste in streets, gutters, bushes or any open hole. People who practice open dumping will act pro-environmentally if they dumped waste in designated areas such as waste bins, skips (dumpsters) and communal dumpsites, provided that these receptacles are available.

### **3.4.9 Working with other community members and local authorities**

If a community is plagued by litter and other types of waste, concerned residents should *work with other members of the community and local authorities* in order to organise a way of dealing with the problem. Therefore, an environmentally-friendly person will work with other community members and local leaders to ensure that the local

environment is kept clean. This is important because waste management is a *public good* that provides benefits to the whole community (Kadfak, n.d.). McKenzie-Mohr and Smith (1995) assert that transition to a sustainability future will require that the vast majority of people be persuaded to adapt different lifestyles, including cooperating with others to manage waste. The *principle of cooperation* stipulates that the operational efficiency of solid waste management depends upon the active participation of both the municipal agencies and the general citizenry (Banerjee, n.d.).

The role of Environmental Education would be to teach people sound methods of waste disposal and to give them skills needed to dispose of waste correctly. Having discussed some attributes that can be described as pro-environmental behaviour, the next section discusses the perceived barriers to behaviour change.

### **3.5 Perceived barriers to Behaviour Change**

Literature obtained from studies that have investigated barriers to behaviour change has provided the current study with an understanding of an effective approach to identifying, analysing, and overcoming the barriers to behaviour change. Some of these studies were done by McKenzie-Mohr and Smith (1999) and McKenzie-Mohr and Schultz (2012, 2014), using the community-based social marketing approach. McKenzie-Mohr and Schultz define a barrier as anything that reduces the probability of a person engaging in a target behaviour and therefore makes behaviour change more difficult. An example is the absence of waste bins or waste collection trucks. In contrast, benefits refer to a person's reasons for engaging in the target behaviour. According to McKenzie-Mohr and Schultz, the sum of the benefits a person associates with the target behaviour is their motivation. Enhancing the target behaviour, therefore, will involve reducing barriers and enhancing benefits. The following are some barriers to behaviour change.

#### **3.5.1 Lack of information about a programme**

In Environmental Education, and from a behaviourist perspective, it is assumed that when people receive information, this will lead to attitude change which, in turn, will lead to behaviour change (WWF, 2005). According to Preuss (1991 cited in Kollmuss & Agyeman, 2002), information will increase people's intellectual understanding of

environmental problems and the impact that human behaviour has on the environment. If the information is translated into understandable and perceivable information (the cognitive component) and can appeal to the emotions of people (the affective component), it will bring about willingness to act (Figure 7).

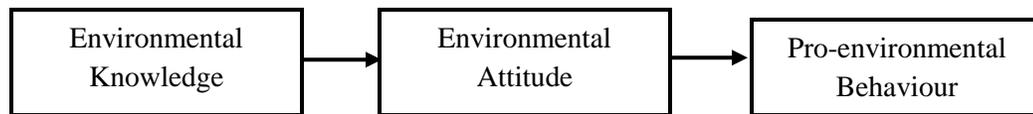


Figure 7: *Early model of pro-environmental behaviour*

(Source: Kollmuss and Agyeman, 2002: 241)

Therefore, lack of information about an environmental programme can lead to inaction among members of the general public who do not have the information. The Tbilisi Conference of 1977 stipulated that awareness and knowledge are the primary objective of Environmental Education (Malcolm, Marry & Hughes, 1992). This is because awareness and knowledge help individuals and social groups to become conscious of the total environment and the problems linked to it, become sensitive to it and develop basic understanding of people's responsibilities and role in it. In his study of waste management in Mutendere Compound in Lusaka, Banda (2013) found that 89.3 % of the participants indicated that they were aware of the KZCH programme.

### **3.5.2 Lack of waste bins and garbage collection trucks**

In their study of waste management among secondary school pupils in Maseru (Lesotho), Molapo et al. (2014) found that 23.3 % of the participants cited lack of facilities (for example, waste bins with lids) as the reason why there was rampant littering in the city. Lack of resources and facilities can be explained in terms of capacity and will (Bogner et al., 2007; Mrayyan & Hamdi, 2006; Sharholy et al., 2007; Durand, 2013). Melena (2009) defines capacity as political 'can', that is, we are 'willing' to buy the waste bins and garbage collection trucks but we don't have sufficient funds to procure them (lack of capacity). Or we know that we need the bins and trucks but they are not our priority (lack of will). However, these indicators are intricate and intertwined in that failure to procure waste bins and trucks can result from a variety of factors beyond simply insufficient motivation or low prioritisation (Preuss, 1991 cited in Kollmuss & Agyeman, 2002). For

example, low prioritisation can be a result of low levels of capacity. The solution then lies in building both material capacity and political will.

### 3.5.3 'I don't care' attitude

A study conducted by Oteng-Ababio (2012, cited in Yoda et al., 2014) in Ghana found that poor attitudes and lack of concern about environmental issues accounted for poor waste management practices in Ghana. Similarly, a study done in Lesotho revealed that 35% of the participants blamed poor attitudes by the community for littering (Molapo et al., 2014). Banda (2013) states that at least 39.3 % of participants in his study stated that it was the responsibility of the city council (not the community) to keep the environment clean. A study done in Khulna, Bangladesh found that city dwellers thought because they paid taxes it was the sole responsibility of the city authority to provide them with a nuisance-free habitable city (Amin, Mahmood & Hossain, 2005 cited in Yoda et al., 2014: para. 4). For Kenya, Solomon (2011) reported that adults left waste management to children. In Egypt, people did not want to be seen carrying waste any sort of distance because they thought it was demeaning (UN-Habitat, 2010). In this light, Cabinet Office Behavioural Insights Team (2011) is of the view that decisions made by an individual may depend on how difficult or *inconveniencing* it is to do a certain task. In addition, people generally despise sanitary work (Vidanaarachchi et al., 2006; Niessen, 2010; Owen, 2012) and sometimes call waste management workers nasty names such as *namasai* (toilet cleaners) in Zambia or *zabbal* (plural *zabbaleen* - waste collector) in Egypt.

Moghadam et al. (2009) call 'I don't care' attitude *societal apathy*. For Chawla (1999), the attitude emanates from lack of affective attachment to the environment. However, Blake (1999) attributes the attitude to lack of trust in institutions spearheading the behaviour change programmes and to hyperbolic discounting (*discounting the future*), that is, people thinking that environmental benefits take long to come and come at a cost. Hyperbolic discounting is a key barrier, for example, to giving up smoking because the harmful effects of tobacco only manifest themselves after years of smoking (The Government of Australia, 2007). Preuss (1991 cited in Kollmuss & Agyeman, 2002) called this non-immediacy of many environmental problems.

Addressing the issue of attitude, the Tbilisi Conference of 1977 stipulated that Environmental Education has a role to help individuals and social groups to acquire social values, strong feelings of concern for the environment and the motivation for actively participating in its protection and improvement (Malcolm, Marry & Hughes, 1992). Furthermore, the International NGO Forum of 1992 states that “Environmental Education has the role to empower all peoples and promote opportunities for grassroots’ democratic change *and participation*” (WWF, 2005).

#### **3.5.4 Lack of incentives or motivation**

Studies by Solomon (2011) show that incentives have been used in waste management in East Africa and people were supportive of waste management programmes. However, it is not always true that people will ask for incentives in order to undertake an action; sometimes people will also be motivated to participate in a programme if they think it is ‘the right thing’ to do (Steg et al, 2014). Where self-transcendent interests supersede egoistic interests, incentives such as offering money can be de-motivating as it undermines people’s intrinsic motivation to do what is good. This is supported by Gneezy, Meier, and Rey-Biel (2011: 201) that:

*Image concerns are another important motivation for contributing to public goods: people volunteer, recycle, donate blood, or behave pro-socially to show others that they are “nice.” Extrinsic rewards can crowd out image motivation by diluting the signal to oneself or others of a voluntary contribution: it becomes unclear whether a person is undertaking a social activity to “do good” or to “do well.”*

It can, therefore, be said incentives will work with some people and not for others. Blake (1999) calls barriers lying within the person as ‘*individuality*’. He claims that these barriers are especially influential in people that do not have a strong environmental concern. As a result, environmental concern is outweighed by other conflicting attitudes. Some scholars, however, contend that even a strong environmental concern can be overcome by stronger desires and needs (Kempton et al., 1995). For example, the need for environmentalists to fly long distances across the world to attend workshops and conferences overrides their feelings of responsibility about keeping their air travel to a minimum to minimise global warming.

### 3.5.5 Lack of political will

Mweemba (in press) asserts that the present state of the environment clearly indicates that while environmental awareness has been growing in many corners of the world, the commitment to address these issues by governments has not been strong enough to produce a real impact. Banda (2013: 2) is of the view that “although efforts to rejuvenate [the KZCH programme] had been made they had remained abstract ideas as government officials were making statements without concrete action and systematic approach.” By and large, people at every rung of society had only paid lip service to the programme. In other words, people know that it is wrong to litter but still go ahead and litter because there is no political will to punish offenders. A study by Molapo et al. (2014) in Lesotho found that 41.7% of the participants blamed authorities’ lack of action for littering in schools and around the city of Maseru. Therefore, commitment by governments, which is part of political will, needs to be invigorated if environmental issues such as those to do with waste management have to be truly and effectively addressed. In Rwanda, for example, where President Paul Kagame had marshalled the clean and healthy campaign for his country, the programme had been reported to have succeeded tremendously (CMI/U4, 2010).

However, political will is not just about marshalling people and institutions to keep their surroundings clean and healthy but also ensuring that mechanisms are put in place which make it easy to practice good environmental behaviour. For example, it has been stated in this report that poverty and environmental degradation flow in tandem. Therefore, alleviating poverty could usher into place pro-environmental behaviour. Mweemba (in press) states that “a lack of resources makes it difficult for the poor to buy out of exposure to environmental risks, or to invest in alleviating the causes of environmental degradation.” Therefore, as suggested by Burg (2003) in his appropriately titled article *Empty talk or call to action?*, the problem of waste management in the country could be dealt with by first dealing with the problem of poverty. When people are poor, their preoccupation is looking for food, not clean and sanitary surroundings. Also, when people are poor they do not spend their meagre incomes on acquiring waste bins.

In 1959, social psychologists John R. P. French and Bertram H. Raven developed a schema in which they explained agency and structure. *Agency*, a term already referred to under self-efficacy, refers to the capacity of individuals and social groups to act independently and to make their own free choices. Bandura (1999) explains that, “*In the agentic sociocognitive view, people are self-organising, proactive, self-reflecting, and self-regulating, not just reactive organisms shaped and shepherded by external events. People have the power to influence their own actions to produce certain results.*” *Structure*, on the other hand, refers to the recurrent patterned arrangements which influence or limit the choices and opportunities available to individuals and social groups. Structure uses coercive power to ensure obedience through fear of those who hold power. It tends to be the most obvious but least effective form of power because it builds resentment and resistance from the people who experience it (Handy, 1993). In contrast, agency uses referent power, that is, the power or ability of individuals to attract others and build loyalty, based on the charisma and interpersonal skills of the power holder (Handy, 1993). According to Handy, referent power is the second least obvious power, but the most effective. The principle of Environmental Education is to develop local and global citizens with *self-determination* and sovereignty of nations (WWF, 2005). Thus, its role is to encourage *democratic change and participation*, not change through coercion. Similarly, Cacioppo, Petty and Crittes (1994: 261) state that behaviour change “represents a specific form of *self-control* and *social control* that does not rely on coercion”.

### **3.5.6 Lack of role models**

Haambokoma (2015) calls learning that takes place by seeing others engage in an activity or task successfully *vicarious learning*. Bandura (1994) argues that watching people similar to oneself succeed through a sustained effort raises one’s belief that he or she too could succeed in a given task. According to Bandura (1977: 22),

*learning would be exceedingly laborious, not to mention hazardous, if people had to rely solely on the effects of their own actions to inform them what to do. Fortunately, most human behaviour is learned observationally through modeling: from observing others one forms an idea of how new behaviours are performed, and on later occasions this coded information serves as a guide for action.*

People whose behaviour, example, or success is imitated by other people are called role or *social models* (Bandura, 1994). These are people looked up to in order to determine appropriate behaviours. According to Sheppard et al. (1988), one reason why people perform an environmental behaviour is that they think their *significant others* (role models in this context) want them to perform the behaviour (subjective norm). This results in a higher intention (motivation) and they are more likely to do so. However, if an action is not popular among a social network, individuals are not likely to practice it. It is also noted that engaging and nurturing key individuals (who become role models) may be more effective in bringing about system-wide change than targeting the behaviour of all individuals.

### **3.5.7 Socio-cultural orientation**

Zender (1999) states that culture plays a pervasive and influential role in waste management. According to Sanderson (2010), socio-cultural perspectives describe awareness of social and cultural circumstances that surround an individual and how these circumstances affect their behaviour. They also seek to understand human behaviour and personality development by examining the rules of the social groups in which the individual is a member. These rules are often unwritten guidelines that direct a person's actions (see section on norms). Sanderson's socio-cultural groups include race, gender and nationality. In other ways, culture is the lens through which we understand human behaviour. For example, Thomas-Hope (1998) states that some people lack education and adhere to customs that do not easily fit into the modern world.

Lessons from behavioural economics also teach that individuals tend to go with the flow of pre-set options, or *defaults*, often regardless of whether the pre-set options maximise their individual or collective wellbeing (Cabinet Office Behavioural Insights Team, 2011). This is also called *inertia*; when faced with a difficult decision or one involving too much choice, people may choose not to change their behaviour at all, or to choose the easiest option (*the path of least resistance*). Human beings unconsciously seek consistency in their beliefs and mental frameworks and selectively perceive information so that they resist non-conforming information (see Festinger's *theory of dissonance*).

### **3.5.8 Lack of time**

Blake (1999) calls lack of time, lack of money and lack of information '*practicality*' or social and institutional constraints that prevent people from acting pro-environmentally. Apart from attending to environmental programmes, people have a lot of the other engagements that equally require time. Kennedy et al. (2009) explain that attending to environmental programmes requires a time investment that some may feel they simply cannot afford. In actual fact, Banda (2013) found that 79 % of the participants in his study stated that there were no benefits accruing from participating in the KZCH programme. In a similar manner, Tindall et al. (2003) explain that the reason for low levels of participation by female activists in political activism is a reflection of the limited time that this demographic group has to spend on activities above and beyond responsibilities at work and in the home. Therefore, the additional time required to perform some tasks may limit individuals' ability to engage in pro-environmental activities, including management of waste. In a study of programme implementation initiative, Mihalic et al. (2004) found that keeping surroundings clean and healthy may not be a priority for many residents and agency administrators, particularly when they face other challenges. In a case where time is a factor, Environmental Education could teach target audiences how to manage their time in order to make time for a particular behaviour, that is, by freeing up times when it could be performed (Hirst, 2011).

### **3.5.9 Lack of money**

As stated in the section immediately above, lack of money is a *practicality* problem. People have to have resources needed to act and this may require money. Kennedy et al. (2009) explain that affluence or material comfort is generally rejected in the literature as a predictor of pro-environmental behaviour (Dunlap & Mertig 1995; Diekmann & Franzen, 1999). Yet, it is also apparent that high-income versus low-income individuals may support the environment differently (see section on socio-economic determinants in this chapter). For example, a perceived lack of money can clearly prevent individuals who hold pro-environmental values from purchasing expensive, environmentally-friendly products, such as organic foodstuffs. Affluence, on the other hand, can also allow individuals to afford less environmentally supportive behaviours such as driving a vehicle to work rather than relying on public transport. This difference is replicated at national

level. For example, when in England ‘waste from households’ recycling rate reached 44.8 per cent in 2014 (Government Statistical Services, 2015), there was “a glaring absence” of formal recycling of municipal waste in Nigeria (Nzeadibe & Adama, 2013). Studies have shown that the major impediment which jeopardises improvements in waste management in developing countries is lack of capital (Bogner et al., 2007; Sharholly et al., 2007).

This section has discussed barriers that might affect the implementation of an environmental programme and which need to be addressed if programme implementation has to succeed. The next section considers how different socio-economic groups engage in distinct dimensions of environmental behaviours.

### **3.6 Differences in behaviour among Different Socio-demographic Groups**

A number of previous studies has shown an association between environmental concern and socio-demographic factors such as age, gender and social status (Gabrenya, 2003; Mathews, 2004; Kimble, 2005 & Sujauddin et al., 2008). The intention of such studies has been to find a link between high environmental concern and particular socio-demographic attributes in order to explain the major causes of environmental awareness as well as environmental action. This section discusses these factors.

#### **3.6.1 Age**

*Age* is an important determinant of behaviour. Studies have revealed a relationship between environmental concern and age (Malkis & Grasmick, 1977; Grimes, 1980; Mohai, Lowe & Pinhey, 1982; Twight, 1987). Mathews (2004) and Buttel (1979 cited in Mohai & Twight, 1987) assert that the behaviour and views of an individual will change as the age of the individual progresses and as one takes on additional responsibilities and roles with age. Therefore, an individual behaves in a particular way simply for the reason of responsibility. With age, people increase the accumulation of material and social resources, become more involved in religious, political, economic and social subsystems and are, therefore, prompted to take conservative actions in order to maintain their status quos. In its antithetic line of argument, however, the United Nations Programme on Youth (UNPY, n.d.) argues that, while it may be true that maturity comes with a host of

responsibilities, cares and roles, the youth everywhere in the world have aspirations and want to participate fully in the lives of their societies. As such they cannot afford to make careless decisions concerning their behaviour. In fact, the UNPY exalts young people as key agents for social change, economic development and technological innovation in their communities. A survey conducted by Malkis and Grasmick (1977) in Minneapolis (USA) also revealed that younger generations tend to be more concerned about environmental quality than older generations. Other studies done later also found that age is a dominant factor in determining the degree of environmental concern. However, some studies have shown only a weak link between age and environmental concern (Furman, 1998).

### **3.6.2 Gender**

*Gender* is the state of being male or female (English Oxford Living Dictionaries, 2016). Some studies have shown gender to be one of the most salient factors that predict environmental concern. Mathews (2004) explains that,

*in the same respect of ethnicity, a child learns gender and gender accepted rules at a very early age. A female is not supposed to play football while a male is not supposed to play with Barbie's. Throughout the life of a child they are told by parents and everyone around what is expected of them as a girl or boy. A girl is supposed to be polite and innocent while a boy can be loud and playful.*

Therefore, the gender stereotypes that humans have created for themselves can have a telling effect on their behaviour. From the literature, three schools of thought emerge concerning gender and environmental concern. The first is that women show greater concern and responsibility about the environment than men due to their biospheric orientation (Diamond & Orenstein, 1990; McEwen et al., 2015). A study done in 2013 at the University of Essex found that, consistent with previous research, women seemed to have higher pro-environmental behaviour than men (Institute of Social and Economic Research, 2013). They are more concerned about environmental quality, critical about policy taken by government and willing to accept lower standards of living for fewer health risks. It has also been alleged that females are good at sharing useful information with family members and society at large (Dimitriadi, 2013 cited in Haambokoma, 2015), that they tend to be good teachers at family level, participate much more in community

activities than males, and that girls attach more importance to assisting other people than boys (Jenkins and Pell, 2006 cited in Haambokoma, 2015). UNICEF (2003) emphatically asserts that objectives to realise the full benefits of water and sanitation services cannot be met without the full participation of women. UNICEF posits that women and girls are traditionally responsible for domestic water supply and sanitation, and maintaining a hygienic home environment in most parts of the world. Fliegenschnee and Schelakovsky (1998, cited in Kollmuss & Agyeman, 2002) and Lehmann (1999, cited in Kollmuss & Agyeman, 2002) are of the view that women usually have less extensive environmental knowledge than men but are more emotionally engaged, show more concern about environmental destruction, believe less in technological solutions, and are more willing to change than men.

The second school of thought is that men are more concerned about the environment than women. This viewpoint argues that men usually achieve higher levels of education and get involved with communities and political issues more often than women (McEvoy, 1972). The argument further states that because of the 'father and mother effect', women are more concerned with the local environment while men are concerned with national and global environmental problems (George and Southwell, 1986 cited in Dietz, Stern & Guagnano, 1998). Kastleman (2012) explains differences between the males and females in terms of the differences between male and female brain. He states that this difference means that *in most cases*, men and women do not behave, feel, think, or respond in the same way. However, Kastleman also acknowledges that this assertion is not absolute but represents what most therapists, psychologists, and scientists consider to be the majority of men and women. Therefore, it is by no means a hard and fast rule or description of every man and woman. Further, Price (2017) charges that the controversial question is whether these patterns mean anything to intelligence or *behaviour*.

The third school of thought is that there are no significant differences between sexes when it comes to environmental behaviour. According to Mathew (2004), as children continue to age, they become less dependent on gender as a way of behaviour. They no longer act in a certain way because they are a boy or a girl. Therefore, scholars like Hayes (2001) have argued that gender does not influence environmental concern. Similarly, Mohai (1992) is of the view that there is no definite conclusion about the effect

of gender on environmental concern. In fact, some studies have shown that some differences between males and females may be purely socio-cultural rather than natural or physical (McEwen et al., 2015). For example, Haambokoma (2015) notes that boys in Zambia had more access to schools than girls because there were more schools for boys than for girls. One reason given by the Zambian Ministry of Education (MoE, 1996 cited in Haambokoma, 2015) for this was that society perceived education for girls as a privilege which had to be earned. Therefore, the fact that there were fewer girls at school did not mean that girls did not want to be at school. Rather, it was a societal decision. Liberal feminists, therefore, believe that if females were given appropriate chances and motivation, they could enter male-dominated domains and perform just as well as men (Wacjman, 2007 cited in Haambokoma, 2015). This is consistent with the belief that women are capable of doing what men can do because they have the same intellectual abilities as men (Mathews, 2004; Haambokoma, 2015). In fact, *some* females can achieve beyond what men have accomplished while others may not. Haambokoma concludes that, for this reason, more women and men are exchanging roles today.

### **3.6.3 Social status**

*Social status* is usually studied by comparing people along three closely related stratification continuums: wealth or disposable income, occupational prestige and educational attainment (Inglehart, 1990; Gabrenya, 2003). Van Liere and Dunlap (1980) hypothesise that environmental concern is positively associated with social class as indicated by income, occupational prestige and education. Kohn (1959: 337) asserts that “a fuller understanding of the ways in which people of different social classes differ in their values may help us to understand why they differ in their practices”.

*Disposable income* is the income after direct taxes and welfare benefits have been taken into account (Weinberg, 2004). Inarguably, how much income people take home affects their ability to perform certain behaviours, that is, what they can afford to do and what they cannot afford to do. The Millennium Ecosystem Assessment (2003) suggests that, as the disposable income increases, human appetites also escalate. As a result, *consumerism* (also known as ‘grab all’ or materialism), which is a social and economic order that is based on systematically creating and fostering a desire to produce or buy goods or

services in ever greater amounts, sets in. This translates into increased demand for many ecosystem goods and services and, inevitably, production of more waste which is returned to the environment (Millennium Ecosystem Assessment, 2003). However, a big disposable income might also mean affording to purchase items which are more environmentally friendly and, therefore, minimising the impact on the environment. As such, disposable income is a two-pronged factor which can work for or against the environment.

It has also been conceptualised that there is a relationship between *occupational status* and concern for the environment (Gabrenya, 2003). Research has shown that poor people and those in low income jobs preoccupy themselves with searching for food and other basic human needs (Van Liere and Dunlap, 1980). They have little time and material resources to spend on the wellbeing of the environment. Andrews (1978) explains that once people have solved their basic material and physical needs, they opt for more aesthetic aspects of human existence or “quality of life”, such as better and cleaner environments. Therefore, in the sphere of environmental economics, the assertion is that improvement of environmental quality is achieved as income increases. This is because the affluent people have money to spend on improving the cleanliness and wellbeing of the environment. Mwiinga’s (2014) study in Choma shows that participants’ occupation had an influence on participants’ attitudes towards the environment. However, like in the case of education, high occupational status may also come with undesirable effects such as consumerism which may affect the environment in a negative way.

*Education* gives people knowledge, skills, values and attitudes to amicably deal with other people and the environment. Inarguably, the longer people stay at school, the more extensive their knowledge becomes about environmental issues and the more skills they gain to deal with the environment (Kollmuss & Agyeman, 2002). Studies done by Arcury, Johnson and Scollay (1986) in the USA show that as the level of education increases the level of environmental concern also increases. ECLAC (2000) explains that,

*a hypothesis states that as individuals become more educated, they are more concerned about environment. The higher education is associated with higher concern since it is directly related to the access to information on environment and ability to process the information into knowledge. The*

*study by Arcury (1990 cited in Furman, 1998) supports a consistent and positive relationship between environmental knowledge and environmental attitudes.*

The study done by Mwiinga (2014) showed that all the participants who indicated that they talked to others about the need not to litter had tertiary education and were from a low density residential area. Similarly, Chanda's (1999) study in Botswana also showed that better educated and wealthier persons better recognised environmental issues than less educated, poorer persons. Yet, other studies have indicated that more education does not seem to necessarily mean increased pro-environmental behaviour; people only need to have basic knowledge about environmental issues and the behaviours that cause them in order to act pro-environmentally in a conscious way (Kempton et al., 1995).

#### **3.6.4 Locational factors**

*Locational factors*, such as whether someone lives in a rural or urban area or whether they live in a low or high density area, can also determine people's behaviour. Gifford and Nilsson (2014: 8) state that "residents of rural areas experience the environment in very different ways from their urban counterparts; doubtless they are in touch more with nature. Does that result in greater or lesser environmental concern or behaviour?"

Scholars show that there is a stark difference between rural and urban areas in a lot of ways, including people's standards of living, infrastructure development, educational attainment, occupational choices, consumption styles and wages. This difference is called the *rural-urban divide* or gap (Park, 2008; Mylott, 2009; Hnatkovska & Lahiri, 2012). The difference can affect how people deal with issues of waste management. For example, urban areas produce and accumulate more waste than rural areas because they have greater population densities and constant business activities (Hamlin (2009; Yoda et al., 2014). This puts them at a greater risk of unsanitary waste disposal and its effects. The IBRD/World Bank (1999) also indicate that one can assume that rural populations will generate less waste because of their lower per capita incomes. These statements show that waste generation in rural areas is significantly less than in urban areas. Therefore, rural dwellers are likely to live in cleaner and more sanitary environments than urban dwellers. However, it is also acknowledged that, although urban areas produce more waste, they usually have better waste collection services than rural areas and,

because housing units are closer together in urban areas, it is easier and cheaper to provide more sustainable waste management services than in rural areas where houses are farther apart (Hoa, 2013). Further, practices of waste disposal are difficult to upgrade in rural areas due to poverty, lack of education and adherence to customs that do not easily fit into the modern world (Thomas-Hope, 1998). Additionally, rural areas also receive the urban garbage – polluted air, contaminated water, and solid wastes discharged by the cities (Hanlon, 2007). Rural areas are also more distant from government as regulator and provider of services while access to infrastructure and services is limited (largely because of distance, low density and limited capacity to pay) (DANIDA, 2000). All these factors militate against provision of waste management services in rural areas.

Further to the problems listed above, there is also a big disparity in knowledge about waste management between urban and rural areas. This is because those who disseminate information, including NGOs and FBOs, tend to concentrate on urban areas, neglecting rural areas. Moreover, urban dwellers have additional sources of information such as newspapers, television and radio. Thomas-Hope (1998) ascribes lack of proper waste management practices in rural areas to lack of education. In this sense, Environmental Education becomes the vehicle for imparting information to the rural audience.

Social class segregation puts the rich and the poor into different neighbourhoods or *residential areas* (Sharkey, 2013). Hastings et al. (2009) investigated why affluent residential areas tended to have higher levels of street cleanliness than deprived neighbourhoods in the UK. The study identified deprivation, income, number of children and proportion of young adult households as the risk factors for poor street cleanliness. Deprivation means people in high density residential areas cannot afford to purchase descent or more conventional methods of waste disposal. For example, Okot-Okumu (2012: 7) noted for East African countries that while household wastes were stored in waste bins by the affluent, household waste from poor residential areas was stored in sacks, plastic bags, cut jerry cans and cardboard boxes. Similarly, because of closely packed and unplanned nature of housing in high density residential areas, motorised waste collection vehicles could not be used. Instead, wheelbarrows and handcarts had to be used in those areas to remove and transport waste from one place to another (Solomon, 2011). On the other hand, well planned, neatly arranged low density residential areas

were readily accessible by waste collection trucks, such as fore-and-aft tippers and container hoist units. Therefore, this study hypothesised that residents of low density residential areas would be more concerned about the cleanliness of the environment than those in high density residential areas.

In the current study, the socio-demographic groups compared were gender (being either male or female), place of residence (low or high density residential areas) and location (rural or urban areas).

### **3.7 Successful cleanup programmes**

There are numerous examples of successful cleanup campaigns around the world, operating at local, national and global levels. This section describes some of these programmes and points out the main thrusts undertaken to bring about behaviour change.

#### **3.7.1 Clean up the world campaign**

World Cleanup Day (WCD) is an annual worldwide environmental campaign celebrated during mid-September (the most recent celebration was on 15<sup>th</sup> September, 2018) (Cereceda, R., 2018 September 14<sup>th</sup>). With its origins in Sydney, Australia in 1993, the campaign is held in partnership with the United Nations Environment Programme (UNEP). The main objective of the Clean Up the World is to bring together non-governmental organisations, community groups, schools, governments, businesses and individuals to undertake activities to improve water quality, clean up local streets, parks, forests, rivers and canals as well as educate children about the environment. In addition to uniting millions in global environmental action, Clean Up the World Weekend serves as a celebration of participants' year round activities. By promoting their achievements internationally, Clean Up the World focuses public attention on global community concerns for the environment and how each individual can make a positive contribution to a cleaner and healthier world.

### **3.7.2 Keep America Beautiful campaign**

Keep America Beautiful (KAB) is a non-profit organisation formed in 1953 by a group of corporate and civic leaders who met in New York City, United States of America. The aim of the campaign is to bring the public and private sectors together to develop and promote a national cleanliness ethic. The campaign envisions a country in which every community is clean, green and beautiful to live.

To achieve its vision, the campaign undertakes various activities, including:

- (a) Cleanups: collecting litter and debris; cleaning roads, streets and highways; cleaning parks, hiking/biking/nature trails; cleaning playgrounds and community recreation areas; cleaning rivers, lakes and shorelines; cleaning wetlands and underwater; and removing junk cars.
- (b) Reduce, reuse and recycle: collecting clothing for reuse; recycling steel and aluminum bags; and recycling newspapers, tyres and batteries.
- (c) Beautification: planting trees, flowers and bulbs; painting commercial buildings and homes; and abating graffiti sites.

These activities have been achieved through working with local communities of concerned citizens to focus on and take action to improve their cities' appearance; raising awareness about responsibilities of individuals and community members to help reduce litter and waste; and getting financial support from both private and corporate donations.

### **3.7.3 Puerto Cabezas anti-garbage and plastic bags campaign**

This is a campaign carried out in Puerto Cabezas, a municipality in Nicaragua, South America. Puerto Cabezas is the capital of the Northern Caribbean Coast Autonomous Region (RACCN). A campaign to fight against garbage and the use of plastic bags was founded in 2013. In order to prevent the use of plastic bags, reusable bags were distributed in the municipality. The aim was to promote a *change of attitude* among the population, as well as fostering the *habit* of disposing of solid waste in the right place, *valuing* recycling and ensuring a healthy and safe environment.

The campaign involved the following activities:

- (a) distributing waste bags for use on inter-municipal buses, taxis and bicycle rickshaws.
- (b) talking to transport workers and giving them car stickers with the slogan “No garbage is thrown from this car”.
- (a) conducting a radio awareness-raising campaign on many issues related to the environment and sustainability.

The clean-up campaign was a successful example of the awareness-raising campaign. A total of two tons of solid waste were gathered from a stream, an activity that was accompanied by the handing out of reusable bags and discouraging the use of plastic bags. The campaign involved the participation of various stakeholders, including the municipal authorities, the Federation of Secondary School Students (FES), the Guardabarranco Environmental Movement and the Municipal Network of Young Indigenous People.

#### **3.7.4 Clean and green Calgary**

Calgary in Canada has consistently been ranked in the top spots by renowned publications such as Forbes Magazine, Maclean’s and Mercer when it comes to environmental stewardship and cleanliness (*The Huffington Post Alberta*, 05/19/2013). Calgary can boast litter-free streets and streams. In 2010, Mercer Quality of Living Survey gave Calgary the top spot for the world’s best eco-city, based on five factors: water availability and drinkability, waste removal, quality of sewage systems, air pollution and traffic congestion. In 2014, Mercer Global Financial ranked Calgary as the world’s cleanest city. In 2007 and again in 2011, Forbes Magazine referred to Calgary as the cleanest city to live in.

The success of Calgary can be attributed to the Clean and Green Calgary campaign. The aim of the campaign is to decrease how much waste is sent to landfill. Environmentally friendly initiatives undertaken by the municipality include the following:

- (a) initiating the *Too Good To Waste programme* in 2007 whose target is to decrease the amount of waste sent to landfills, giving more commitment to recycling materials, such as wood, asphalt, drywall, shingles and concrete. Calgary has made a commitment to divert 80 percent of city waste away from landfills by 2020.
- (b) imposing steep fines to Calgarians, such as a thousand dollar fine for dropping cigarette butts or throwing rubbish out of a car window. This has had a positive impact on the city.

Efforts by the municipal and provincial governments are supplemented by various non-profit organisations who are interested in promoting sustainable living and advocating environmental awareness. One such organisation is Green Calgary which has been in operation since 1978(Christensen, 2012). The organisation promotes a greener lifestyle for Calgarians by providing education to corporate companies, and engaging citizens to buy sustainable and environmentally friendly products in order to reduce their ecological foot prints. It seeks to empower Calgarians to create healthy homes and communities through Environmental Education, products and services. Green Calgary also organises several fundraising events to reduce, reuse, and recycle various waste materials and even electronics. The organisation also offers tips on everything from improving composting to how to pack a litter-less lunch.

#### **3.7.4 Keep Singapore Clean**

Keep Singapore Clean was launched on 1<sup>st</sup> October, 1968 by then Singaporean Prime Minister Lee Kuan Yew (Ministry of Environment, 1997). According to the Ministry, the aim of the campaign was to make Singapore the cleanest and greenest city in Malaysia by addressing the problem of inconsiderate littering. The campaign was targeted at every stratum of society and sought to instil in Singaporeans the importance of keeping public places clean and green.

The campaign was part of a larger public cleaning plan that included changes in public health laws, relocation and licensing of itinerant hawkers, development of proper sewage systems, and disease control. In order to achieve the aim of the campaign, the following activities were undertaken:

- (a) forming a national committee to run the campaign. The committee was made up of various stakeholders, including government agencies and ministries, NGOs and employers' and employees' associations.
- (b) appealing to Singaporeans to keep their communities and surroundings clean by raising their personal and public standards of hygiene.
- (c) imposing heavy penalties on litterbugs. Singapore uses harsh penalties to achieve the keep Singapore clean campaign.

As a result of this campaign, Singapore ranks among the cleanest cities in the world.

### **3.7.5 Kigali - The Cleanest City in Africa?**

In Rwanda, people have made towns and communities clean, compared to other countries in Africa (Obera, 2017). Kigali, the capital city of Rwanda, has been voted the cleanest town in Africa and nicknamed 'the Singapore of Africa'. Obera states that, to many visitors to Rwanda, the common impression has been: "Kigali the cleanest city or Kigali the greenest city.'

Initiatives to keep Rwanda clean and green include the following:

- (a) an ambitious waste management programme.
- (b) banning plastics in 2008 (instead of imposing tax on plastics).
- (c) beautifying streets and pavements.
- (d) imposing harsh penalties on people flouting the regulations (for example, \$150.00 for being found with a plastic and up to 12 months in prison for selling plastics).
- (e) instituting an obligatory collective street cleaning up activity called *umuganda* (meaning coming together to achieve a common purpose). Every last Saturday of the month, able-bodied citizens between 18 and 65 years come together to clean up the streets, clear bushes, and clean up sewage systems.
- (f) political will – the president has owned the project, not delegating it to another person or official. He even takes part in the cleanup.
- (g) instilling a culture of cleanliness into children at an early age. "To the children, it is a taboo to dump garbage on the road," says Patricie Mukangarambe, then Director

of Health and Environment Unit in the City of Kigali (Ngabonziza, D., March 4<sup>th</sup>, 2018).

According to Obera, the main thrust shaping the Clean City Campaign in Rwanda is national pride supported by strong political will.

Concluding this section, it is clear that the success of the campaigns described above depended on the following:

- (a) well-articulated aims and visions.
- (b) involving multiple stakeholders from cross-section of society.
- (c) cultivating a culture of cleanliness into children at an early age.
- (d) using diverse initiatives and activities to bring about change.
- (e) emphasizing responsibility of individuals and community members.
- (f) courting strong political will.
- (g) imposing heavy fines on offenders.
- (h) forming dedicated steering committee.
- (i) instituting obligatory cleanup activities.

### **3.8 Behaviour Change Toolkit**

The term ‘toolkit’ is applied to many forms of guides which provide information and content on specific topics of interest (Centre for the Study of Social Policy, 2010). A toolkit is an independent resource which provides guidance for users on how to use their resources to improve the attainment of set objectives. Therefore, an Environmental Education programme, such as the KZC, can make use of a toolkit to attain its goals. This section shares information on some of the toolkits which have been developed for various purposes but all of them designed to help people implement some sort of programme more effectively.

Savage et al. (2011) produced a *Behavioural Insight Toolkit* for the Social Research and Evaluation Division, Department for Transport (DfT) in the United Kingdom. The aim of the toolkit was to provide a practical tool for users in DfT and its delivery partners (including local authorities) wishing to apply the latest behavioural insights in the

development of policies or initiatives in the transport context. The toolkit was designed to assist users in reviewing and developing policies and initiatives to ensure that they were taking full advantage of existing evidence base and insights from behavioural theory.

SNV/WASH (2016) developed a toolkit on sustainable sanitation and hygiene for all (SSH4A). The purpose of the toolkit was to provide guidance to the SNV teams and partners engaged in the process of capacity development in behaviour change communication (BCC). The guidelines in the toolkit were developed to complement existing resources available in the sanitation and hygiene sector.

Gaylord and D'Andria (1998) produced a toolkit titled *Simulating Society - A Mathematica Toolkit for Modeling Socioeconomic Behaviour*. The two-fold purpose of the toolkit was to demonstrate the ability of computers to create simulations of the behaviour of people in social and socioeconomic situations, to people interested in human behaviour and to provide people with computer-based tools that will allow them to carry out their own computer simulation studies of whatever socioeconomic phenomena interest them. One reviewer of the toolkit, Rainer Hegselmann, noted that the toolkit contributed to a solution for a shortage of flexible tools which allowed researchers to concentrate on the social science of their simulations.

CSIR (2011) produced a toolkit *Municipal waste management- good practices*. The authors note that, at the time of writing the toolkit, the management of domestic waste in South Africa faced many real challenges. The intention of the toolkit was, therefore, to highlight good practice initiatives which had resulted in real improvements to the way that waste was managed in communities. In so doing, it was hoped that other municipalities might learn from those approaches and identify simple and innovative solutions to help solve some of the waste management problems in the short-term, as a first step towards implementing best practice waste management approaches.

Lastly, HelloWAllet (n.d.) produced a toolkit, *A toolkit for designing for behaviour change*, which was intended to help designers design products that enabled their users to change behaviours in their daily lives – from exercising more, to saving for the future.

The lessons were ordered in a step-by-step process for discovering, designing, implementing, and iteratively improving products that helped their users take action.

This section shows that a toolkit is a viable tool to guide different stakeholders in designing and implementing a behaviour change programme. Such a toolkit may be needed by the KZCH programme.

### **3.9 Behaviour Change Tools**

Studies have named behaviour change tools as commitments, social diffusion, goal setting, social norms, incentives, feedback and prompts (Bartram, 2009; McKenzie-Mohr & Schultz, 2012). In community-based social marketing, behaviour change tools are selected to address the barriers and benefits that have been identified (McKenzie-Mohr & Schultz, 2012). The section that follows will discuss the behaviour change tools as proposed by McKenzie-Mohr and Schultz (2012, 2014).

#### **3.9.4 Commitments**

Commitment is a social marketing strategy where someone promises to adopt a behaviour, that is, he or she makes a *commitment* which obligates him or her to do something (King, 2010). According to Lokhorst et al. (2012), “*commitment making is commonly regarded as an effective way to promote pro-environmental behaviours. The general idea is that when people commit to a certain behaviour, they adhere to their commitment, and this produces long-term behaviour change*”. Lokhorst et al. concluded that commitment making leads to behaviour change in the short-and long-term.

In a study conducted in the USA by McKenzie-Mohr and Schultz (2012), voters were asked the day before an election “Do you expect you will vote or not?” They all agreed and this action appeared to increase the likelihood of them voting by 41 per cent. McKenzie-Mohr and Schultz concluded that when you ask people to vote in an election, they consider and decide that it is the right thing to do as a good citizen, so they tell the questioner yes, they will vote, and are more likely to vote. This may not only apply to voting but to other activities such as pro-environmental ones.

However, making a commitment does not always mean that people will do what they have pledged to do. Humans, being what they are, it is agreed that commitment should be accompanied by eliciting *implementation intentions* from people (Steg & Vlek, 2009). This means that, apart from asking people whether or not they intend to change their behaviour, they are also asked to indicate how they plan to do so. King (2010) also suggests that commitments are most effective when they are made in public, are active, effortful and freely chosen. In a study by Pallak, Cook, and Sullivan (1980), households were asked to make either private or public commitments to conserve natural gas and electricity. The results showed that only those households who agreed to have their names published in the newspaper actually reduced their natural gas and electricity usage. Pallak and his colleagues concluded that making a commitment in public forces the person making it to stick to it to look consistent, reliable, dependable and unwavering. Public commitment making is especially effective for those with lots of pride or public self-consciousness. An *active commitment* involves performing an action to make the commitment, such as writing or swearing an oath, also in public (Bartram, 2009). This can also enhance the effectiveness of a commitment. In a study by Pardini and Katzev (1983), residents were either asked to make a verbal commitment to recycle, a written commitment to recycle, or simply received a pamphlet regarding recycling. According to the results of this study, both commitment groups recycled more initially but a later follow-up demonstrated that only the group that made the written commitment was still recycling. Generally, people will abide with their commitment when the price they are going to pay for not accomplishing the commitment is bigger. This is what is meant by an *effortful commitment*. Lastly, people who make commitments must feel that they have *freely made* the commitment. According to King (2010), if an individual feels coerced into making a commitment, the self-perception that underscores commitments is unlikely to occur. Therefore, threats in whatever form should be avoided.

King (2010) also explains how the principle of self-persuasion or *foot-in-the-door* (FITD) technique works with regard to pledge-making. An individual is more likely to comply with a second, larger request when he or she has agreed to perform a small initial request (Freedman and Fraser, 1966; Burger, 1999). According to King, foot-in-the door works best when the request is pro-social and the initial request is moderate. When the initial

request is too small, the individual will not feel committed just as when there are external justifications or rewards. The opposite of foot-in-the-door is *door-in-the-face* (DITF) technique, where the persuader attempts to convince an individual to comply by making a large request that the individual will most likely turn down, but then accepts a second, more reasonable request (Cialdini et al., 1975; Perloff, 2010).

Literature studied does not provide any counter thesis against commitment except that it is more likely to be effective for individuals who are already motivated to act but have not yet engaged in the action. Therefore, if well used, commitment can help to change behaviour and support the implementation of pro-environmental programmes, such as the KZCH programme.

### **3.9.5 Social Diffusion**

Social diffusion (also called *diffusion of innovations*) was introduced by Everett Rogers in 1962 (Haggett, 1983; Rogers, 2003; Heimlich & Ardoin, 2008). According to the social diffusion theory, change spreads in a population through a normal distribution of willingness to accept new ideas. Heimlich and Ardoin (2008) explain that one of the most common reasons for the adoption of a new sustainable behaviour is the fact that friends or colleagues have already adopted the action and have told others in their social networks about it. Psychologists have found that people are open to influence from their *significant others*, that is, people in authority and people they like (MindTools.com, 2014). However, studies have also shown that when the influence is from an authority, the effects are less likely to be lasting than when people are influenced by someone they like. In circumstances where need may arise for coercion, programme implementers should be careful because, when people know that someone is trying to persuade or coerce them, they generally take an opposing or defensive view (Heimlich & Ardoin, 2008).

Another dimension to the theory is that social diffusion is most likely to occur when the promoted behaviour is visible in a community (Heimlich & Ardoin, 2008). By this is meant that a behaviour which people can easily see is more likely to diffuse than one which they cannot. An example of visibility is putting a waste bin on the roadside (kerbside bin). However, not every innovation can be displayed like a waste bin.

Therefore, diffusion of low visibility behaviours (such as those which take place inside a house) can be promoted by utilising public and durable commitments or pledges, as was explained under ‘commitments’. For example, residents can be asked to attach stickers to their roadside waste bins indicating that they have engaged in a behaviour which others cannot see (Kollmuss & Agyeman, 2002). Social diffusion appears like a viable tool which can be used to foster public involvement in environmental programmes.

### **3.9.6 Goal Setting**

Goal-setting theory is attributed to researcher Edwin Locke who in the 1960s advanced the theory that specific and challenging goals along with appropriate feedback contribute to higher and better task performance (Locke & Latham, 2006). A goal is the aim of an action or task that a person consciously desires to achieve or obtain (Locke & Latham, 2002; Locke & Latham, 2006). According to Kalat (2008), goals are a form of motivation that sets the standard for self-satisfaction with performance. People who strive for excellence usually set goals for themselves. For example, employers striving for excellence in their institutions set goals and deadlines for their employees. Teachers who want to achieve high pass rates among their learners also set targets for themselves. Locke and Latham (2006) explain that achieving the goal one has set for oneself is a measure of success. Kalat (2008) asks: ‘*If you did not have deadlines to meet, how hard would you work?*’ It is clear that setting goals and deadlines helps people and programmes to succeed. Today, there is general agreement among some scholars that the kind of goals one sets should be *specific, measurable, achievable, realistic* and *time-bound* or S.M.A.R.T. (Bogue, 2005; French, Merritt & Reynolds 2011). Such goals help people to focus and allocate their time and resources efficiently, and can keep people motivated when they feel like giving up (Dobrowolski, 2014).

Cherry’s (2014) work on the goal-setting theory suggests that the tool can effectively be used by ensuring that participants are clearly made aware of what is expected of them. Additionally, performance on the task depends on how difficult the task is. Locke and Latham (2006) assert that there is a positive linear relationship between goal difficulty and task performance. As long as an individual accepts the goal, has the ability to attain it, and does not have conflicting goals, performance will be positive. Another dimension

to goal-setting which may affect performance is power relations between authority and those who authority is exercised over. Locke and Latham (2007) explain that when goals are established at a management level and, thereafter, solely promulgated from the top (that is, *top-down approach*), employee motivation is rather suppressed. The implication is that people must be allowed to participate in the goal setting process. People perform better when they are committed to achieving goals they have set. For a programme like the KZCH campaign, it is vital to involve the grassroots in goal-setting if they are going to own the programme and participate out of their own volition.

Scholars have also shown that goal-setting should go hand-in-hand with feedback (Locke & Latham, 1990; Latham & Locke, 1991). Without feedback, goal-setting is unlikely to work. Providing feedback on short-term objectives helps to sustain motivation and commitment to a goal. Feedback should be provided on the strategies followed to achieve the goals and final outcomes achieved as well (Locke & Latham, 1990).

Both Locke and Latham (2003) and Steg et al. (2014) have argued for three schemes concerning goal-setting. The three moderators provided by Locke and Latham are the importance of the expected outcomes of goal attainment (the question to ask is: *Do people value a clean and healthy environment?*); self-efficacy – one's belief that they are able to achieve the goals (the question to ask is: *Do people have the capacity to achieve a clean and healthy environment?*); and commitment to others – promises or engagements to others (the question to ask is: *Do the people feel committed to the welfare of others?*). On the other hand, Steg et al. (2014) indicates the following goals: hedonic goals (to feel better right now); gain goals (to guard and improve one's resources); and normative goals (to act appropriately with regard to others). According to Steg et al., all the goals that can ever be set fall within these three categories. Locke and Latham (2002) found that goals affect behaviour primarily through four mechanisms: first, goals serve a directive function—they direct attention and effort toward goal relevant activities; second, goals have an energizing function and, in particular, high goals often lead to greater effort than low goals; third, goals affect persistence; and finally, goals affect behaviour indirectly as individuals use, apply, and/or learn strategies or knowledge to best accomplish the goal at hand.

All successful behaviour programmes have set goals (French, Merritt, & Reynolds, 2011). In 2006, in California, USA, a small group of local mothers formed a walking group called Greenfield Walking Group. The *goal of the group was to improve their fitness levels and connect with friends and neighbours*. After its formation, several members of the group experienced significant weight loss (up to 36 kg) and reported significant improvements in their personal health and quality of life. Another group, LiveWell Colorado, a statewide initiative set its goal *to reduce overweight and obesity rates and related chronic diseases in Colorado*. The group worked with community initiatives, such as LiveWell Colorado Commerce City, *to promote equal opportunities for healthy eating and active living through policies, programmes and environmental changes*. The National Centre for Healthy Housing in Columbia, Maryland, USA, used support from the Blue Cross and Blue Shield of Minnesota Foundation *to demonstrate how green building principles can improve health*. It is clear that all these efforts were setting goals in order to meet their targets.

### **3.9.7 Social Norms**

The subject of social norms is a widely researched topic (Ajzen & Fishbein; 1980; Nolan et al., 2008; McKenzie-Mohr & Schultz, 2012). As the case is with attitudes, norms have been defined differently by different scholars. Ajzen and Fishbein (1980 cited in Jackson, 2005) define norms as those perceptions which a person holds that most people who are important to him or her think he or she should or should not perform. On the other hand, McKenzie-Mohr and Schultz (2012) define norms as the common and accepted behaviours within a social group. In summary, it can be said that a norm is a group-held perception or belief about how members of a social grouping should behave in a given context. In essence, norms are what other people do and what they approve of doing. They, therefore, guide how humans should behave in their various contexts (McKenzie-Mohr, 1999 cited in Darnton, 2008b). Invariably, social norms have a way of maintaining order and organising social groups (Huang & Ho Mou, 1994).

Norms are often transmitted by non-verbal behaviour, for example, with ‘dirty looks’ when people act outside the expected behaviour. They may also be transmitted through stories, rituals and role-model behaviour. Social norms coupled with cultural traditions

and family customs influence and shape people's attitudes and, therefore, their behaviour. As such, if the dominant culture propagates a lifestyle that is not environmentally friendly, pro-environmental behaviour is less likely to occur since the norm is repugnant towards good environmental behaviour (Kollmuss & Agyeman, 2002).

Berkowitz (2013) reports that norms could be misrepresented by social groups, either through pluralistic ignorance or through false consensus. *Pluralistic ignorance* happens when the majority thinks that it is a minority, that is, the "plurality" is ignorant of itself. On the other hand, *false consensus* takes place when the minority incorrectly thinks that it is in the majority, that is, when a "consensus" is falsely perceived. These two scenarios do not auger well with norms because, as research by behavioural scientists has shown, individuals tend to conform to the perceived norm and prefer to go with the majority. If the majority, therefore, thinks it is in the minority, it is the values of the minority that are ascribed as norms.

Tabanico and Schultz (2008) state that testimonials from supporters of an environmental behaviour can help to create a social norm. Similarly, Steg and Vlek (2009) are of the view that social support and role models can be used to strengthen social norms and to inform target groups about the perceptions, efficacy and behaviour of others. This is referred to as *norm appeal*. Unfortunately, as observed by McKenzie-Mohr and Schultz(2014), in most cases, many behaviour change campaigns highlight the frequency of undesirable behaviour instead of emphasizing desirable behaviour, as shown in the excerpt below:

*Awareness campaigns often lament the high rate of consumption or the apparent lack of concern among residents in the region. A recurring theme goes something like this: "Look at this big problem. No one is responding, no one cares, but you should be different. "Messages encouraging individuals to be a 'hero' or 'star' subtly highlight the fact that few people are doing the desired behaviour. While such messages can serve to highlight the severity of a problem, they also convey a normative message about what other people are doing (McKenzie-Mohr & Schultz, 2014: 40).*

Nolan et al. (2008, cited in McKenzie-Mohr & Schultz, 2012) used energy conservation messages that explicitly highlighted the percentage of residents in a community who engaged in specific actions, such as using fans instead of air conditioning to stay cool in

summer. The results showed that these normative messages were effective at reducing electricity consumption by 10%. In a programme aimed at reducing high-risk drinking and alcohol abuse among college students at the University of Arizona in the USA, students were subjected to campus-based media campaign and other strategies to address misperceptions about alcohol and make the campus environment less conducive to drinking. After 3 years of implementing the programme at the university (1995 to 1998), the drinking among first year students, both in terms of amount and frequency, dropped substantially. The percentage of those who reported having five or more drinks per occasion at least once in 2 weeks decreased from 43% to 31% while those who reported using alcohol three or more times per week in the past year decreased from 22% to 17%.

Unlike commitments, norms are most effective among people who are not already motivated to engage in behaviour. Thus, the norms approach is appropriate for a target audience that is low in motivation (McKenzie-Mohr & Schultz, 2012). According to King (2010), a person would normally ask himself - Do other people want me to do this? What will they think of me if I do, or don't do? Therefore, social norms work best on the following categories of people:

- (a) on low self-esteem individuals. Since these people have low self-efficacy, social norm helps to escalate their self-esteem when they know that other people are also doing it.
- (b) on individuals who value group membership but do not feel entirely accepted yet. They are, therefore, seeking the approval of other group members.
- (c) when the group or individual is trustworthy and credible.

### **3.9.8 Prompts**

Despite making a commitment to undertake a pro-environmental behaviour, people sometimes forget to perform those behaviours (McKenzie-Mohr & Schultz, 2012). In such a case, a prompt (also called a *cue* or *reminder*) is necessary to help them to remember. De Vega et al. (2010) and Unnisa and Rav (2013) explain that numerous behaviours that support sustainability are susceptible to forgetting. McKenzie-Mohr and Schultz (2012) assert that forgetting is a common barrier to individuals engaging in sustainable behaviour actions such as turning off lights or using cloth or paper

shopping bags. Reiss's (2008) study found that 81% of participants listed forgetting as their main reason for not bringing reusable bags for shopping. According to Reiss, the problem then is not a lack of motivation to use the bags, but rather simply forgetting to bring them. According to McKenzie-Mohr and Schultz (2014: 41), "prompts are simply memory aids that are presented in close proximity to the repetitive behaviour. These aids may be visual or auditory. For example, community waste bins with tops that visually indicate what types of waste are accepted have been found to markedly reduce contamination".

If prompts are going to be used gainfully to spur the desirable behaviour, they need to be noticeable and easy to understand. They also need to be presented in close proximity to the behaviour. They should target positive behaviours rather than encouraging the avoidance of negative behaviours. According to McKenzie-Mohr and Schultz (2012), there are two reasons for focusing on beneficial rather than harmful behaviours. Firstly, telling people not to do something has the deleterious effect of educating those who are unaware of a negative behaviour that an undesirable behaviour exists. Secondly, by focusing on positive behaviours, the environmental manager is providing information on what behaviours are desirable rather than simply telling someone not to do something.

With the understanding that many behaviours leading to potential damage to the environment may be unintentional, Shoji and Susumu (2014) conducted a field study to investigate the reduction of plastic bag usage at supermarkets in Japan. The study applied a dual motivation model to plastic bag usage and examined the effects of an intervention aimed at promoting pro-environmental behaviour. A voice prompt intervention was implemented in the supermarkets. In the first (control) week, shoppers were given free plastic bags by the cashiers. In the second (intervention) week, cashiers asked shoppers whether they wanted plastic bags or not. The researchers collected observational and questionnaire measures of variables that predicated free plastic bag usage during the intervention. The results of the study supported a dual motivation model of behavioural change. The voice prompt decreased the usage of plastic bags by both discouraging unintentional usage and encouraging an intentional reduction in usage.

This strategy could work for the KZCH programme in that some non-environmentally friendly behaviours could be as a result of forgetting. Prompts would help to remind people about desirable behaviour.

### 3.9.9 Incentives or Rewards

Behavioural research has shown that offering a reward for a behaviour can increase the behaviour's frequency and contribute to organisational success (Gneezy, Meier, & Rey-Biel, 2011; Armstrong, 2013). Harrell et al. (n.d.) explain that incentives can be used to build morale and attachment to pro-social goals of a programme. McKenzie-Mohr & Schultz (2014) explain that, from the standpoint of community-based social marketing, if cost is a barrier to the target behaviour, then offering an incentive can reduce the difficulty of the action. According to McKenzie-Mohr and Schultz (2014: 2), "incentives have been widely used as a behaviour change tool, and in fact, individuals often point to incentives as a primary reason for engaging in the behaviour". The incentives can either involve reducing the cost of purchasing environmentally-friendly products to encourage the action or increasing costs for an undesirable behaviour.

McKenzie-Mohr and Schultz (2012) state that incentives can take a variety of forms, but they generally involve getting a desirable outcome after the behaviour. They can either involve reducing the cost of purchasing environmentally-friendly products to encourage the action or increasing costs for an undesirable behaviour. There is a difference between incentives/disincentives and rewards and penalties (Geller, 2016; Grant, 2011). Incentives and disincentives are antecedent motivation techniques - they come before a behaviour (Geller et. al., 1990). Rewards and penalties, on the other hand, are consequence motivation techniques - they come after a behaviour (Figure 8).

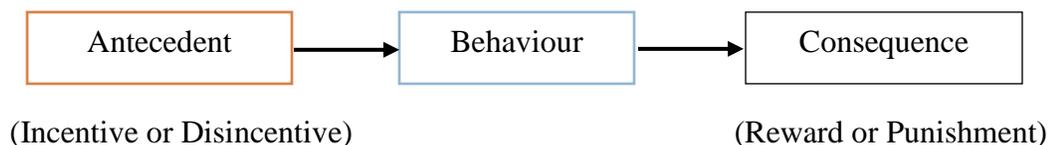


Figure 8: *ABC of motivating behaviour*

Source: Geller and Lehman (1986: 59)

Research has shown that both incentives (disincentives) and rewards (penalties) can exert a powerful influence on behaviour (Bolderdijk, Lehman, & Geller, 2012). The larger the incentive or disincentive, the greater the amount of behavioural change. An example of how incentives (disincentives) and rewards (penalties) work is drawn from Alabama, USA. In 2006, the Jefferson County Department of Health (JCDH) began a programme to encourage all food establishments to go smoke free (Trust for America's Health, 2009). The programme used both rewards (gave a plaque and door sticker for all establishments that voluntarily banned smoking in their premises) and penalties (deducted points from food outlets which allowed smoking in any part of their establishment) to spur good behaviour. When the programme began, 65.4% of food establishments were smoke free. After the *voluntary phase* the number rose to 70% and after the *penalty phase* the number rose to 93.9% and, eventually, 97%.

Michael Kyrios classifies rewards into three types, namely anticipated rewards, that is, future rewards or consequences (for example, looking and feeling better), extrinsic rewards (for example, receiving praise and encouragement from others, receiving a T-shirt), and intrinsic rewards (for example, experiencing a feeling of accomplishment). However, although incentives and rewards can produce large changes in behaviour, they also come with a number of challenges. The first challenge is *durability*. Repetitive behaviours that are changed through incentives typically revert back once the incentive is removed (Schultz & Kaiser, 2012). The second challenge is *limitation*. Behaviours that are changed through incentives generally do not spill into other domains (Schultz, 2010). They are limited to the behaviour for which the incentive is being provided. The third challenge is *repression of expression of altruism*. People who may want to do voluntary work may not like to be subjected to rewards. McKenzie-Mohr and Schultz (2012) explain that, because of the side effects associated with incentives, they should be used sparingly.

### **3.9.10 Feedback**

When people embark on positive behaviour, they need feedback on their performance (Sadri, 2015). As indicated in the section on goal-setting, feedback is essential for reaching a goal. It constitutes giving updated information about one's behaviour. Without

it, it is difficult (if not impossible) to achieve a desired outcome. Typically, feedback provides an individual with measures of a physical characteristic, such as consumption of electricity, litres of water consumed, or kilometres-per-litre of petrol consumed. According to McKenzie-Mohr and Schultz (2012), feedback alone is rarely sufficient to change behaviour; it is only effective when a person wants to achieve an outcome or goal.

An example of how feedback works is where residents are provided with feedback about their consumption, along with the associated cost (McKenzie-Mohr & Schultz, 2012). This approach works best for individuals who are *concerned* about the high cost of their utility bills. In instances where the individual does not pay his/her bill, or where the costs associated with specific behaviours are low, using feedback tends to be ineffective. It can be pointed out here that the cost of living in a dirty environment is very high –the diseases, the unsightly surroundings and sometimes even death – are all serious issues. McKenzie-Mohr and Schultz (2012) also provide an example of how a community-based social marketing programme can use a combination of strategies. The initiative involved encouraging motorists to not idle their engines when parked (engine idling was ubiquitous in Canada). Using a combination of signs, personal contact, prompts and commitments significantly altered the frequency of engine idling. Clearly, a combination of strategies can bring about success where one strategy may not be adequate.

The literature reviewed in this section has described the behaviour change tools which could be used in behaviour change programmes like the KZCH programme. The section has revealed that, where the tools have been used, they have shown that they could bring about substantial change in human behaviour. The section has also shown that although the tools could be used singly, combining the tools would make their use even more effective. The challenge, however, is that the information reported in this section was obtained from participants in other countries such as the USA, Canada, Japan and Australia, while the current study is in Zambia. Therefore, it is not clear how the same tools can be used in the Zambian context.

### **3.10 Research Gaps Addressed**

Studies reviewed in this chapter were relevant to the current study in that they focused on identifying factors which influence human behaviour. As the literature has indicated, many studies have been done on human behaviour and the barriers that hinder pro-environmental behaviour. They, thus, provided insights into understanding data generated in the current study. However, these studies were also limited in relation to the current study in a number of ways. In the first place, no study had been conducted in Zambia to show how the same factors and barriers influenced behaviour in the country. The studies reviewed were conducted outside Zambia, mainly in North America, Europe, Asia and Australia, which were contextually very different from Zambia. It was, therefore, not clear if at all the reported influences on decisions would apply to Zambia which had different contextual conditions. Secondly, the participants who participated in the studies reviewed had different socio-economic backgrounds, priorities and aspirations from those of the Zambian participants interviewed in the current study. This made the current study significantly different from the studies reviewed and was, therefore, important because it was the first of its kind in the country. Thirdly, the current study went further to investigate the differences in values and attitudes held by various social and economic groups, a thing which previous studies did not do. For example, this study compared the views and values held by people from low density housing areas to those held by people from high density residential areas. Similarly, the study compared the views and values held by participants in Lusaka (urban) to those held by participants from Mumbwa (rural). Further, the research compared the notions held by the two gender groups to determine which one was more environmentally friendly.

Concerning methodology, studies in human behaviour have shown that the value scales of Rokeach (1973) and Schwartz (1992) can be successfully used to explain environmental behaviour, including concern for the environment (Schultz & Zelezny, 1999) and environmental attitudes and beliefs (Stern & Dietz, 1994; Stern, Dietz, & Guagnano, 1995). Karp (1996) demonstrated that Schwarz's values were significantly correlated to various self-reported behaviours, such as recycling behaviour, consumer behaviour, and political behaviour to protect the environment. Other studies have shown that values are related to recycling behaviour (Dunlap, Grieneeks, & Rokeach, 1983) and

to people's willingness to take action to protect the environment (Stern & Dietz, 1994). Stern, Dietz, Abel, Guagnano, and Kalof (1999) demonstrated that values significantly contributed to the explanation of activist as well as various on-activist environmental behaviours, such as consumer behaviour, policy acceptance, and environmental citizenship. However, these studies have not used methods which draw a difference between different socio-economic groups within a population. This constitutes a gap which the current study has paid attention to. The current study used the t-test to differentiate between values and beliefs held by urban and rural communities, between low density and high density participants and between male and female participants. Another departure from what other researchers had done before was the use of the mixed (eclectic) approach to conduct the study. Whereas most researchers had either used the qualitative or quantitative methods to study human behaviour, this study combined the two approaches. This gave the study a more rigorous and broader approach to studying the problem at hand, attending to both the 'what' and the 'why' questions.

### **3.11 Conclusion**

This chapter on literature review has reviewed literature on human behaviour, its determinants and tools which can be used to change it. Behaviour has been defined simply as everything that humans do, either intentionally or not. Deliberate (intent-oriented) behaviours are mainly determined by attitudinal variables, such as values and norms. Impact-oriented behaviours, on the other hand, are especially related to socio-demographic variables, such as household size and income that influence individual abilities to perform specific behaviours. In addressing behaviour in relation to the environment, we need to address these determinants. This chapter has shown that there are seven tools that can be used to promote pro-environmental behaviour, namely commitments, social norms, social diffusion, feedback, prompts, incentives, and goal setting. The next chapter will explain the methodology used in the study.

# CHAPTER FOUR

## RESEARCH METHODOLOGY

### 4.1 Introduction

This chapter describes the methodology and methods that were used to collect and analyse data. According to Strauss and Corbin (1980), methodology is a way of thinking about and studying a social reality. Methodology gives a vision to what the research should involve. Methods, on the other hand, are a set of procedures and techniques used for gathering and analysing data. Through the methods, the researcher sees the ordinary and is able to arrive at new understandings of social life (Strauss & Corbin, 1980). This chapter outlines both the methodology and the methods used in the study, explaining their usability and pointing out their strengths and weaknesses. It discusses research design, research sites, population, sampling frame, sampling techniques, and research instruments and data analysis procedures. The chapter ends by highlighting the limitations that influenced data collection.

### 4.2 Research Sites

Kombo and Tromp (2006) state that the selection of a research site is crucial. This is because site influences the usefulness of the information received. The research sites for this study were Lusaka and Mumbwa. Figure 9 shows the location of the two towns in Zambia. Sections 4.2.1 and 4.2.2 provide a description of the two research sites.

#### 4.2.1 Lusaka

The first research site, Lusaka, is an urban town located in the Lusaka Province of Zambia. It is the capital and largest city in Zambia. Being one of the fastest-developing cities in southern Africa, Lusaka has a cosmopolitan character providing a diversity of people and, therefore, views. The 2010 Census of Population and Housing put the city's population at about 1.7 million but current estimates project the population at 2,198,996 (Zambia Advisor.com, 2015). The city is located at the junction of the country's four main highways leading north, south, east and west and is also the seat of the Zambian

government and centre of commerce and industry. Lusaka is really a melting pot in the country.

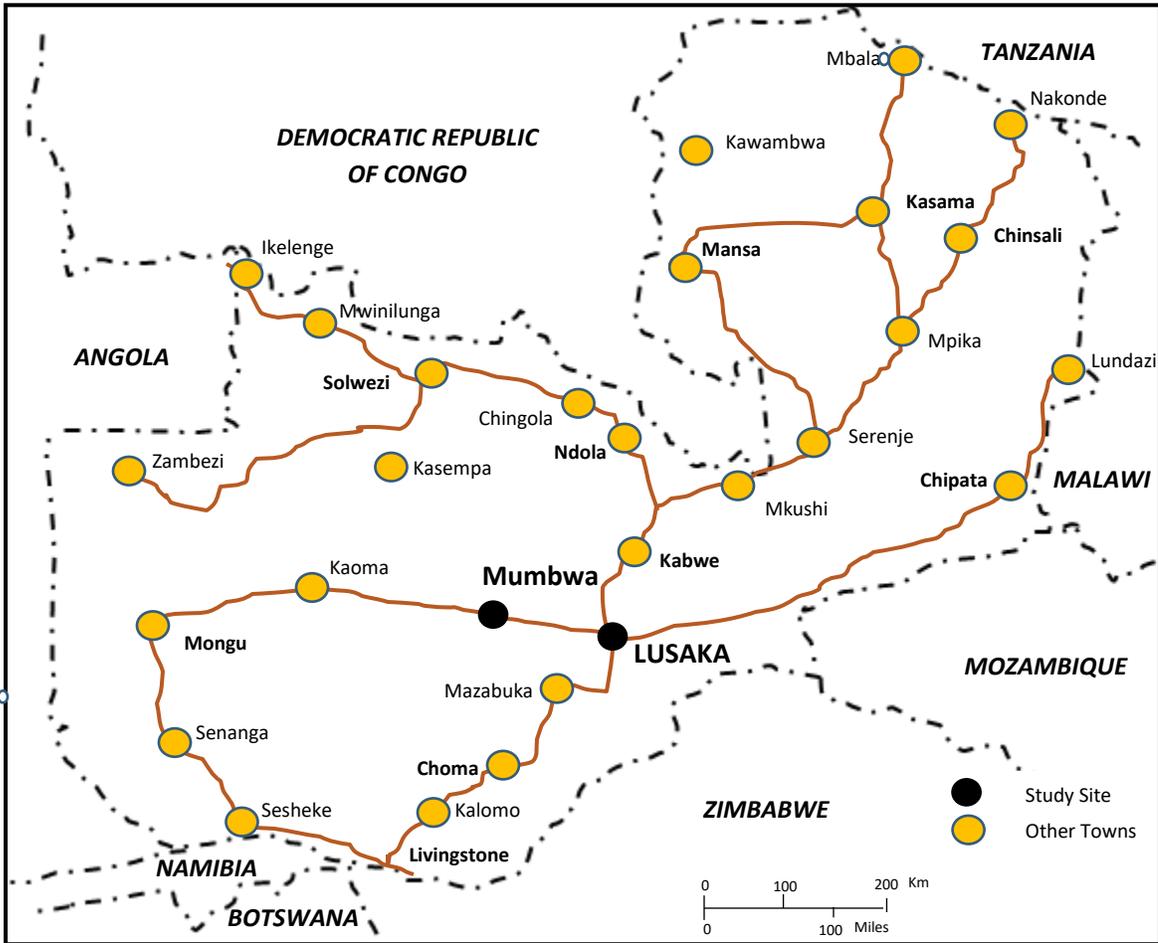


Figure 9: Location of Lusaka and Mumbwa districts

Source: (Adapted from [www.mapsofworld.com](http://www.mapsofworld.com), 2014)

#### 4.2.2 Mumbwa

Mumbwa, on the other hand, is a small rural town in the Central Province of Zambia, lying on the Lusaka-Mongu road. It is the administrative town for Mumbwa district which covers the western extremity of the Central Province. The town’s population is largely made up of public workers providing services to the surrounding farming and rural communities. The town’s population is estimated at 19,086 people.

### 4.2.3 Criteria for selection

Both Lusaka and Mumbwa were purposively selected, using three criteria. These criteria were easy accessibility by the researcher, representation of the local community and heterogeneity of the two towns. The criteria for selecting the two towns are summarised in Figure 10.

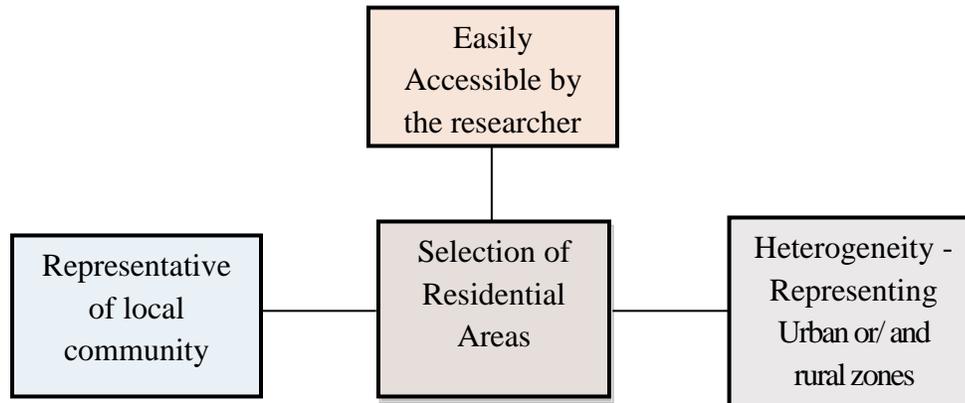


Figure 10: *Criteria for selecting research sites*

(Source: Self-drawn, 2018)

Concerning ease of access, the researcher was based in Lusaka while Mumbwa was only 150 kilometres away from Lusaka and connected to it by a good tarred road. This made it convenient for the researcher to visit the selected research sites easily and as many times as was necessary during the data collection stage. As for heterogeneity, Lusaka and Mumbwa differed distinctly in character, Lusaka being a city and Mumbwa a rural town. As the largest metropolitan area in the country, Lusaka represented the challenges that major cities in the country faced in terms of implementing the KZCH programme. On the other hand, Mumbwa represented the views of the rural towns in the country. Therefore, the selection of these two towns gave the study an opportunity to investigate views from both urban and rural participants. In this sense, the study sought both depth of understanding and breadth of coverage. It gauged the bearing that proximity and exposure to urbanisation had on perceptions, values, and attitudes towards keeping environments clean and healthy but it also did the same thing to sentiments from rural areas.

### **4.3 Target Population**

It is appropriate at this point to explain what the target population for this study was. The study population is defined as the entire group of individuals possessing common characteristics about which statistical inference can be made. Newby (2010 cited in Mulenga, 2015) defines a population as a group of elements or cases, whether individuals, objects or events, that conform to specific criteria and to which the researcher intends to generalise the findings. According to Kombo and Tromp (2006), a population is the entire set of objects, events or group of people which is the object of research and about which the researcher intends to determine some characteristics. In line with these definitions, the target population for this study consisted of all residents of the city of Lusaka and the town of Mumbwa. According to the 2010 Census of Population and Housing, Lusaka and Mumbwa had a combined population of 2,218,082 (2,198,996 for Lusaka and 19,086 for Mumbwa).

### **4.4 Time frame**

The study was undertaken over a period of five years, between 2012 and 2017. The first year of the study was spent on developing and refining the research proposal. It included presenting the proposal to the School of Education for scrutiny and approval. The year that followed was spent on reviewing literature, developing the theoretical framework and also developing the research instrument for fieldwork. The third and fourth years were spent on collecting data and initial analysis and interpretation of data. The fifth year was spent on data analysis, interpretation and thesis writing.

The study made use of a cross-sectional rather than a longitudinal approach because of insufficient time and resources. Studying as a part-time student with other equally demanding activities did not leave the researcher with much time. Also, resources were not adequate enough to undertake a longitudinal study. Gray (February 7, 2011) states that “most research studies are cross-sectional, mainly because of the pressure of time and resources”.

## 4.5 Philosophical underpinnings of the Study

Research design refers to perspectives, plans and procedures that a researcher follows to attain the objectives of a study (Padgett, 1998). It is the philosophy or logic that links the data to be collected and the conclusions to be drawn to the initial questions of a study (Yin, 2002). This research endeavoured to meet three philosophical research positions described by Mertens (2003) and Karangwa (2006). These are the *ontological position* which investigates the nature of reality and truth in the field; *epistemological position* that questions the nature of knowledge to be captured, and the *methodological position* which asks how the knower goes about obtaining the desired knowledge and the understanding. These positions are shown in Figure 11.

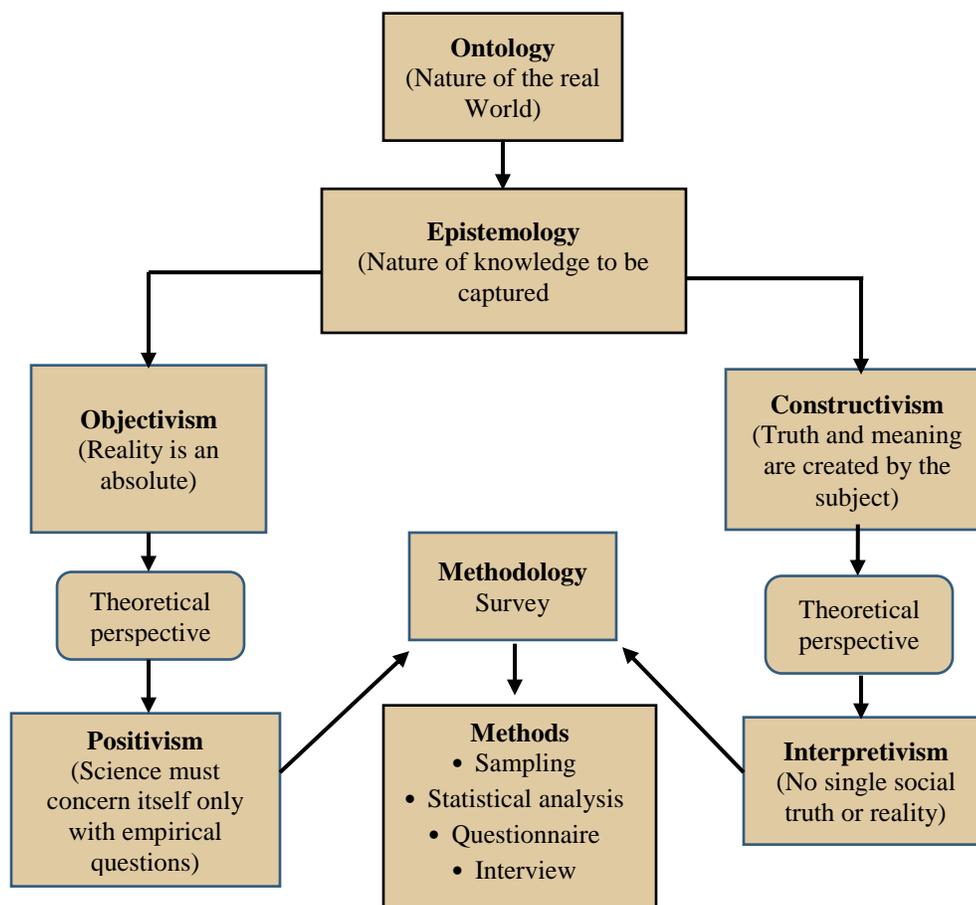


Figure 11: Relationship between epistemology, theoretical perspectives, methodology and research methods

(Source: Adapted from Crotty, 1998)

In order to accomplish the research positions described above, the study adopted a mixed or eclectic approach (also called Q-Squared method) (Creswell, 2009). Sections 4.5.1 and 4.5.2 describe these two scientific positions and provide the rationale for using them. This was achieved by combining elements from two scientific perspectives (positivist and interpretivist) to constitute a methodology that embraces both the quantitative and qualitative methods to research.

#### **4.5.1 The positivist perspective**

Positivism is the ontological belief that science must concern itself only with empirical questions and not questions about human values and intentions. In saying so, positivists mean that science should concern itself with reality or with objects that can be sensed (Marsh, 1984). This perspective is, therefore, viewed as the approach of the natural sciences rather than the social sciences. It is largely attributed to Auguste Comte (Hughe, 1990) and scholars working at the University of Vienna in the 1920's and early 1930's (Johnson, 1983 cited in Chileshe, 2005).

Positivism operates within the ambit of Ayn Rand's *objectivism* which posits that reality is an *absolute* - that facts are facts, regardless of anyone's hopes, fears, or desires; that there is a world independent of our minds to which our thinking must correspond if our ideas are to be true and, therefore, of practical use in living our lives, pursuing our values, and protecting our rights (The Objective Standard, 2015). Therefore, objectivism is the doctrine that reality exists outside of the mind and that entities retain their identity no matter what human beings think or feel about them.

Concerning methodology, the positivist paradigm uses *quantitative approaches* which seek rigorous, exact measures and objective research in which hypotheses are tested by carefully analysing measured values (Holt-Jensen, 1988 cited in Chileshe, 2005). The functional or positivist paradigm that guides the quantitative mode of inquiry is based on the assumption that social reality has an objective ontological structure and that individuals are responding agents to this objective environment (Morgan & Smircich, 1980 cited in Matveev, 2002). Quantitative research involves counting and measuring of events and performing statistical analysis of a body of numerical data (Smith, 1988). The assumption behind the positivist paradigm is that there is an objective truth existing in the

world that can be measured and explained scientifically. The main concerns of the quantitative paradigm are that measurement is reliable, valid and generalisable in its clear prediction of cause and effect (Cassell & Symon, 1994). Matveev (2002) lists the strengths of the quantitative method as follows:

- It states the research problem in very specific and set terms (Frankfort-Nachmias and Nachmias, 1992);
- It clearly and precisely specifies both the independent and dependent variables under investigation;
- It follows firmly the original set of research goals, arriving at more objective conclusions, testing hypotheses, determining the issues of causality;
- It achieves high levels of reliability of gathered data due to controlled observations; laboratory experiments, mass surveys, or other form of research manipulations (Balsley, 1970);
- It eliminates or minimises subjectivity of judgment (Kealey & Protheroe, 1996);
- It allows for longitudinal measures of subsequent performance of research subjects.

Apart from the strengths indicated above, the quantitative research methods also have weaknesses. According to Silverman(1985 cited in Chileshe, 2005),the major criticism levelled against positivism is that by trying to extend methods from the natural sciences to the social sciences, it attempts to reduce people to numbers and focusing on abstract laws that are irrelevant to people's lives. Positivism is also criticised for restricting social phenomena to that which is directly observable. As a result, non-observable values, meanings and intentions in a given situation are omitted (Evans, 1988 cited in Chileshe 2005).The positivist perspective and the accompanying quantitative methodology was, however, useful to this study because it helped the researcher to quantify the variables (to put figures to them) and to see whether the results obtained were significant or not. The method also helped the researcher to test theories and perceptions such as women were more environmentally friendly than men or rural areas were cleaner than urban areas.

#### 4.5.2 The interpretive perspective

In the interpretivist perspective (also known as the interpretive paradigm), the ontological belief is that there is no single social truth or truth but many realities about every problem that form the topic being investigated (Travakol & Zeinaloo, 2004). The position of the ontological belief within the interpretivist paradigm is also that societies construct and make their own sense of reality (Wellington, 2000). Consequently, social reality is subjective and multiple (Krauss, 2005). In other words, all knowledge is a matter of interpretation. The epistemological belief is that knowledge is acquired through personal experiences (Mark, 2010). Therefore, the researcher must endeavour to contact and interact with the researched in order to obtain an inside knowledge of those being researched.

As a theoretical perspective, interpretivism is linked to constructivism. According to Gray (7<sup>th</sup> February, 2011: 20), the *constructivist epistemology* holds that truth and meaning do not exist in some external world, but are created by the subject's interactions with the world. Meaning is constructed not discovered, so subjects construct their own meaning in different ways, even in relation to the same phenomenon. Hence, multiple, contradictory but equally valid accounts of the world can exist. This is in contrast with objectivism which posits that reality is an absolute. According to Crotty (1998: 67), interpretivism

*looks for 'culturally derived and historically situated interpretations of the social life-world'. There is no direct, one-to-one relationship between ourselves (subjects) and the world (object). The world is interpreted through the classification schemas of the mind (Williams and May, 1996). Interpretivism asserts that natural reality (and the laws of science) and social reality are different and, therefore, require different kinds of method.*

For the methodology, the interpretivist paradigm uses *qualitative approaches* because they are suitable when exploring individuals' perceptions, values, attitudes and priorities. Limb and Dwyer (2001 cited in Birabwa, 2006) assert that social reality can be understood better through qualitative methodologies than through statistical description or generalised predictions. The methodologies seek to understand social worlds from the point of view of participants, leading to in-depth knowledge. Qualitative research shares the theoretical assumptions of the interpretive paradigm which is based on the notion that

social reality is created and sustained through the subjective experience of people involved in communication (Morgan, 1980). Qualitative researchers are concerned in their research with attempting to accurately describe, decode, and interpret the meanings of phenomena occurring in their normal social contexts (Fryer, 1991). The researchers operating within the framework of the interpretive paradigm are focused on investigating the complexity, authenticity, contextualisation, share subjectivity of the researcher and the researched, and minimisation of illusion (Fryer, 1991).

Qualitative research in general is more likely to take place in a natural setting (Denzin, 1971; Lincoln & Guba, 1985; Marshall and Rossman, 1999). This means that topics for study focus on everyday activity as “defined, enacted, smoothed, and made problematic by persons going about their normal routines” (Van Maanen, 1983: 255). Qualitative research is less likely to impose restrictive apriori classification on the collection of data (a priori = from reasoning; a posteriori = from experience). It is less driven by very specific hypotheses and categorical frameworks and more concerned with emergent themes and idiographic descriptions (Cassell & Symon, 1994).

Matveev (2002) lists the strengths of the qualitative methods of research as follows:

- (a) Obtaining a more realistic feel of the world cannot be experienced in the numerical data and statistical analysis used in quantitative research;
- (b) Flexible ways to perform data collection, subsequent analysis, and interpretation of collected information;
- (c) Provide a holistic view of the phenomena under investigation ;
- (d) Ability to interact with the research subjects in their own language and on their own terms;
- (e) Descriptive capability based on primary and unstructured data.

Qualitative research has its own weaknesses, the common one that the results of the study cannot be used to generalise the findings to a larger population because the interviewed population is small and the participants are purposively chosen (Hancock, 1998, cited in Birabwa, 2006)). Other limitations of the qualitative research process are that,

- (a) it may depart from the original objectives of the research in response to the changing nature of the context (Cassell & Symon, 1994);
- (b) it is possible to arrive at different conclusions based on the same information depending on the personal characteristics of the researcher;
- (c) the researcher may not investigate causality between different research phenomena;
- (d) it may be difficult to explain the difference in the quality and quantity of information obtained from participants and arriving at different, non-consistent conclusions;
- (e) it requires a high level of experience from the researcher to obtain the targeted information from the participants;
- (f) it lacks consistency and reliability because the researcher can employ different probing techniques and the participants can choose to tell some particular stories and ignore others.

The interpretive perspective and the constructivist position were important to the current study because the concepts discussed in this study were contextual. Both concepts of waste and cleanliness are context-dependent. Since people look at waste and define it differently, waste is a subjective concept and what some people discard as waste may have value to others. Also the concept of waste could be regarded as a human concept because it does not exist in nature. Likewise, the term cleanliness is a relative term since it means different things to different people. It is both the *abstract state* of being clean and free from dirt (or waste) and the process of achieving and maintaining that state. Both of these states can mean different things to different people. Therefore, the terms waste and cleanliness are social constructs or artifices of society whose meanings may differ from one place to another and from one social group to another. This is in line with Hannigan's (1995) assertion that environmental problems must be constructed by individuals or organisations that define them as worrisome and seek to do something about them. Apart from the issues of waste and cleanliness, issues to do with values, norms and perceptions are also subjective. As such, this study took the interpretive position that the researcher must endeavour to contact and interact with the researched in

order to obtain their own interpretations of these environmental issues and get an inside knowledge of those being researched.

#### **4.6 Mixed Methods Approach**

Having described the two research positions (that is, the positivist and interpretivist) and their advantages and disadvantages, it is now necessary to describe the research method used in this study. Creswell (2003) suggests three frameworks for designing an enquiry: the quantitative, qualitative, and mixed methods approaches. According to Creswell, the first approach “*has been available to the social and human scientist for years, the second has emerged primarily during the last three or four decades, and the last is new and still developing in form and substance*” (p. 3). Creswell further explains that each of these approaches frames elements of philosophical assumptions about what constitutes *knowledge claims*; general procedures of research called *strategies of inquiry* and detailed procedures of data collection, analysis, and writing called *methods* differently. Thus, the mixed methods approach, which was used in this study, is a research design with philosophical assumptions as well as methods of inquiry. As a methodology, it involves philosophical assumptions that guide the direction of the collection and analysis of data; it combines both the quantitative and qualitative methods of data collection and analysis. As a method, it focuses on collecting, analysing, and mixing both quantitative and qualitative data in a single study or series of studies. Therefore, the mixed methods approach can be described as sitting on the fence. As espoused by Brannen (1992), there is no need to take a strong polar position as a positivist or interpretivist when investigating social issues. In actual fact, Varen, the ancient scholar understood that many studies are neither nomothetic (law-giving) nor idiographic (describing a particular phenomenon) but both. Therefore, taking an eclectic approach is not alien to this study but is a good approach which serves different but complementary purposes in an investigation (Chileshe, 2005).

##### **4.6.1 Rationale for mixed methods approach**

The use of the mixed methods approach is premised on the rationale that the use of quantitative and qualitative approaches in combination provides a better understanding of research problems than either approach alone. The perception is that using a combination

of qualitative and quantitative methods can improve an evaluation by ensuring that the limitations of one type of data are balanced by the strengths of another (Miles & Huberman, 1994). For example, quantitative methods ensure high levels of reliability of gathered data, is more efficient and has compelling predictive power but is less rich. On the other hand, qualitative research allows obtaining more in-depth, contextualised, natural information about how the participants perceive the problem under investigation but is more time consuming.

Several scholars have widely discussed the advantages (or strengths) and limitations (or weaknesses) of the mixed methods research (Creswell 2012; Moghaddam, Walker & Harre, 2003; Haines, 2011; Green & Caracelli, 1997). The salient advantages of the mixed methods approach are summarised as follows:

- (a) Mixed methods research provides more comprehensive evidence for studying a research problem than either quantitative or qualitative research alone. Researchers are given permission to use all of the tools of data collection available rather than being restricted to the types of data collection typically associated with qualitative research or quantitative research. The design gives likelihood of understanding the research problem since it facilitates the collection of both qualitative and quantitative data at the same time.
- (b) Mixed methods research helps answer questions that cannot be answered by qualitative or quantitative approaches alone. Each of the two methods, qualitative and quantitative, builds on the strength of the other since none of them is comprehensive.
- (c) Mixed methods research encourages the use of multiple worldviews or paradigms rather than the typical association of certain paradigms for quantitative researchers and others for qualitative researchers. It also encourages researchers to think about a paradigm that might encompass all of quantitative and qualitative research, such as pragmatism, or using multiple paradigms in research,
- (d) Mixed methods research is “practical” in the sense that the researcher is free to use all methods possible to address a research problem. It is also “practical” because individuals tend to solve problems using both numbers and words, they combine inductive and deductive thinking, and they (for example, therapists)

employ skills in observing people as well as recording behaviour. It is natural, then, for individuals to employ mixed methods research as the preferred mode of understanding the world.

- (e) When variables and procedures are well defined, the mixed methods approach is easy to carry out.
- (f) One approach may be given more prominence and the other can be complementary depending on the nature of the study.

Creswell and Plano Clark (2006: 8) conclude that “these [mixed methods] approaches are far more comprehensive than attacking a problem from only one point of view and, with the emergence of strategies and tools blending these different types of data, allow for the crossing of disciplinary boundaries like never before. ”However, the mixed methods design is not entirely without deficiencies. According to Mulenga (2015), the design has the following limitations:

- (a) The mixed methods approach demands the researcher’s ingenuity in order to analyse both data types.
- (b) The design demands a lot of time to complete it.
- (c) It is likely to confuse the researcher if the problem is not well understood.
- (d) Discrepancies might occur between qualitative and quantitative findings.

Creswell and Plano Clark (2006: 8) point out that,

*Despite its value, conducting mixed methods research is not easy. It takes time and resources to collect and analyze both quantitative and qualitative data. It complicates the procedures of research and requires clear presentation if the reader is going to be able to sort out the different procedures. Further, investigators are often trained in only one form of inquiry (quantitative or qualitative), and mixed methods requires that they know both forms of data. These issues are important ... but they are not insurmountable, and strategies can be used to address them. The value of mixed methods research seems to outweigh the potential difficulty of this approach.*

#### **4.7 Research design**

The University of Southern California (2015) defines a search design as the overall strategy that a researcher chooses to integrate the different components of a study in a

coherent and logical way. Its function is to ensure that the researcher effectively addresses the research problem, and guides the collection, measurement and analysis of data (De Vaus, 2001). Creswell (2006: 58) explains that “rigorous research designs are important because they guide the methods decisions that researchers must make during their studies and set logic by which they make interpretations at the end of the studies.”

There are six different types of mixed methods research designs. These are the sequential explanatory design, the embedded design, the convergent parallel design, the transformative design and the multi-phase design (Creswell & Plano Clark, 2011). For this study, the convergent parallel design was found appropriate. This is in line with Tashakkori and Teddlie (1998) who assert that often, researchers settle for approaches, variables and units of analysis which are most appropriate. Using this design, the researcher simultaneously collected both quantitative and qualitative data, compared them and used the results to provide answers to research questions. Creswell (2006: 8) explains that “mixed methods studies may involve collecting and analysing qualitative and quantitative data within a single study or within multiple studies in a programme of inquiry... Graduate students typically collect both quantitative and qualitative data in a single study, rather than in multiple studies overtime.” Figure 12 shows the convergent parallel design.

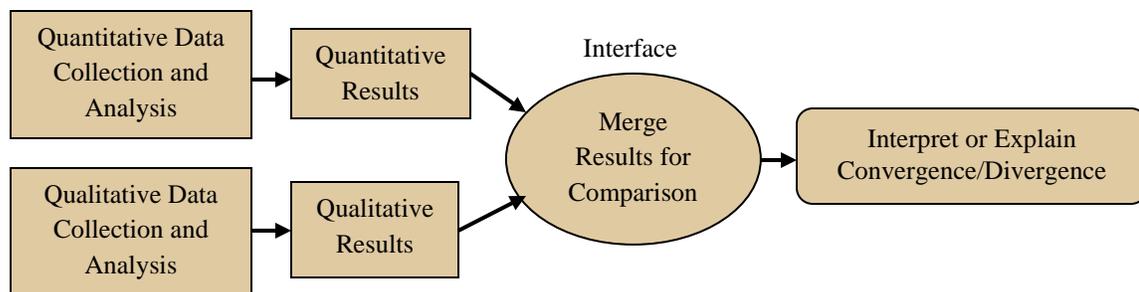


Figure 12: *Convergent Parallel Design*

(Source: Creswell, 2013)

The main principle of the convergent parallel design is that quantitative and qualitative methods are compatible. As the illustration shows, the quantitative and the qualitative processes are done at the same time (parallel) but the findings are brought together

(convergent) for analysis and comparison at the interface stage. Masaiti (2013 cited in Mulenga, 2015) explains that both numerical (quantitative) and text (qualitative) data are collected synchronously and lead the researcher to understanding the research problem. Creswell (2013) lauds this design as one of the most popular and effective designs in use, especially in educational research. This study found the use of the convergent parallel design appropriate. The researcher collected both quantitative and qualitative data at the same time. During the quantitative procedure of the research, the researcher endeavoured to establish the knowledge, values, attitudes and behaviours (actions) of the participants. Key to this investigation was to establish whether or not participants were acting pro-environmentally and whether there were any significant differences in these variables between male and female participants, participants from low density and high density residential areas and between participants from rural and urban areas. This helped to explain whether or not there were disparities in knowledge, values, attitudes and behaviours among these socio-demographic groups. On the other hand, the qualitative procedure endeavoured to collect and analyse data obtained by explaining the participants' views and connecting these to their knowledge, values and attitudes.

Terrell (2011) proposes three points at which the data generated from the quantitative and qualitative procedures could be integrated (the interface stage). These points are (i) at data collection stage; (ii) at data presentation stage, and (iii) at data analysis stage. The fourth point would be a combination of these stages. In this study, the integration was done at the point of data presentation.

#### **4.8 Quantitative Research Procedure**

Research question (e) required the researcher to perform statistical tests. For this purpose, a questionnaire was used to collect data for the quantitative research process. Creswell and Plano Clark (2006: 6) explains that quantitative data can be collected using closed-ended questions to elicit information such as that found on attitude, behaviour or performance instruments. Furthermore, Creswell (2013) states that the collection of quantitative data might also involve using a closed-ended checklist on which the researcher checks the behaviours seen. Quantitative data can also be obtained from documents such as census records or attendance records. The analysis consists of

statistically analysing scores collected on instruments, checklists, or public documents to answer research questions or to test hypotheses. Following Creswell and Plano Clark's (2006) enjoyment, this study made use of a closed-ended questionnaire to collect quantitative data and used a rating scale to analyse the data.

#### **4.8.1 Questionnaire development**

As indicated above, the data for the quantitative phase was collected using a questionnaire. A questionnaire is defined as a research instrument consisting of a series of questions and other prompts for the purpose of gathering information from participants (Body, 2012). The questionnaire was used in a survey conducted in Lusaka and Mumbwa. As alluded to earlier, the questionnaire was structured, using closed-ended questions (Appendix C). The questionnaire was suitable since it was able to elicit short and precise answers which were easily compared, aggregated, analysed statistically, tabulated and displayed diagrammatically (Birabwa, 2006).

The questionnaire addressed the participants' knowledge, values, attitudes and behaviours in relation to the KZCH programme. It consisted of twenty-one items designed to measure knowledge, values, attitudes and perceptions. The specific areas of inquiry were as follows:

- (a) Public environmental knowledge, values, attitudes and behaviours with respect to the implementation of the KZCH programme.
- (b) Perceived barriers to change that affected behaviours of the public with respect to the KZCH programme.
- (c) Environmental behaviour change tools that could be used for the implementation of the KZCH programme.

The questionnaire used a rating scale. Heiberger and Robbins (2014: 2) describe a rating scale as "a form of psychometric scale commonly used in questionnaires". Most of the questions required the subjects to rate the importance of each item on a 4- or 5-point scale, following Likert's (1932) procedure for measuring attitudinal behaviours. Others required the participants to agree or disagree (by stating 'Yes' or 'No') or to indicate the length of period (or how often) they did or did not do an environmental action. According

to UNESCO-APNIEVE (2002), using the strategy Strongly Agree/Strongly Disagree helps the participants examine the strength of their feelings about a given value or issue.

To ensure that the questionnaire collected the intended data, it was validated in two ways. First, the questionnaire was subjected to a peer-review where colleagues examined it for question content, wording, length, relevance, and sequencing. This is important because, as Best and Kahn (2006) put it, review of instruments by colleagues can expose vagueness that can be done away with or changed. Second, before the main study was done, a pilot study was conducted in Kabwe, about 140 km north of Lusaka. Ten participants were asked to complete the questionnaire in order for the researcher to ascertain the suitability of the instrument. The pilot study helped to make further adjustments to the questionnaire and to inform the conducting of the main study adequately.

#### **4.8.2 Questionnaire design considerations**

This study used a self-completion survey questionnaire to elicit information from participants. One of the major advantages of this type of questionnaire is that it is a totally standardised measuring instrument since the questions are always designed in exactly the same way for each participant (Sapsford, 2007). The quantitative research phase was primarily designed to gather facts rather than opinions and so most of the questions were of the closed-ended type with specific options provided on a Likert-scale, as mentioned before. According to Dillman, Smyth and Christian (2009), closed-ended questions are more likely to be answered than open-ended questions in self-administered questionnaires because of the simplicity of providing the answers by ticking. Most of the closed-ended questions were designed in a scale form so as to make them as clear as possible and compelled participants to choose a response from that scale.

Mugenda and Mugenda (1999) explain that closed-ended questions have their own set of design requirements that must be considered if the research is to capture quality data. Some of the many design considerations for closed-ended questions have been discussed by Dillman, Smyth and Christian (2009). The most relevant ones are summarised below:

- (a) When a question is included that requires a response to an either/or question, make sure that both sides of the question are included. If that does not occur then there may be a strong bias to the one side that was mentioned.
- (b) When constructing lists, ensure that responses are mutually exclusive.
- (c) Asking participants to rank long lists can be confusing; the longer the list the more confusing and the higher the possibility of participants skipping or avoiding answering.

These and other design recommendations, such as appropriate questions, correct ordering of questions, correct scaling, or good questionnaire format, were carefully considered when designing the questionnaire. These considerations did, in many ways, make the design a bit simpler a process as it added logic to asking questions that required answers that could be analysed.

### **4.8.3 Questionnaire administration**

The questionnaire was distributed to five hundred and forty-five (545) heads of households of Mumbwa (245) and Lusaka (300). The questionnaire was administered during the months of August and September 2013. For Lusaka, the questionnaires were administered with the help of three research assistants all of whom were third year students at the University of Zambia studying Environmental Education. In Mumbwa, the researcher sought the help of two local secondary school teachers both whom were graduates of the University of Zambia. Before the interaction with the participants started, the nature of the study was explained and the questions were clarified to the research assistants. This allowed for a good understanding of what the research assistants were to do. The research assistants were useful considering the huge number of questionnaires which were to be administered.

As indicated earlier, the questionnaire was administered directly to heads of households. The household head was taken to be an adult man or woman who normally made the day-to-day decisions directing the affairs of the household. Upon reaching a household, the researcher or research assistant asked for permission to have the participant complete the questionnaire. The nature of the study was then explained. Participants had the option to fill out the questionnaire by themselves or have the research assistant go through it with

them as an interview and record their responses. In this way, participants who could not read or write, were helped to complete the questionnaire. This took care of the limitation that questionnaires have that they are sharply limited by the fact that participants must be able to read the questions and respond to them (Zhenyu Du, 2013). Further, for participants who could not speak English, the questionnaire was administered in a language that they could understand. After the questionnaire had been completed, the researcher/research assistant thanked the participant and moved on to the next selected household. Where participants did not have time to complete the questionnaire there and then, the participant left the questionnaire behind and collected it later.

#### **4.8.4 Sampling frame and sample size**

The sampling frame consisted of heads of household resident in Lusaka and Mumbwa and aged 18 years or above. Of the 369,680 households in Lusaka and Mumbwa, 545 households were selected guided by tables of populations with their recommended sample sizes and Duntoye's (2015) explanation that,

*The mathematics of probability proves the size of the population is irrelevant unless the size of the sample exceeds a few percent of the total population you are examining. This means that a sample of 500 people is equally useful in examining the opinions of a state of 15,000,000 as it would a city of 100,000. For this reason, the survey system ignores the population size when it is "large" or unknown. Population size is only likely to be a factor when you work with a relatively small and known group of people (e.g., the members of an association).*

Freedman, Pisani and Purves (2007) also state that mathematicians have proved that the size of the population does not matter that much. As a result, a sample of, say, 1000 participants is equally sufficient for a population of 1,000,000 citizens as for a population of 100,000 citizens. Therefore, for the purpose of eliciting opinions from the study population, the sample size used in this study was quite adequate. It was equally sufficient for the purpose of statistical analysis using a two-sample t-test which requires only 30 cases to be carried out.

#### 4.8.5 Sampling procedure

A sample is defined as the subset of the whole population which is actually being investigated by a researcher and whose characteristics will be generalised to the entire population (Bless & Achola, 1988). In this study, the target population were all the residents of Lusaka and Mumbwa. The populations in each town were divided according to residential areas. For each town, three residential areas were selected, two high density and one low density. The selection of the residential areas and participants was guided by principles of theoretical objectivity, diversity, accessibility, knowledge and representativeness of the phenomena being studied (Silverman, 2000:11; Kirk & Miller, 1986: 10-11).

As stated above, residential areas were considered as the first level at which sampling was done. Households were considered at the second level to select the actual participants. With this in mind, two sampling techniques were used to draw the sample, heterogeneity cluster sampling and simple random sampling. The sampling procedures that were followed are described below.

*Heterogeneity* (also called diversity) *cluster sampling* was used to select residential areas. This was done in order to get information from a broader spectrum of society. The residential areas were categorised as low density, medium density and high density townships. For the purpose of the two sample t-test, only high and low density residential areas were surveyed. Names of all the low density residential areas in Lusaka were written on pieces of paper. The pieces of paper were then put into a bowl and shaken. A piece of paper was then drawn at random and Kabulonga was drawn. This procedure was also done for high density areas in Lusaka and Garden and Chawama compounds were picked. Two high density residential areas were picked instead of one because, in Lusaka, there were more people living in these areas than in low density areas. According to the World Bank Group (2002), about 70 percent of Lusaka's population lived in poor, unplanned settlements comprising 20 percent of the city's residential land. This is about the same percentage of households that the two high density residential areas contributed to the sample. The same procedure was repeated to draw a sample for Mumbwa.

Consequently, Rentals (low density area), Phiri and Sons and Muchenje (high density areas) were picked.

The second level of sampling was at household level. The study used *simple random sampling* because samples were also drawn from unplanned settlements where houses were not arranged in a regular pattern. For each selected residential area, boundaries were first established. Households falling within the boundary were then assigned a number; these numbers were then written on a piece of paper and put in a box. The box was well-shaken and the first piece of paper was drawn. The box was well-shaken again and the second piece of paper was drawn. This was repeated until the required number of households was selected for each residential area. For Lusaka, 300 questionnaires were administered while 245 questionnaires were administered for Mumbwa.

#### **4.8.6 Data analysis**

Data analysis is as important as any other component of a study. This is because data collection in itself is incomplete in research until the data is analysed, interpreted and presented as findings of the study. According to Patton (1980), the processes of analysis and interpretation involve making sense out of what people have said, looking for patterns, putting together what is said in one place with what is said in another, and then integrating what different people have said. It is the process of evaluating data using analytical and logical reasoning to examine each component of the data provided (WebFinance, 2016). This section describes how the information that was collected in this study was analysed, interpreted and presented.

The objectives of this study were four-fold: to determine public knowledge, attitudes and beliefs with respect to the KZCH programme; to identify barriers to behaviour change with respect to the KZCH programme; to determine whether or not there was a significant difference in perception and behaviour among sampled members of the general public from different socio-economic backgrounds; and to design a behaviour change toolkit for the KZCH programme. In order to provide answers to these objectives, a rigorous three-part procedure of data analysis was done. First, the data was codified and categorised. Secondly, the data underwent descriptive analysis to explain the emerging patterns. Thirdly, the data was subjected to statistical analysis in order to ascertain the

relationships among the emerging patterns and their significance. These procedures are described in the sections that follow.

(a) *Coding and categorisation*

Codification and categorisation of data was done in order to analyse and synthesise the data with ease. Variables such as gender, age, level of education, and occupation of the participants were first coded. Male participants were coded 1 while female participants were coded 2. Age was divided into cohorts of 18-25, 26-30, 31-40, and above 40. These cohorts were then assigned the codes 1, 2, 3, and 4, respectively. Level of education was divided into primary, secondary, college, and university. These divisions were coded 1, 2, 3, and 4, respectively. Occupation was divided into civil servants, private company and self-employed. These were coded 1, 2, and 3, respectively. Data on the participants' subjective experiences and interpretations of the KZCH programme was then coded and categorized. Lusaka was coded urban (1) while Mumbwa was coded rural (2). Further, the low density residential area (Kabulonga in Lusaka and Rental in Mumbwa) were coded low density (1) while high density residential areas (Chawama and Garden in Lusaka and Phiri and Sons and Muchenje in Mumbwa) were coded high density (2).

(b) *Statistical data analysis*

One way in which data obtained via the questionnaire was analysed in this study was by using statistical methods. Statistics is a mathematical science pertaining to the collection, analysis, synthesis, describing, interpretation or explanation and presentation of data. Choice of appropriate statistical techniques is determined to a great extent by the researcher's design, hypothesis and the kind of data that will be collected. The study made use of two basic types of statistics, namely *descriptive* and *inferential statistics*. The differences in the two types of statistics and how the statistics were used in this study are explained below.

Descriptive statistics are used to summarise or describe a collection of data and form the basis of virtually every quantitative analysis of data. Summary statistics can either be measures of central tendency or measures of dispersion. Nicholas (1999: 1) defines central tendency as "the tendency of the observations to bunch around a particular value,

or category.” Measures of central tendency are the arithmetic mean, mode and median (Madrigal & McClain, 2012) collectively called the average. On the other hand, measures of dispersion measure the spread of the values around the central tendency. The two common measures of dispersion are the range and the standard deviation. Others are variance and interquartile range. This study used the median and the mode as measures of central tendency. There is a justification for this. Since one cannot average the data obtained using the Likert scale, the best statistics for this type of data are the mode and median. This is in line with Boone and Boone’s (2012) assertion that if the Likert scale is treated as an ordinal or continuous measure, the suitable measures of central tendency into which data can be collated are the mode and median. Frequencies or counts can also be used as measures of dispersion (ProQuest, 2008; Boone & Boone 2012).

ProQuest (2008) explains that there is a way in which the mean can be used to interpret data obtained using the Likert scale. According to ProQuest, responses to several Likert questions can be summed, providing that all questions use the same Likert scale and that the scale is a defensible approximation to an interval scale. In this case, the responses may be treated as interval data measuring a latent variable. In such an instance, descriptive statistics such as the mean for central tendency and standard deviations for variability are recommended for interval scale items (Boone and Boone, 2012). In this study, the mean was used alongside the t-test to interpret the significance of the statistics obtained.

Using statistical analysis of data has its advantages and disadvantages. For example, closed-ended rating scale data such as is generated by the Likert scale is easy to summarise but hard to interpret (Sauro, 2011). In addition, descriptive statistics are also limited in so much that they only allow the researcher to make summations about the people or objects that he or she has actually measured. This means that the researcher cannot use the data collected to generalize to other people or objects (that is, using *statistics* from a sample to infer the *parameters* of a population). For the reason of this handicap, this study also used inferential statistics in order to draw inferences, predictions and forecasting about the process or population being studied. The *independent t-test* (also known as Student’s t-test), a bivariate statistic which compares means between two unrelated groups of data on the same continuous, dependent variable, was used to analyse

the data. In this analysis, perceptions and attitudes constituted the *dependent variable* while location and gender were the *independent variables*. Thus, the perceptions and attitudes of the residents of Lusaka (urban) were compared with those of the residents of Mumbwa (rural). Similarly, within Lusaka, the perceptions and attitudes of residents of Kabulonga (low density area) were compared with those of the residents of Chawama and Garden (high density areas). Further, the perceptions of male participants were compared with those of female participants. The purpose of the statistical analysis was to find out if there were any significant differences in the perceptions and behaviours of people from the different demographic groups.

SPSS Statistics (version 16.0), the package that was used to analyse data, generated two main tables of output for the independent t-test: the group statistics table and the independent samples test table. The *group statistics table* provided the mean and standard deviation for the two groups that were compared. On the other hand, the *independent samples test table* provided the actual results from the independent t-test. When the value in the “Sig. (2-tailed)” row was less than 0.05, it meant the group means were significantly different. On the contrary, when the “Sig. (2-tailed)” row was more than 0.05, it meant that the group means were not significantly different. These results were then compared with the means in the group statistics table. The higher mean in the table showed a higher proportion of the variable being measured. Depending on these outputs, the results of the study were reported in the following manner: This study found that male participants had statistically significantly knowledge of pro-environmental behaviour than female participants,  $p$  being 0.020. The symbol  $p$  represents *point estimate*. A point estimate of a population parameter is a single value of a statistic. For example, the sample mean  $\bar{x}$  is a point estimate of the population mean  $\mu$ . Similarly, the sample proportion  $p$  is a point estimate of the population proportion  $P$  interval estimate. In this study, the “Sig. (2-tailed)” was used as the point estimate of the group means.

The use of inferential statistics has two limitations. The first, and most important, which is present in all inferential statistics, is that the researcher is providing data about a population that he or she has not fully measured, and, therefore, cannot ever be completely sure that the values/statistics calculated are correct. The second limitation is connected to the first limitation. Some, but not all, inferential tests require the researcher

to make educated guesses (based on theory) to run the inferential tests. Again, there will be some uncertainty in this process, which will have repercussions on the certainty of the results of some inferential statistics.

(c) *Data presentation*

Data analysis was followed by data presentation. Statistics Café (2011) explains that if the Likert scale is treated as nominal level measurement, then the data can be presented as counts, percentages or levels of each response. The data can then be depicted using different types of tables and bar graphs. This study utilised several types of tables and graphs to present data. Robbins and Heiberger (2011) state that tables are excellent for providing discrete values. The disadvantage with tables, however, is that they do not make it easy to see the distribution of subsets of the sampled participants. *Graphs* are an excellent way to present survey information because statistical data is presented in a visual form. This helps to emphasize a point and to quickly and efficiently show important information (Robbins & Heiberger, 2011). Graphing the data permits the researcher to readily see what the distribution looks like. One type of chart used in this study is the bar chart (also called a *bar graph*). It was used to present grouped data using vertical or horizontal rectangular bars with lengths proportional to the values that they represented. Bar charts are useful for displaying data generated using the Likert scale because the data is generally classified into nominal or ordinal categories. Bar graphs can also be used to display and compare the number, frequency or other measure (for example, mean) for different discrete categories of data. According to the University of Leicester (n.d.), bar charts are often used because they are simple to create and very easy to interpret. They are also a flexible chart type and there are several variations of the standard bar chart. These variations include divided bar charts, horizontal bar charts, grouped or component charts, and stacked bar charts. This study used the *divided bar charts* to show the stacked percent for each category. The package that was used to construct the graphs was Microsoft Excel.

#### **4.9 Qualitative Research Procedure**

Research questions (a), (b), (c) and (d) required the researcher to use the qualitative approach. As explained above, qualitative research is used because it is suitable when

exploring individuals' perceptions, values, attitudes and priorities. According to Madrigal and McClain (2012), qualitative research studies can provide the researcher with details about human behaviour, emotions and personality characteristics that quantitative studies cannot match. This is affirmed by Karangwa (2006, quoting Erickson, 1977) who states that,

*... social facts are embedded in social action, just as social meanings are constituted by what people do in everyday life. It suggests under this principle that, the research [should be] reflective of everyday life of individuals and social organisation around them as well as the perceptions of the local actors.*

Flicks (1998: 229) calls qualitative research as inherently 'multi-method in focus'. According to Creswell and Plano Clark (2006: 6-7), qualitative data may be obtained using a questionnaire that consists of open-ended questions. The researcher can also use interviews to gather information from participants. The general, open-ended questions asked during these interviews allow the participants to supply answers in their own words. Also, qualitative data may be collected by observing participants or sites of research, gathering documents from a private (for example, diary) or public (for example, minutes of meetings) source, or collecting audiovisual materials such as videotapes or artifacts. McKenzie-Mohr and Schultz (2012) explain that,

*this combination of methods often provides clear guidance as to what inhibits the adoption of a behaviour as well as what would motivate action The research strategy works through a combination of methods, taking into consideration the views of the key community members, seeking both in-depth focus and a wide cross section of what make up the social fabric around the members of the general public.*

It is in this view that this study used several methods to collect data for the qualitative research stage. The methods included conducting interviews and analysing archival information (such as newspaper and social media documents). According to McKenzie-Mohr and Schultz (2012), a combination of methods, or triangulation, often provides clear guidance as to what inhibits the adoption of a behaviour as well as what would motivate action.

#### 4.9.1 Interview schedule

Information from officials from the Lusaka City Council, Mumbwa District Council, Ministry of Local Government and Housing and the franchise companies was collected using unstructured interview schedules (Appendices D and E). Weiss (1994: 1) provides a clear explanation for the reason why researchers use interviews for studies of this nature, as follows:

*[asking people questions] can inform us about the nature of social life. We can learn about the work of occupations and how people fashion careers, about cultures and the values they sponsor, and about the challenges people confront as they live their lives. We can learn also, through interviewing about people's interior experiences... We can learn the meanings to them of their relationships, their families, their work, and their selves. We can learn about all the experiences, from joy through grief, that together constitute the human condition.*

Since the number of people to be interviewed was not large, there was no need for research assistants and, therefore, the researcher conducted the interviews himself. Prior to the day of the interview, the researcher visited the participants to inform them about his intention to interview them and explained the nature of the interview. For the franchise contractors, the appointments were made through the Lusaka City Council where the researcher had gone to meet an official in the waste management department. On the day of the interviews, the researcher went to the offices of the officials to be interviewed. Interviews were held with the participants in their respective offices and at their convenience. This is in view of Bell's (2002) advice that people who accept to be interviewed need to be considered. This means that the researcher should take into account the participants' schedules or their other commitments. For each participant interviewed, the interview proceeded as follows: to start with, the researcher thanked the participants for finding time to participate in the interviews (Litosseliti, 2003). The researcher also tried to establish a friendly non-formal environment for sharing of views, ideas and experiences (Litosseliti, 2003). The researcher then explained who he was, where he was coming from and what he was doing. He explicitly indicated that the study was for academic purpose only and that it was voluntary (Welman, Kruger & Mitchell, 2001). The researcher also explained why it was important for the participants to

participate in the study and why they had been chosen. The interviews then started and were recorded using a voice recorder and note-taking. The interviews elicited information on the implementation of the KZCH programme, the challenges faced, political will and the attitudes of the general public. This method was useful because it provided some form of triangulation to countercheck the information obtained from the use of questionnaires where attitudes were self-reported by participants. At the end of the interview, the researcher thanked the participants for the valuable information they had provided and the time they had spared for the interview (Berg, 2007; Bryman, 2001; Estrada & Laurence, 2002; Wisker, 2001).

The use of unstructured interviews was useful to this study because the open-ended questions allowed the participants to express themselves without the impediments provided by open-ended questions. The researcher also allowed the participants to seek clarification where they were not clear. However, as expected in unstructured interviews, the participants sometimes went on to give unsolicited and irrelevant information. This was time consuming both during the interaction and during the analysis of data. To avert this problem, the researcher had to rephrase the questions. There was also the danger of obtaining biased information since the participants were purposively selected (Yin, 1984). However, as indicated above, this method was triangulated with other sources of information to avoid this pitfall.

Two methods were used to record the *interviews*: digital voice recorder and taking down notes. To gain the confidence of the participants and to reduce fears, permission to record the interviews was sought from the participants. The researcher was aware of both the advantages and disadvantages of using voice recording as a means of recording the interviews. In the first place, recording would make it possible to play back the tape several times for transcription purposes (Borg and Gall, 1989). This would enable the researcher to capture what the participants actually said. The other advantage of voice recording is that it gives an immutable and complete record of the interview which can be verified by another person (Denscombe, 2007). On the other hand, voice recorded information requires a lot of listening and time to transcribe (Koshy, 2005; Merriam, 1998; Sinnes, 2005; Descombe, 2007). In addition, the presence of a tape-recorder may unnerve the participants and, therefore, change the discussion environment. When

participants feel uneasy to express themselves freely, they may desist from telling the truth about an issue because of fear of the unknown (Haambokoma, 2015). Denscombe (2007) also states some genuineness of the data may be lost during the process of transcription.

Apart from the use of a voice recorder, the researcher also took down notes. The advantage of using both voice recording and note taking is that, should the recording device fail to record for one reason or another, a record of the proceedings of the interview sessions captured by the taking down of notes (Creswell, 2003 cited in Haambokoma, 2015). However, moderating the interview and also taking notes at the same time during the interview session sometimes led to disruption of the flow the interviews. This problem would have been avoided if the researcher had taken with him an independent note-taker (Haambokoma, 2015).

#### **4.9.2 Sample size**

According to Mason (2010), there is no clear recommended adequate sample size in a qualitative research. However, qualitative sampling tends to use relatively small numbers of cases. Therefore, for the interviews, only five participants were interviewed, two municipality workers, one official from the Ministry of Local Government and Housing and two franchise contractors.

#### **4.9.3 Sampling procedure**

Interviews required sampling. Qualitative research usually uses non-probability sampling. There are different types of non-probability sampling. The best known and regularly used include snowball sampling, purposive (judgment) sampling, convenience sampling and quota sampling. This study made use of purposive sampling. “With a purposive sample, the number of participants in a study is less important than the criteria used to select them” (Creswell, 2012 cited in Mulenga, 2015: 93). With this understanding, the study targeted two council waste management officials, one from Lusaka City Council and the other from Mumbwa District Council; the study also interviewed one official from the Ministry of Local Government and Housing and two franchise contractors. The officials from the councils were targeted because they were in charge of waste management in

their respective towns. The official from the Ministry of Local Government was selected because he was the coordinator of the KZCH programme. The franchise contractors were selected because they were running the private firms contracted to collect solid waste in those parts of Lusaka which were not being serviced by the Lusaka City Council itself. The identification of the contractors was not a problem because Lusaka City Council provided a list (Appendix F) from which the researcher randomly picked two. The contractors readily accepted to be interviewed and appointments were made for the interviews.

#### **4.9.4 Document study**

Secondary data, obtained from *document study*, also contributed knowledge to this study. Rice University (2013: 45) explains the nature of secondary data as follows: “secondary data don’t result from firsthand research collected from primary sources, but are the already completed work of other researchers”. Such work is recorded or stored in different documents. According to Heffernan (2001), a document is something that can be read and which relates to some aspect of the social world. Heffernan further asserts that virtually anything that supports the question asked is a document, including print (books, periodicals, newspapers, or magazines) and electronic media (email, blogs, user Web pages, and even social network profiles).

Heffernan (2001) explains that analysing different types of documents is important in qualitative research. Document study constitutes a social research method and is an important research tool in its own right. It can be used as an invaluable part of most schemes of triangulation (Heffernan, 2001). According to Mikkelsen (1995), document study can provide a wealth of information from different studies which can be utilised to shape and mould a research study. The greatest challenge offered by the method is sifting through all of the data to make general observations. However, using secondary data has many advantages. Rice University (2013) explains that,

*Using available information not only saves time and money, but it can add depth to a study...One of the advantages of secondary data is that it is nonreactive (or unobtrusive) research, meaning that it does not include direct contact with subjects and will not alter or influence people’s behaviours. Unlike studies requiring direct contact with people, using*

*previously published data doesn't require entering a population and the investment and risks inherent in that research process.*

As a result of the inherent advantages and importance of document study, this study sought to use it to provide additional information about the knowledge, attitudes and perceptions that people had about the KZCH programme, and its successes and failures. The researcher used the method to look for patterns of data – what people were saying about the KZCH programme, how people were responding to it and why they were responding the way they did. Documents also supplied information about what other scholars have said about human behaviour and the tools that can be used to change it.

Document study began with the inception of the study and continued all the way until the final research report was made. It involved searching for appropriate documents, reading them, recording relevant information and ultimately analysing the information. The internet proved to be an invaluable source of information, providing government policy documents, NGO reports, online journals and other types of documents. Accessing these documents was not a problem. Some of the information was used to develop the contextual framework for the study, the review of literature and to construct a behaviour change toolkit.

One type of document study used in this study was analysing comments made on *social media*. Oxford Dictionaries (2013, cited in Beninger et al., 2014: 5) defines social media as “websites and applications that enable users to create and share content or to participate in social networking.” In this study, comments from social media provided invaluable and interesting information. They provided a vivid, incessant and live discussion on matters pertaining to the KZCH programme. The study obtained comments which were made on social media between April 30<sup>th</sup>, 2009 and March 1<sup>st</sup>, 2017. The advantage of this method was that those who made comments did not hold back information as interviewees sometimes would. As observed by Barach (1984 cited in Malafarina and Loken, 1993), people may feel embarrassed or unwilling to express their views on certain issues in an interview or questionnaire. This is not so with social media; people write freely readily expressing their feelings and speaking their minds. This notion is supported by Bloom and Novelli (1981) who note that when people write for social media, the sense of anonymity helps them to write as freely as possible.

Gray (7<sup>th</sup> February, 2011) states that social media is an important technological trend that has big implications for how researchers communicate and collaborate. According to her, researchers have a huge amount to gain from engaging with social media in various aspects of their work. She further states that “one of the most important things that researchers do is to find, use and disseminate information, and social media offers a range of tools which can facilitate this” (para. 3). She cites blogging as one of the tools that can be used to achieve this purpose. Gray uses several examples of academics who have reported using social media successfully. However, only two of these cases are cited here. The first one is that of Andrew Coverdale, a PhD student at Nottingham University who explains that “I believe that the use of social media has actually made me a better researcher because I can source information, establish links with people in my field, disseminate my work, etc.” The second case is that of Alexander Davenport, a research assistant in the Hemato-oncology Department at Barts and the London School of Medicine and Dentistry. Davenport states that the use of social media has made him a better researcher because he thinks a good researcher not only needs to be able to do the research but needs to be able to communicate, formulate ideas and arguments with other people they know. Further, Beninger et al. (2014: 1) affirm the usefulness of social media when they state that “social media websites offer rich, naturally-occurring data and researchers are using such websites to support their work, such as scraping data from online discussions, mining data from archives, recruiting participants, and interviewing online.”

The dangers of using social media, as pointed out by Beninger et al. (2014: 2), are that people may behave differently online and offline and so online research may not reflect the ‘real world’; people may express exaggerated views as a result of the anonymity the internet affords and, therefore, research findings using views from online sources may lead to inaccurate conclusions about something or someone; impulsive comments posted online may result in researchers using a view that does not accurately reflect someone’s ‘normal’ viewpoint but instead only something they held for a moment in time; and inaccurate profiles taken without further context would lead to inaccurate information and findings. These challenges were dealt with by triangulating the sources of information so that social media was not the only source of data (see section 4.10.2).

#### **4.9.5 Data analysis**

Rabiee (2004 cited in Haambokoma, 2015: 122) explains that “data analysis procedure should be described in detail in such a way as to enable another researcher to corroborate the outcome of the research.” In addition, a good account of the procedure used to analyse data increases the thoroughness of the research (Rabiee, 2004). This section, therefore, endeavours to make an account of how the researcher carried out analysis of qualitative data in the current study. Madrigal and McClain (2012) observe that since data from qualitative studies describes the qualities or characteristics of something, it is difficult to reduce these descriptions to numbers - as can the findings from quantitative research. This study also faced a similar challenge. However, Madrigal and McClain (2012) advise that analysing qualitative data can be achieved through an encoding process. According to Creswell (2006), the process of analysing qualitative data (words or text or images) or encoding characteristically follows the path of aggregating the words or images into categories of information and presenting the diversity of ideas gathered during data collection.

In this study, different methods were used to analyse qualitative data. To analyse the data obtained through personal interviews with council officers, Ministry of Local Government and Housing officials and franchise contractors several steps were followed. The first step was to get familiar with and transcribe the data. This was accomplished through listening to the interviews held with the participants and transcribing them. The second step entailed reading and re-reading the transcribed data. This led to ‘data reduction’ (Miles & Huberman, 1994) which involved discarding data which was not very relevant to answering the research questions. The third step consisted of reading through the data again and coding the data by assigning codes or tags to parts of transcribed data (Miles & Huberman, 1994). In this study, the codes took the form of numbers and initials. Thus, the three officials were coded OF 1, OF 2 and OF 3 while franchise contractors were coded FC 1 and FC 2. The fourth step was to group the data into themes. This was achieved by generating categories under which several codes were put (Denscombe, 2007). The categories were generated according to the research questions.

Information obtained from document study was placed under certain themes and reported verbatim just as information obtained from an interview would. Where wrong spellings and incorrect words were used by the original authors, the correct spellings and words were put in square brackets or parenthesis. The same thing was done where statements needed clarification, translation or addenda. The biggest challenge with the method was the huge amount of information that the researcher had to deal with because of the many comments posted on social media by different people. The University of Newcastle (2014) also notes that the ethical framework relating to research using social media has not been very well-developed, and there are still many questions, such as informed consent, anonymity and avoiding undue harm, for a would-be social media researcher to ponder. Since this study did not mention names of the bloggers, this issue of ethics was attended to appropriately.

#### **4.10 Trustworthiness**

For both the quantitative and qualitative procedures, trustworthiness was considered. Trustworthiness is an essential consideration in research (Padgett, 1998). According to Padgett, a trustworthy study is one that is carried out fairly and ethically. Its findings represent as close as possible the experiences of the participants (Birabwa, 2006). The trustworthiness of a research is shown by how ethical issues are handled, and how valid and reliable the methods used and the results obtained are. Therefore, this section discusses the trustworthiness of this study.

##### **4.10.1 Ethical issues**

In social research, ethics is concerned with ensuring that the interests and wellbeing of research participants are not harmed as a result of research being done (Lankshear & Knobel, 2004 cited in Mulenga, 2015: 101). According to Mulenga (2015: 101 citing Lankshear & Knobel, 2004), “harm can range from people experiencing affronts to their dignity and being hurt by conclusions that are drawn about them, all the way through to having their reputations or credibility undermined publicly.” Further, participants would be harmed if they experienced anxiety, stress, guilt or damage to self-esteem during data collection and in the interpretations made from the data they provided. Consequently, several ethical issues were considered in this study. In the first place, in order to protect

the rights of research participants, participation was voluntary. This is to say that no-one was coerced into participating in the research and participants were free to withdraw from the research at their own discretion. This matter was made clear to the participants before the beginning of the interviews and before questionnaires were administered. Further, the nature and purpose of the study was made clear to the participants in order to achieve informed consent. To protect the confidentiality of the participants, no-one was identified by name or identification number – all the participants have remained anonymous. This is an important feature of a research study. Patton (2002) asserts that, in any research study, the researcher is charged with ensuring the privacy of the participants. Anonymity is necessary because identifying the participants by name or number may result in repercussions on the participants “in light of the results from the study, particularly when the results do lead to some controversial and sensitive findings.’ (Mulenga, 2015: 104). The exception to this general rule is the mention of government and local authority officers in charge of work related to the KZCH programme because what they said and did appeared in the newspapers, both print and on-line. This difficulty is expressed by Frankfort-Nachmias & Nachmias (1992) who state that assuring confidentiality and anonymity may be difficult to put into practice in some research in view of the fact that some institutions or participants may be readily identifiable because they possess features that are easily recognisable.

The three research values, namely respect of person, respect for the truth and respect for democratic values were key tenets in this research. Effort was also made to establish rapport with the participants. According to Creswell (2002), good rapport is important because the closer the researcher gets to the participants, the higher the chances that the participants will feel freer to express themselves. This was important for this research because it meant that the artificial behaviour that might occur among the participants was reduced and it placed the researcher and participant at equal footing. In this relaxed atmosphere, the possibility of participants holding back information was reduced.

#### **4.10.2 Validity issues**

Validity refers to the degree to which research conclusions are sound. It refers to ‘the certainty of measuring what it is [the study] wanted to measure’ (Egelund,

1997:10).Birabwa (2006) explains that external validity is based on whether the researcher reported what the participants said while internal validity is determined by whether the researcher reported in accordance with the research questions. The two main threats to validity in qualitative research are research bias and participant bias. According to Cohen, Manion and Morrison (2000), the first type of bias can be overcome by the researcher declaring personal values and beliefs that they bring into the study. The second type of bias was overcome through triangulation of methods of data collection (through the use of questionnaires, interviews, document study and personal observation) in order to cross-check the information supplied by participants. Triangulation is recommended by Teddlie and Tashakkori (2009), in addition to overcoming the problem of bias common when one method is used, the combination of methods adds richness and breadth to a research and secures an in-depth understanding of the phenomenon in question.

In addition to triangulation, the validity of the research instrument was enhanced by pre-testing it in Kabwe. Kabwe is a town in central Zambia, lying between Lusaka and the Copperbelt.

#### **4.10.3 Reliability issues**

According to Silverman (2000: 75), reliability is ‘the degree of consistency’ with which instances are assigned to the same category by different researchers or the same researcher on different occasions. If a measurement system is reliable, then it should provide the same results consistently over time across a range of observers (Peil, Mitchell & Rimmer, 1982). To achieve reliability, this study has attempted to provide a detailed description of how the data were collected, how categories were derived and how decisions were made so that the trail of the inquiry is clarified. In other words, another researcher should be able to arrive at the same conclusions, with the same approach and the same cases used in this study.

#### **4.11 Limitations of the study**

There were several limitations to this study. One of the limitations, as indicated in the section on time frame, was lack of adequate time and resources. If had been available,

this research would have used a longitudinal rather than a cross-sectional study. This would have allowed the researcher to see whether the participants' notions and behaviours were changing with time. The second limitation was that the information obtained using questionnaires depended on self-report by the participants. Such information is prone to distortions and exaggerations as the participants want to make an impression by over reporting certain things and underreporting others. It is clear that more objective measures of behaviour such as observing the behaviour of the participants for some time or validation of the self-report by significant others would have reinforced the current findings of this study. Both of these would have required more time and resources, neither of which the researcher had at the time of the investigation.

The third limitation was that participants sometimes withheld information on the suspicion that the researcher was a state agent who might turn them over to the police if they were not responding to the KZCH programme. This was despite all the assurances that the research was purely for academic purposes and was not politically inclined.

The fourth limitation to the study was that the actual measures of attitude, that is, perceived subjective norms, perceived behavioural control and behavioural intention, were indirect since actual observation of these behaviours was not feasible.

#### **4.12 Conclusion**

This Chapter has outlined the methods used to collect and analyse data. In order to venture into an inquiry to establish the levels of knowledge, values, and attitudes possessed by participants with regard to the KZCH programme and also to establish the barriers to behaviour change among the participants, a mixed or eclectic research design was adopted. This method ensured that the researcher not only elicited answers on what the participants knew, what their value systems were and what their attitudes were but also compared these attributes among different socio-economic groups within the sample. The method allowed for the use of different approaches, including questionnaires, interviews, document study and observation. The data collected was analyzed using counts, percentages and t-test and were depicted in graphs and tables.

# CHAPTER FIVE

## PRESENTATION OF FINDINGS

### 5.1 Introduction

This chapter presents the findings of the study. The chapter compiles the data which was collected using questionnaires, interviews and document study in a write-up and also displays of graphs, tables and statistics.

### 5.2 Demographic characteristics of participants

Participants were asked to provide background information on gender, age, level of education and occupational status. This information was important to this study because it was imperative to understand the demographics of the people who the information was collected from. The information is presented in Table 3.

Table 3: *Demographic characteristics of the sample*

Variable	Category	Frequency n = 545	Percentage
1. Gender	Male	300	55.0
	Female	245	45.0
2. Age (years)	18 – 25	246	45.1
	26 – 30	123	22.6
	31 – 40	124	22.8
	> 40	52	9.5
3. Level of education	Primary	57	10.6
	Secondary	266	49.3
	College	99	18.3
	University	118	21.9
4. Occupational status	Employed	293	53.8
	Unemployed	252	46.2

(Source: Field data, 2018)

Rudestam and Newton (2001 cited in Mulenga, 2015: 108) explain that the chapter on findings should begin “with a description of the sample from which the data was collected by giving, for instance, demographic details relating to participants or participants before presenting findings for each research question.” As shown in Table 3, 55% (n=300) of the participants were male while 45% (n=245) were female. Age distribution of the participants was that 45.1% (n=246) were 18-25 years old, 22.6% (n=123) were 26-30, 22.8% (n=124) were 31-40, while 9.5% (n=52) were above 40 years of age. In terms of education, 10.6% (n=57) of the participants indicated that they had attained primary education, 49.3% (n=266) secondary, 18.3% (n=99) college, and 21.5% (n=118) university). As for occupational status, 53.8% (n=293) of the participants indicated that they were employed while 46.2% stated that they were unemployed.

### **5.3 Determinants of human behaviour**

This section presents findings on determinants of behaviour change. These include knowledge and awareness, values, attitudes, perceptions, subjective norm. As indicated in Chapter Three, these factors determine human behaviour and yet it was not known to what extent they influenced the behaviour of the target audience in Zambia.

#### **5.3.1 Knowledge and awareness**

The first research questions sought to determine levels of knowledge and awareness of members of the general public concerning the KZCH programme, the need to live in a clean and sanitary environment and the dangers of living in a dirty and unsanitary environment. This question was important because the parameters in the question determined how people related with the environment, that is, the concern that they showed for the environment and whether they acted pro-environmentally or not. Two questions in the questionnaire were asked in order to determine these parameters in relation to the KZCH programme. The first question was about the personal importance of a clean and sanitary environment (the construct of perceived seriousness of living in a dirty and unsanitary environment in the Health Behaviour Model) while the second one was about what the participants perceived to be the risk of staying in an unclean and unhealthy environment (the construct of personal susceptibility in the Health Behaviour Model). The participants were asked the question: *How important is the issue of keeping*

*the environment clean and healthy to you?* The participants rated the importance of a clean and healthy environment on a four-point scale, from 1 = very important to 4 = not important at all. Figure 13 presents the responses to this question.

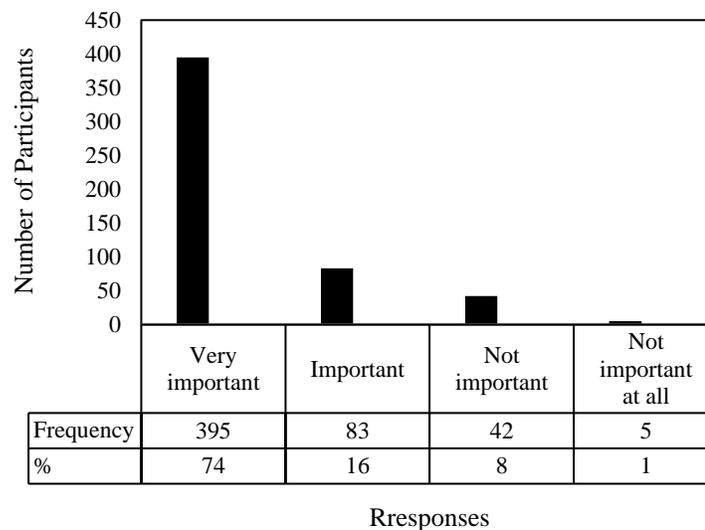


Figure 13: *Personal importance of a clean and sanitary environment*

(Source: Field data, 2018)

Figure 13 shows that the majority of participants (90% altogether) indicated that the issue of keeping the environment clean was important (16 %) and very important (74 %) to them. This indicates high levels of awareness. The result is not different from what Mwiinga (2014) found, that 82 % of the participants in her study in Choma were aware that solid waste could cause harm to them and to the environment.

A dirty environment can affect people by way of sickness. To assess the participants’ knowledge about the effects of a dirty environment (perceived risk from an unclean and unhealthy environment), the question: *Do you think your personal wellbeing is being affected by a dirty and unsanitary environment?* was asked. The participants were required to provide a ‘Yes’ or ‘No’ response. Five hundred and forty-three participants answered this question. The responses presented in Table 4 show that most of the participants (92%, n = 505) indicated that a dirty and unsanitary environment was something that was affecting their personal wellbeing. Only 5% (n = 5) thought that they

were not being affected by a dirty and unsanitary environment and 3 % (n = 3) indicated that they were not sure. Both median and mode were = 1.00, an indication that the most common response was 1 (Yes).

Table 4: *Perceptions of effects of a dirty and unsanitary environment.*

<i>Response</i>	<i>Frequ ency</i>	<i>%</i>
<i>1. Yes</i>	505	92.0
<i>2. No</i>	27	5.0
<i>3. Don't know</i>	21	3.0
<i>Total</i>	<b>543</b>	<b>100.0</b>

(Source: Field data, 2018)

Further, the researcher assessed the participants' knowledge about the KZCH programme (Question: *How much do you know about the KZCH programme?*). The participants rated their responses on a 5-point scale, ranging from 1 = very much to 5 = not very much. Figure 14 shows the responses to this question.

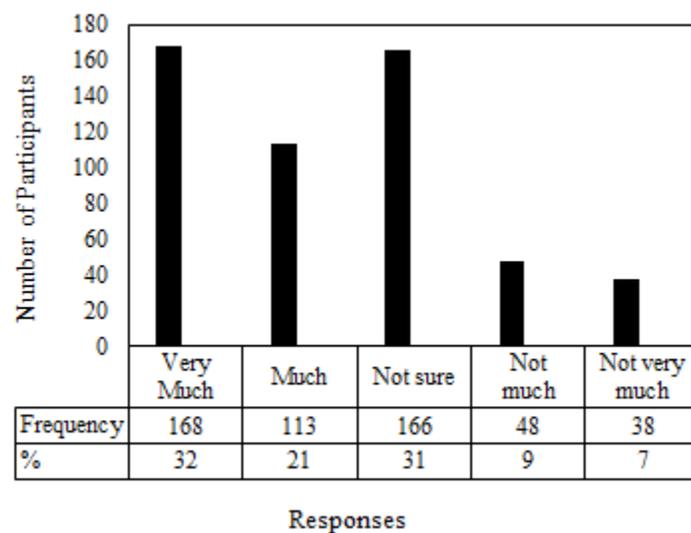


Figure 14: *Knowledge about the KZCH programme.*

(Source: Field data, 2018)

Figure 14 shows that almost half of the participants (53%, n = 281) indicated that they knew very much (32 %) and much (21 %) about the KZCH programme. Only 9% and 7% (together n = 86) stated that they did not know much and did not know very much about the programme, respectively, while 31% (n = 166) indicated that they were not sure. Both the median and modal scores were 3.00. This shows that the scores tended to bunch around ‘not sure’. The meaning of this would be that most of the participants were ambivalent; they were not certain about how much they knew about the programme.

### 5.3.2 Environmental perceptions and attitude

The Theory of Planned Behaviour was used to establish public perception and attitude towards the KZCH programme, using the constructs behavioural beliefs, subjective norm, behavioural intention, perceived behaviour control and past behaviour. This section presents the results of the findings of the study on these aspects.

#### (a) Behavioural beliefs

Behavioural beliefs or attitude is about whether a person is in favour of doing an action or not. The participants rated their responses on a 5-point scale, ranging from strongly agree (1) to strongly disagree (5). The first question was *I am not the type of person who would take part in the programme*. The results are presented in Figure 15.

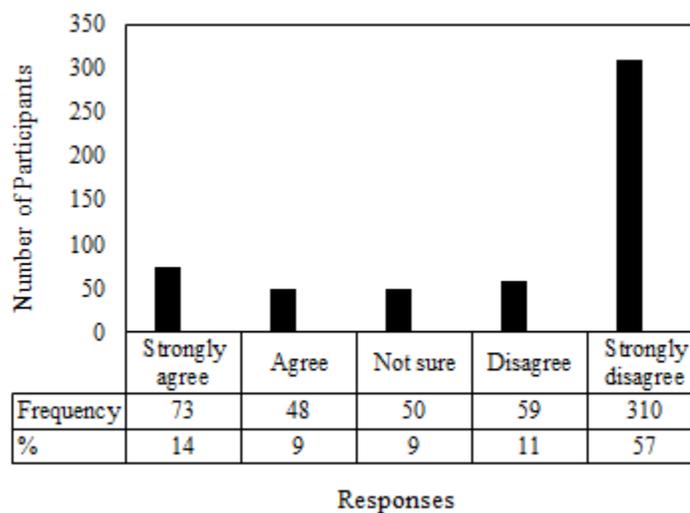


Figure 15: *Lack of willingness to participate in the KZCH programme*

(Source: Field data, 2018)

As Figure 15 shows, fourteen percent (14 % or n = 73)) of the participants strongly agreed, 9% (or n = 48) agreed, 9 % (n= 50) were not sure 11% (n = 59) disagreed and 57% (n = 310) disagreed strongly. Altogether, sixty-eight percent of the participants disagreed with the assertion that they were not the type of person who would take part in the KZCH programme. Only 23% of them said they agreed with the assertion. The results showed that most of the participants viewed themselves as environmentally friendly people.

The second question asked the participants to state that they were the type of person who would take part in the KZCH programme (Question: *I am the type of person who would take part in the programme*). As Figure 16 shows, sixty-four percent (64 % or n = 345) of the participants strongly agreed, 14% (n = 73) agreed, 9% (n = 51) were not sure, 6% (n = 32) disagreed and 7% (n = 37) disagreed. Altogether, seventy-eight percent (78 %) of the participants agreed with the assertion that they were the type of person who would take part in the KZCH programme while 13% disagreed. Again, the results show that most of the participants viewed themselves as environmentally friendly people.

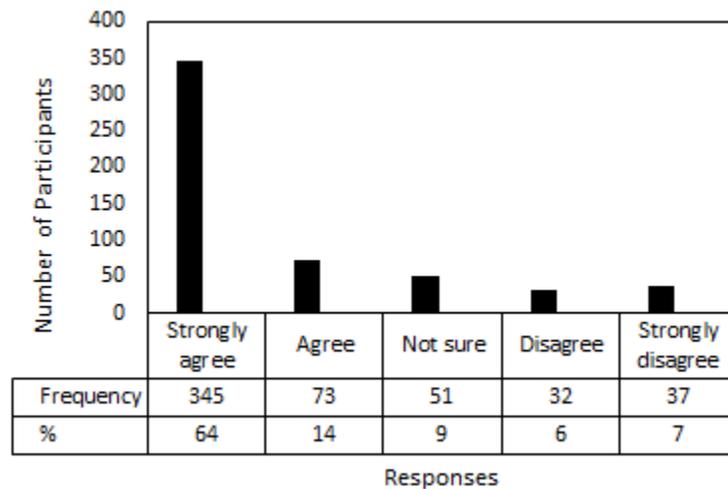


Figure 16: *Willingness to participate in the KZCH programme*

(Source: Field data, 2018)

(b) *Subjective norm*

In this study, subjective norm was measured by asking participants to indicate whether they knew anyone who was participating in the KZCH programme. Three reference groups were used: friends, family members and colleagues (Question: *Does anyone you know (friend, family member or colleague) participate in the KZCH programme?*). The participants were required to state either ‘Yes’ or ‘No’. The results are shown in Table 5.

Table 5: *Subjective norm*

<i>Response</i>	<i>Frequency</i>	<i>%</i>
1. <i>Yes</i>	325	60.0
2. <i>No</i>	216	40.0
<i>Total</i>	<b>541</b>	<b>100.0</b>

(Source: Field data, 2018)

As shown in Table 5, 541 participants answered this question. Out of these, sixty percent (60% or n = 325) indicated that they knew someone (a friend, family member or colleague) who participated in the KZCH programme while 40% (n = 216) said they did not know anyone. The median score = 1.00 (yes) and the modal score = 1 (yes). Therefore, the most prevalent answer was ‘yes’.

The second question asked under subjective norm was more concerned with finding out whether or not the participants’ participation in the KZCH programme was influenced by people known to them (Question: *How much influence do people you know (friend, family or colleague) have on your decision to participate in the programme?*). The participants rated their responses on a 4-point scale, ranging from ‘very influential’ (1) to ‘not influential at all’ (4). The responses received are shown in Figure 17.

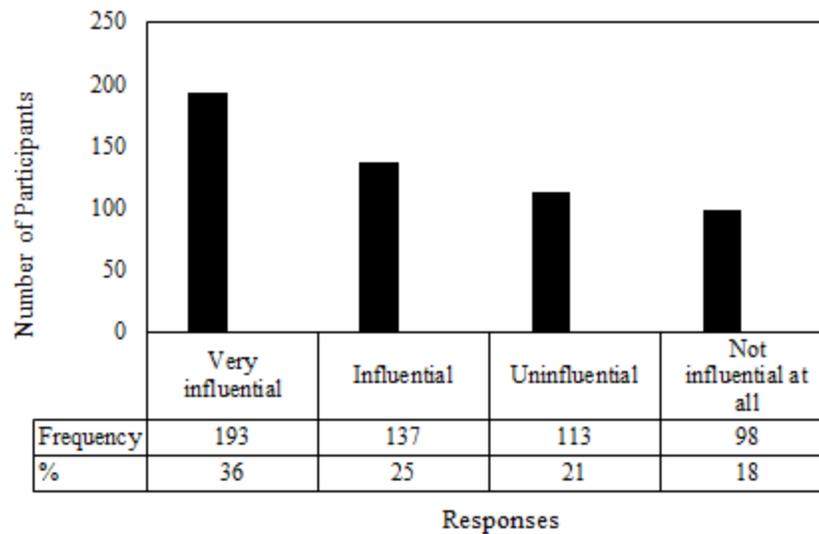


Figure 17: *Influence of people known to participants*

(Source: Field data, 2018)

Figure 17 shows that thirty-six percent (36 % or n = 193) of the participants stated that people they knew were very influential in their participation in the KZCH programme, 25 % (n = 137) said influential, 21 % (n = 113) no influence and 18 % (n = 98) no influence at all. Altogether, sixty-one percent of the participants indicated that they were somehow influenced by people they knew in deciding to participate in the KZCH programme while thirty-one percent said they were not. Both the median and modal score = 1.00 (very influential) showing that the most prevalent response was ‘very influential’.

The participants were further asked whether or not a sense of social identity was important to them in making a decision to participate in the KZCH programme. The participants were asked what they thought their families’, friends’ or colleagues’ views would be if they found out that they were participating in the KZCH programme (Question: *In general, what do you think your family, friends and colleagues’ views would be if they found out that you were participating in the KZCH programme?*). The participants rated the responses on a 5-point scale, ranging from 1 = very favourable to 5 = very unfavourable. This question elicited the responses shown in Figure 18.

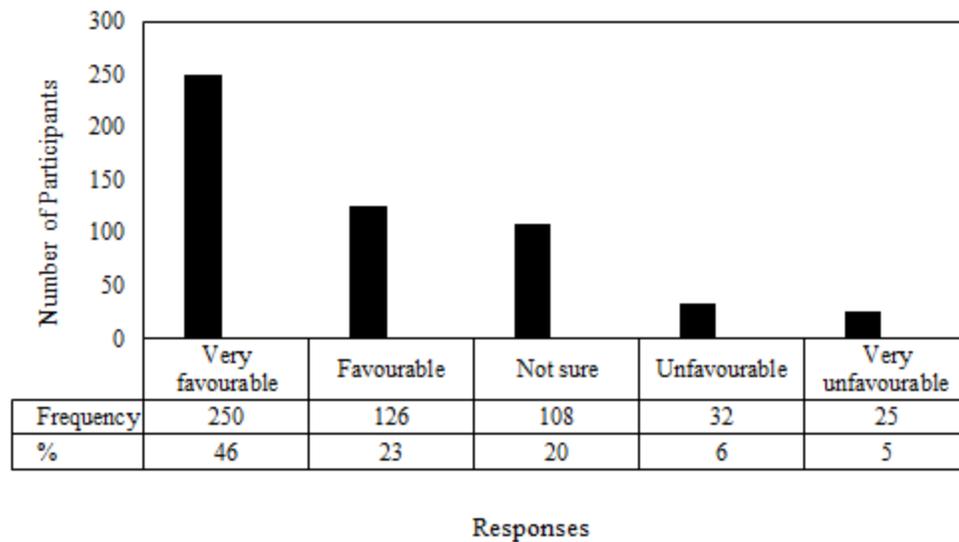


Figure 18: Views of significant others

(Source: Field data, 2018)

The results revealed that forty-six percent (46% or  $n = 250$ ) of the participants stated that their families, friends and colleagues would view their participation in the KZCH programme very favourable, 23 % ( $n = 126$ ) favourable, 20% ( $n = 108$ ) were not sure, 6 % ( $n = 32$ ) unfavourable, and 5 % ( $n = 25$ ) very unfavourable. Altogether, sixty-nine percent of the participants thought that their families', friends' or colleagues' views of them participating in the KZCH programme would be favourable to very favourable while 11% said the views would not be favourable. The median score = 2 (favourable) and mode = 1 (very favourable).

(c) *Behavioural intention*

In order to establish their behavioural intentions, the participants were asked two questions. For each question, the participants were asked to rate their responses on a 5-point scale, ranging from 1 = definitely will to 5 = definitely won't. Firstly, the participants were asked to state if they thought that they would participate in the programme in future if they were not participating at the time of the study (Question: *If you are not participating now, do you think you will participate in future?*). Figure 19 shows that 269 (or 49.36 %) participants indicated that they were not participating in the KZCH programme. Of these, sixty-two percent (62 % or  $n = 169$ ) indicated that they

would definitely participate in the programme in future, 18% (n = 49) said they would participate, 8% (n = 22) said they would not and 11% (n = 29) said they would definitely not participate in the programme. Altogether, eighty percent of the participants (n = 218) who were not participating in the KZCH programme indicated that they would participate in the programme in future. Both the median and modal scores were = 1.00 (definitely will), an indication of willingness to participate.

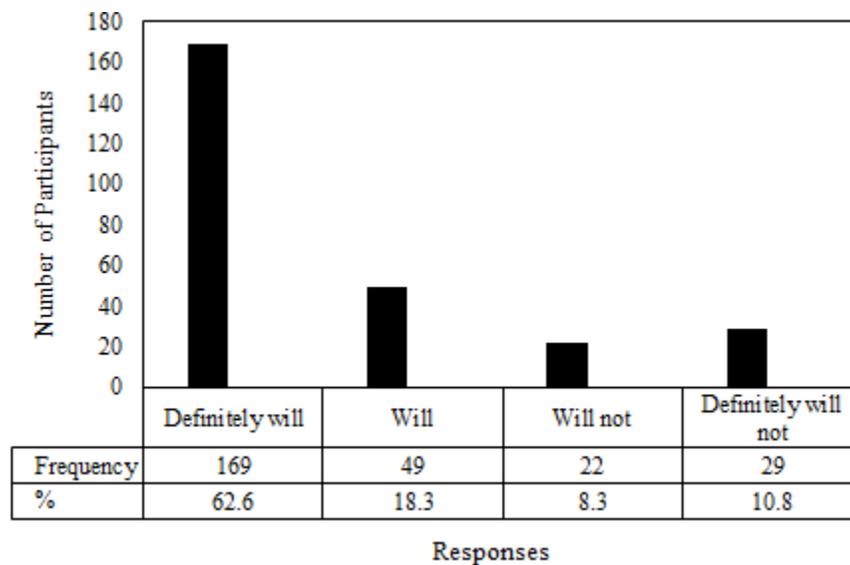


Figure 19: *Future participation in the KZCH programme*

(Source: Field data, 2018)

Secondly, the participants were asked to indicate whether or not they would continue participating in the KZCH programme in future if they were already participating at the time of the study (Question: *If you are participating now, do you intend to continue participating in future?*). In this study, 276 participants (or 50.64 %) indicated that they were already participating in the KZCH programme. As Figure 20 shows, 64 % (n = 171) of these indicated that they would definitely continue participating in the programme, 22% (n = 59) said they would continue, 7% (n = 20) said they would not continue and 6% (n = 17) said they would definitely not continue. All in all, 86% of the participants who were already participating in the programme indicated that they intended to continue participating into the future. Only 14% said they would not continue participating in the programme.

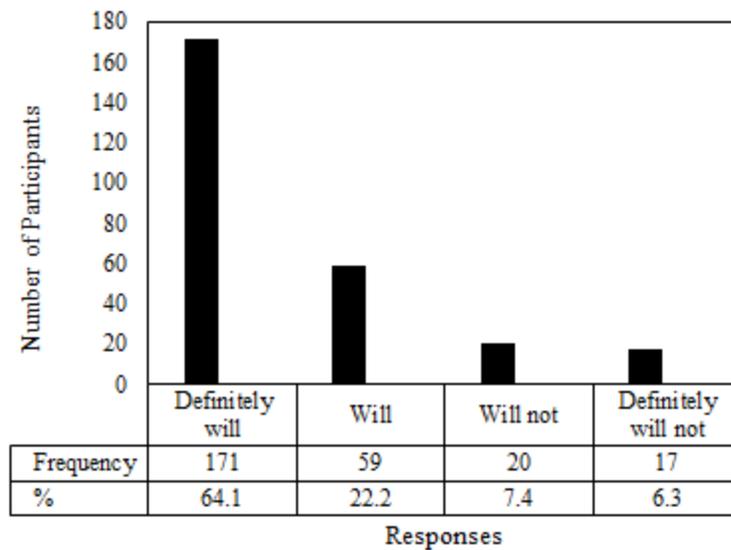


Figure 20: *Future participation in the KZCH programme for participants who were not already participating.*

(Source: Field data, 2018)

(d) *Perceived behaviour control*

With regard to perceived behaviour control, the participants were asked the question: *At the moment, how easy do you find it to participate in the KZCH programme?*). The participants rated their responses on a 4-point scale, ranging from 1 = very easy to 4 = not easy at all. Figure 21 shows the responses obtained.

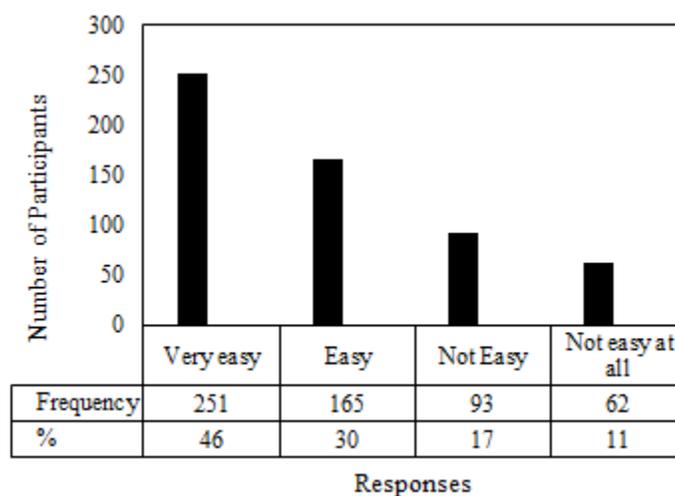


Figure 21: *Perceived behaviour control*

(Source: Field data, 2018)

The results show that forty-six percent (46 % n = 251) of the participants said that they found it very easy, 30% (n = 165) easy, 17% (n = 93) not easy and 11% (n = 62) not easy at all. All in all, 76 % (n = 416) of the participants indicated that they found it very easy/easy to participate in the KZCH programme while 28% (n = 155) said they did not find it easy. The median response = 2.00 (easy) and the mode response = 1 (very easy). With a mode of 1, it was concluded that the most prevalent answer was ‘very easy’.

(e) *Past behaviour*

In this study, it was necessary to ascertain whether the past behaviour of participants influenced their current and future behaviour. To do this, the participants were asked about whether or not they had taken part in the KZCH programme before. They were required to state ‘Yes’ or ‘No’. Table 6 shows that 537 participants provided answers to this question. Slightly less than half of these participants (49.7 % or n = 267) indicated that they had taken part in the KZCH programme in the past while 50.3% (n = 270) said they had not. The difference between participants who said they were currently taking part in the KZCH programme and those who said they had participated in the programme before was 14.3 %. Of these, only 0.94 % said they would continue taking part in the programme.

Table 6: *Participants taking part in the KZCH programme in the past*

<i>Response</i>	<i>Frequency</i>	<i>%</i>
1. <i>Yes</i>	267	49.7
2. <i>No</i>	270	50.3
<i>Total</i>	<b>537</b>	<b>100.0</b>

(Source: Field data, 2018)

In concluding this section, it can be stated that:

- (a) the participants were generally aware of and valued the need to live in a clean and healthy environment.

- (b) the participants were generally aware of the repercussions of living in a dirty and unsanitary environment.
- (c) the participants expressed a desire to start participating or to continue participating in the programme.
- (d) past behaviour does not always determine future behaviour.

### 5.3.3 Pro-environmental values

The participants were asked four questions in order to ascertain their pro-environmental values and self-identity. Following Schwartz (1992), participants were asked to rate their responses on a 5-point scale, ranging from strongly agree = 1 to strongly disagree = 5. Firstly, the participants were asked to state whether or not they viewed themselves as environmentally-friendly people (Question: *I think of myself as an environmentally-friendly person*). Figure 22 shows that fifty percent (50 % or n = 269) of the participants strongly agreed, 24% (n = 128) agreed, 13% (n = 70) were not sure, 5% (n = 25) disagreed and 9% (n = 49) strongly disagreed. In all, 74 % (n = 397) of the participants indicated that they thought of themselves as environmentally-friendly consumers. Only 14% (n = 74) stated that they did not see themselves as environmentally friendly people. Both the mean and median scores were 2 while the modal score was 1. Therefore, the most prevalent answer was strongly agree.

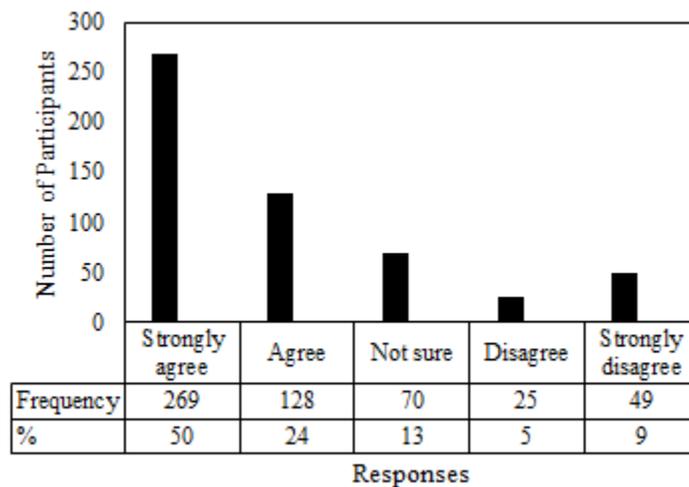


Figure 22: *Self-perception among participants*

(Source: Field data, 2018)

Secondly, the participants were asked to state whether or not they thought of themselves as people who were very concerned about environmental issues (Question: *I think of myself as someone who is very concerned about environmental issues*). The responses are shown in Figure 23.

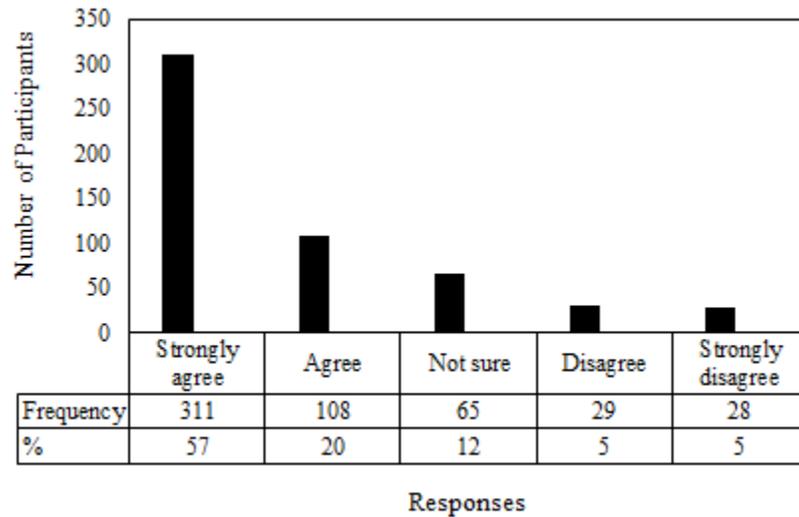


Figure 23: *Participants' concern with environmental issues*

(Source: Field data, 2018)

Thirdly, the participants were asked if they would feel embarrassed to be seen to have an environmentally friendly lifestyle (Question: *I would be embarrassed to be seen to have an environmentally friendly lifestyle*) (scoring reversed). As evident in Figure 24, only 19% (n = 103) of the participants strongly agreed, 13% (n = 70) agreed, 9% (n = 47) were not sure, 6% (n = 34) disagreed while 53% (n = 286) strongly disagreed. Altogether, 59% of the participants felt that they would not be embarrassed to be seen to have an environmentally friendly lifestyle while 32% felt that they would be embarrassed. Both the median and modal scores were 5.00 (strongly disagreed).

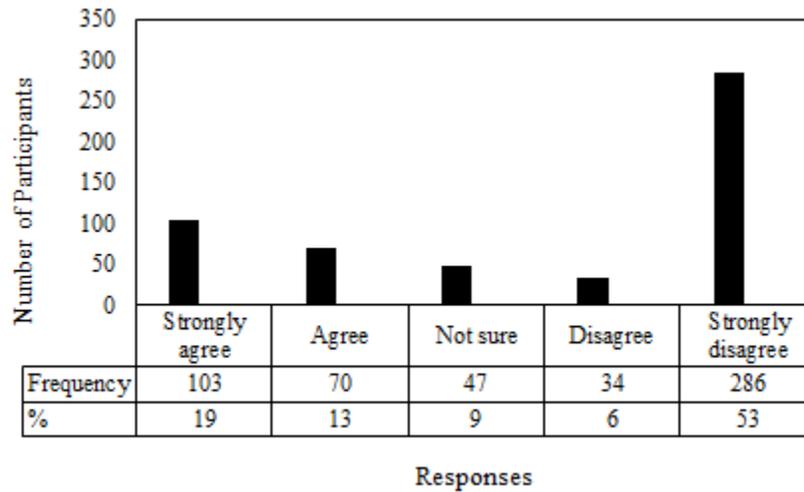


Figure 24: *Concerns of embarrassment among participants*

(Source: Field data, 2018)

Fourthly, the participants were asked to state whether or not they would not want their family or friends to think of them as people who were concerned about environmental issues (Question: *I would not want my family or friends to see me as someone who is concerned about the environment*). Figure 25 shows that sixteen percent (16 % or n = 86) of the participants strongly agreed, 8% (n = 44) agreed, 12% (n = 66) were not sure, 10% (n = 55) disagreed and 53% (n = 288) disagreed strongly. In total, 63% of the participants indicated that they would want their family or friends to think of them as people who are concerned about environmental issues. Both the median and modal scores were 5.00 (strongly disagree). It can be concluded that most of the participants generally disagreed with the statement that they would not want to be seen as environmentally friendly people.

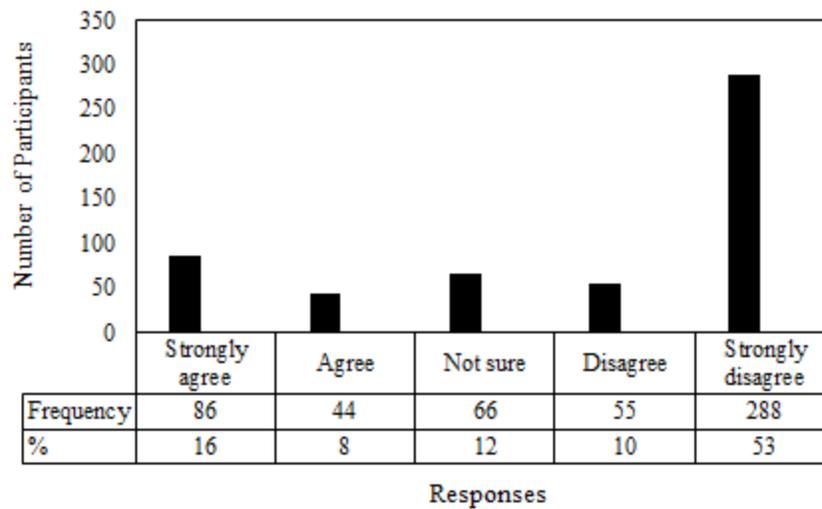


Figure 25: Perception of participants by other people

(Source: Field data, 2018)

In concluding this section, it can be stated that the results show the following trend:

- (a) The participants generally viewed themselves as environmentally friendly people.
- (b) The participants generally felt that their significant others (friends, family members and colleagues) would not be upset if they knew that they (participants) were acting pro-environmentally.
- (c) The participants knew someone significant to them (a friend, family member or colleague) who was participating in the implementation of the KZCH programme.

The next section presents the findings on pro-environmental behaviour.

#### 5.4 Pro-environmental behaviour

Results presented in the previous section showed that the participants, to a large extent, viewed themselves as environmentally friendly people who held pro-environmental values. The participants were further asked to indicate the last time they undertook certain pro-environmental actions. This question was important because the answers would help to determine whether or not the participants acted pro-environmentally. Following Schwartz (1992), participants were asked to rate their responses on a 4-point scale, ranging from 1 = never to 4 = within last year. The findings are presented in Figure 26.

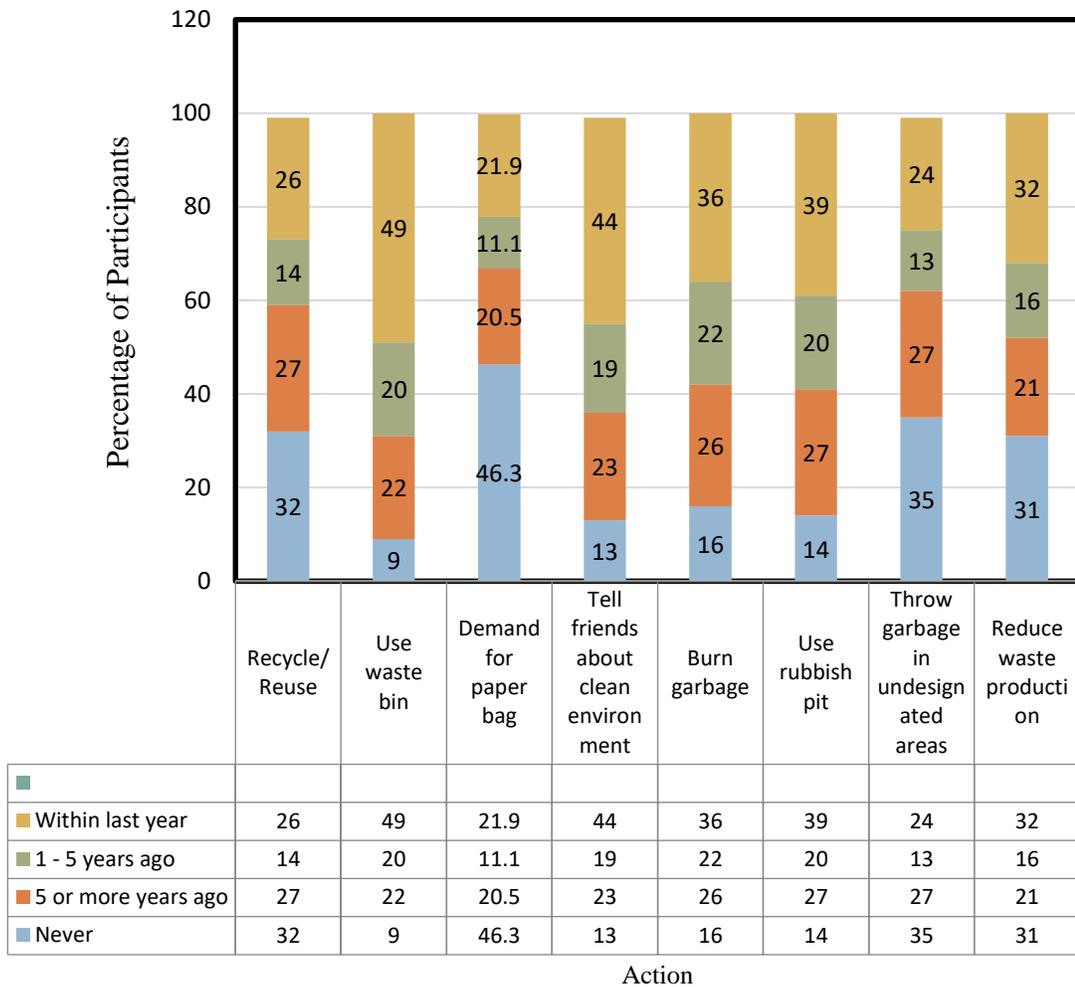


Figure 26: Participants' indication of pro-environmental behaviour

(Source: Field data, 2018)

Subsections 5.4.1 to 5.4.8 describe the data presented in Figure 26.

#### 5.4.1 Reducing or minimising waste production

Figure 26 shows that only a third (32%) of the participants indicated that they were actively making an effort to reduce waste generation within the last one year. Another thirty-one percent stated that they had never done any form of waste reduction while thirty-seven percent stated that they had done waste reduction one to more than five years ago. Therefore, the majority of participants (68 %) indicated that they did not do any reduction of waste production, at least at the time of the survey.

#### **5.4.2 Recycling and reuse**

In this study, only 26% the participants indicated that they had done recycling or reuse in the previous one year. A significant number (32%) indicated that they had never done any recycling or reusing before. Forty-one percent had started recycling and reuse but stopped over a year ago.

#### **5.4.3 Using a waste bin to discard waste.**

The study shows that only 49 % of the participants indicated that they had used a waste bin within the year, 42% indicated that they had started and stopped (temporal discrepancy) while 9% stated that they had never used a waste bin.

#### **5.4.4 Demanding for a paper bag instead of a plastic bag**

Concerning demanding for a paper bag when participants were shopping, the study reveals an ambivalent response; 46.3 % of the participants indicated that they never asked for a paper bag when offered a plastic bag, 20.5 % stated that they had done this five or more years ago, 11.1 % said they did it 1-5 years ago and only 21.9 % indicated that they had done it within the last one year.

#### **5.4.5 Telling friends and family members about the need to keep environment clean**

In the current study, eighty-six percent (86 %) of the participants stated that they had told friends and family members about the need to keep the environment clean. Forty-four percent (44 %) of these had done so in the last one year while the rest had done it over one year ago.

#### **5.4.6 Burning waste**

Figure 26 shows that thirty-six percent (36 %) of the participants stated that they had burned waste within the last one year. Only 16% of the participants stated that they never used burning of garbage as a method of waste disposal.

#### **5.4.7 Using a rubbish pit to discard waste**

Thirty-nine percent (39 %) of the participants indicated that they had used a rubbish pit to discard waste within the year. Only 16 % of the participants stated that they had never used a pit to discard waste.

#### **5.4.8 Dumping waste in an undesignated area**

Figure 26 shows that only 24% of the participants indicated that they used open waste dumping as a way of getting rid of their household waste. The rest stated that had never dumped waste on a garbage heap in an undesignated area or they had used the method more than one year ago.

### **5.5 Perceived barriers to pro-environmental behaviour**

Participants were asked several questions on factors which they thought contributed to lack of environmentally friendly behaviour in Zambia. These questions were important because they helped to determine the barriers that hindered members of the general public from participating in the KZCH programme. Following Schwartz (1992), participants were asked to rate the importance of nine factors on a 5-point scale ranging from 1= strongly agree to 5 = strongly disagree. The responses are shown in Figure 27 on the next page and is explained in sections 5.5.1 to 5.5.9 that follow.

#### **5.5.1 Lack of information about the KZCH programme**

Figure 27 shows that fifty-three percent (53 %) of the participants conceded that there was not much information about the KZCH programme while 31 % did not agree that lack of information was one of the problems that hindered participation in the KZCH programme. Another sixteen percent (16 %) of the participants said that they were not sure.

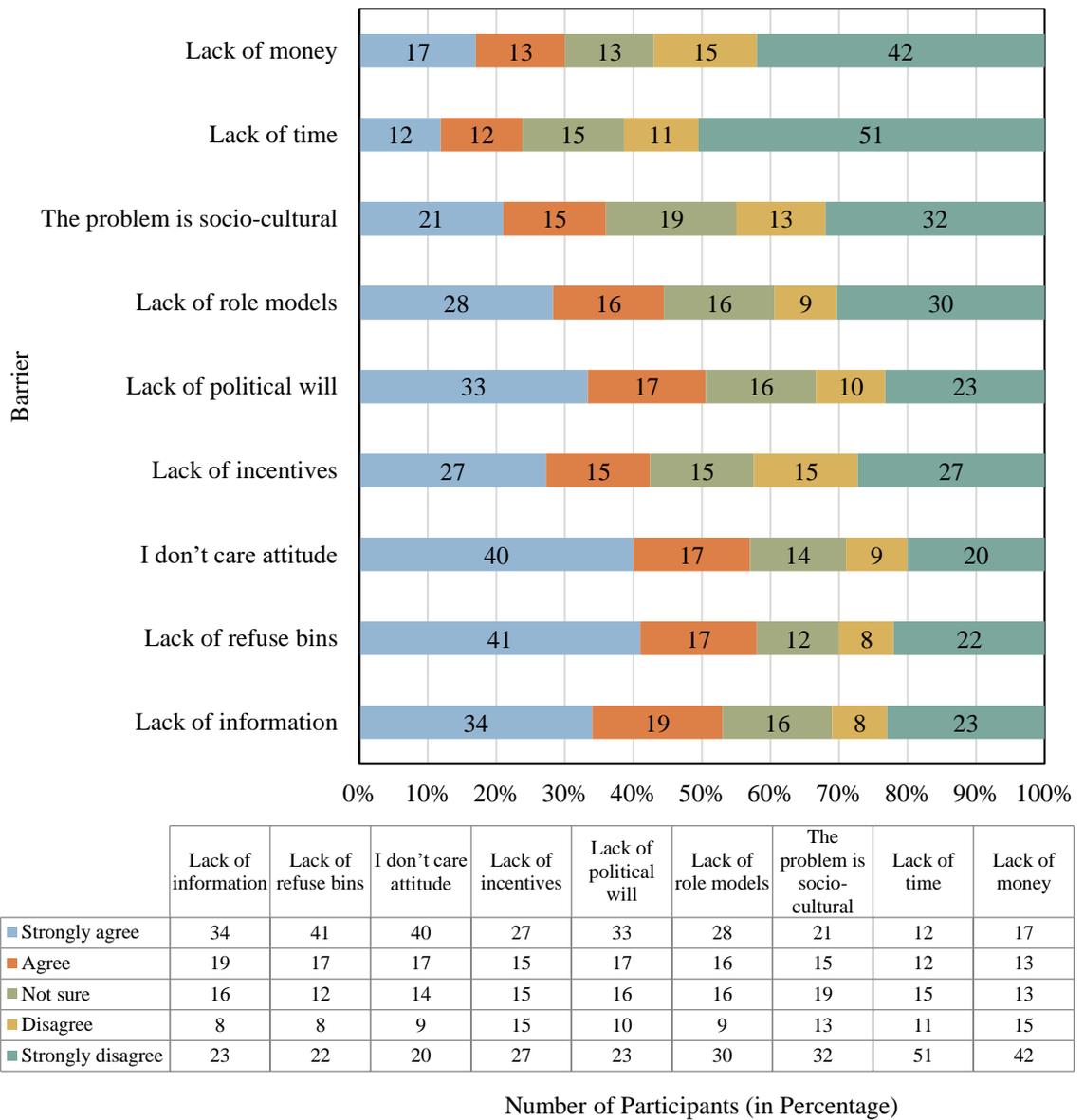


Figure 27: Barriers to pro-environmental behaviour

(Source: Field data, 2018)

Information obtained from social media on lack of information was as follows:

(a) *the Keep Zambia Clean Campaign has lost its original momentum due to lack of public awareness and education.*

(Source: Kamal and Chambers, 2008)

(b) *it is wrong to really blame the council for the mess in Lusaka; the people need to be educated about the dangers of garbage and dirty.*

*We need [to] start teaching young people about the importance of hygiene whilst they are still young (you cannot teach an old dog new tricks, remember)! Tough measures must be put in place to curb the problem in Zambia as a whole! [Tough measures not clear].*

(Source: *Lusaka Times*, January 29, 2013)

- (c) *Councils, in partnership with grassroots orgs [organisations] and civil [society] need to sensitise citizens on their obligations, according to the solid waste management instrument.*
- (d) *I think it's just about that time government carried out country-wide workshops on building a healthy nation for the people by its own people! This is were [where] you will teach citizens how a strong economy is built, talk about [a] health environment starting from homes, were [where] you discuss dumping, littering, etc. Teach them [people] basics on managing funds from a 2 kwacha to a thousand bucks! They don't need to be practically involved in business ventures to know how to spend; discourage them [from] spending on wants but needs.*

(Source: *Lusaka Times*, January 22, 2014)

- (e) *[I] am just saying all these problems Zambia has been facing originated from ignorance. Hard to change mind set but can be done, if too late for the old then go [to] learning institutions, from nursery to...*

(Source: *Lusaka Times*, January 22, 2014)

- (f) *Lack of public education on the party [part] of the government causes all of this to happen; those poor pipo [people] have no idea about the importance of those refuse bins, because they were probably not educated.*

(Source: *Lusaka Times*, May 1, 2009)

- (g) *People must be given education on what is expected. For now, the right thing to do is fine those misusing the bins. The law must be followed.*

(Source: *Lusaka Times*, May 1, 2009)

- (h) *I think to sustain, these effects school curriculum for all levels of schools should be reviewed so that at an early age, children learn how to handle garbage. It's strange that some elderly people throw rubbish even throw [through] a window in a mini bus and they don't feel bad about it.*

However, some comments indicated that lack of education was not the source of the problem. They stated that:

*(a) I don't think it is lack of education. People know exactly what to use those bins for and yet they deem it as irrelevant. How many times have people received education on HIV, for instance, and drive in "there" unprotected thinking fakaisova! [matters will take care of themselves]*

(Source: *Lusaka Times*, May 1, 2009)

*(b) As Zambians, we are just too dirty in mind and behaviour. We like [it] when our cities are dirty and we don't have time to clean them. It is not only the humbly educated people but even the so called educated. Look at how the smartly dressed educated fellow throws the banana peels on ~~the~~ Cairo road while he/she is driving a posh car!!!! That's life for Zambians...too dirty.*

(Source: *Lusaka Times*, February 4, 2014)

Official **OF 1** indicated that the KZCH programme had attempted to provide information through social media, radio, television, drama, the public address (PA) system and billboards, but this did not seem to have helped much. For example, LCC was running a programme on radio called 'My community'. The official noted the following challenges in disseminating information through the named methods:

- (a) Not everyone listens to radio and television. In addition, there are also many radio and TV channels and, therefore, a resident is likely to miss the KZCH programme when it is transmitted because they are listening to another channel. The official proposed the use of multi-media to disseminate information.
- (b) Not everyone sees the billboards and people rarely pay attention to what is being said on the PA system. Again, the use of multi-media to disseminate information would be helpful.
- (c) People move in and out of town. Therefore, those who got the information earlier may leave town and new people who have not received the information may come in. The official suggested that information-giving should be continuous rather than sporadic.

(Source: Council official 1, Monday, 10<sup>th</sup> August 2015)

### 5.5.2 Lack of waste bins and waste collection trucks

Over half (fifty-eight percent) of the participants felt that lack of waste bins and waste collection trucks contributed to the problem of not effectively implementing the KZCH campaign. However, 30 % of the participants felt that the problem could not be attributed to lack of waste bins and waste collection trucks alone. Twelve percent (12 %) were not sure.

The study also found that the problem of lack of waste bins was sometimes exacerbated by residents who tended to use waste bins for purposes other than waste storage. For example, waste bins distributed to residents of Kafue, a town about 50 km south of Lusaka, for the Keep Kafue Clean campaign were diverted to uses such as storage of mealie meal (*unga/ubunga*) and water (*manzi/amenshi*)(*Lusaka Times*, 30<sup>th</sup>April/May 1, 2009). This development brought about a flurry of comments on social media, such as:

(a) *This once, I am attacking the taxpayers themselves. Inyungulu ni za Garbage! [Waste bins are for garbage]. People in Zambia amaze me at times, why cry for the council to work, and when they do you keep the bins for storage.*

(Source: *Lusaka Times*, April 30, 2009)

(b) *Don't [doesn't] the council have the power to inspect and confiscate any bins used for either unga or manzi, What's wrong with these pipo [people]; they don't know that using the bins will reduce cholera and other diseases. The council need[s] to educate these pipo, before giving them the bins. There is a saying "You can take Maggie out of [a] Village, but you can't take [the] Village out of Maggie."*

(Source: *Lusaka Times*, May 1, 2009)

(c) *Imwe bantu [You people], this is getting serious now. Anyway, the council should go on the ground, perhaps using popular theatre to educate Kafue people on the matter at hand.*

(Source: *Lusaka Times*, May 1, 2009)

(d) *And it has to be Law that every household acquires garbage bins/bags for their refuse. Anyone caught dumping garbage on the street should be heavily fined.*

(Source: *Lusaka Times*, May 1, 2009)

Some comments, however, put the blame on the councils and government. These comments include the following:

(a) *Hard times call for hard measures. Why store garbage when one can store food? I assure you keeping the town clean is the last thing on their minds in these hard times.*

(Source: *Lusaka Times*, May 1, 2009)

(b) *If those taps had running water, these people would not be using the [waste] bins [to store water]. If the economy was better, people would not have been bothered about stocking up on ubunga [in bins meant for trash]. A family of four doesn't need more than 10 kg of ubunga in a month. But because we have ubwali twice a day as main meals, they have no choice but to stock up in those bins because amasaka ya cabe cabe, yalapusha ubunga [bags are useless; they let mealie meal through].*

(Source: *Lusaka Times*, May 1, 2009)

(c) *There hasn't been residential garbage collection in Zambia for years. The residents were simply confused. Let them know what the bins are for and they will comply.*

(Source: *Lusaka Times*, April 30, 2009)

(d) *[The] last time I saw garbage collection in Lusaka was when I was 7 or 8 years old, and now I'm 34. It's like a distant dream, and then the mugomes [tin smiths] came and stole all the metal bins. What is it you are trying to bring in Kabanshi? Please educate us, we don't know what a council is, what garbage collection is...*

(Source: *Lusaka Times*, May 1, 2009)

(e) *Councils need to beef up their refuse collection vehicles.*

(Source: *Lusaka Times*, May 1, 2009)

(f) *Councils need to create garbage disposal and collection points throughout the cities*

(Source: *Lusaka Times*, May 1, 2009)

(g) *Start by providing adequate bins in town and recycle bins. The more these are introduced the better. The bottom line is -people dispose of their gabbage [garbage] anywhere they can because they don't have anywhere readily to. If you don't introduce public toilets people will defacate [defecate] anywhere they can. You don't blame the people you blame the government.*

(Source: *Lusaka Times*: March 1, 2017)

- (h) *As much as I support keeping Zambia clean bwana minister I would like to point out that the majority of the people you want to reach do not own television sets. As Mushota has pointed out have garbage bins all over town and when I was growing up in Bwacha compound we had dustbins one per house and every Friday the council truck came around to collect the garbage and the townships were clean. Buy the council garbage trucks and collect a levy of K10 per household and in town the same.*
- (i) *As a side note, I was in the East Park mall on Friday afternoon... cleaning my car out of the litter. To my surprise, there was not a single garbage bin in sight!! It made me think this exercise to clean up [and rid Lusaka of cholera] was only skin deep as no structural changes had been made by the powers that be. Zambians currently have a heightened sense of awareness about cleanliness and hygiene and anyone will think twice before littering. However, if the minimum such as garbage bins and collections mechanisms are not put in place, we will be back to the same old filth in o time!*

*(Source: Lusaka Times: January 28, 2018)*

Information obtained from the councils indicated that provision of bins was problematic.

Official **OF 1** gave the following reasons for the problem:

- (a) *There were too many people living in town now. Councils could not manage to provide waste bins to everyone because purchasing bins was costly.*
- (b) *Bins were not permanent. They were, therefore, lost through wear and tear. As a result, they had to be provided again and again. The councils did not have the capacity to do that.*
- (c) *Some franchise contractors provided bins but residents did not want to pay for them. People did not prioritise waste collection.*

*(Source: Council official 1, Monday 10<sup>th</sup> August 2015)*

### **5.5.3 I don't care attitude**

Figure 27 shows that fifty-seven percent (57 %) of the participants agreed that 'I don't care' attitude was responsible for lack of effective implementation of the KZCH campaign. On the other hand, 29 % of the participants did not agree while 14 % stated that they were not sure. Clearly, more participants thought that 'I don't care' attitude was a big problem in the effective implementation of the KZCH programme. This finding colludes with the answer provided by council official **OF 1** who, when asked about the attitude of the general public concerning the programme, said:

*People think waste management is the duty of the council. They ask: what will the council be doing if the environment is clean?*

(Source: Official OF 1, Monday, 10<sup>th</sup> August, 2015)

The result is further supported by comments made on social media after then Minister of Local Government, Emerine Kabanshi, ordered councils to collect garbage (*Lusaka Times*, 29<sup>th</sup> January, 2013):

- (a) *Yes, there is a lot of I don't care attitude in this country. Zambia is a dirty country where no one cares where they dumped dirt. We love dressing nicely but walk on streets or go to markets surrounded by mountains of garbage.*
- (b) *I have no idea of the last destination to the waste I generate. My business ends at paying this guy [a wheelbarrow pusher] a K5, 000 to K10, 000 [now K5.00 to K10.00] to dump the waste to wherever. As long as it is out of my sight, then I am home and dry.*
- (c) *We are just an appallingly unhygienic bunch of citizens who want good things but can't contribute and play our part.*
- (d) *The shake shake traders [sellers of canister-packed opaque beer] are culprits. They are the ones responsible for blockages [of drainage lines]. In addition, people themselves through [throw] litter anyhow and expect the council to pick them up. Charity begins at home; people should be responsible for their own cleanliness. Everything "LET THE GOVERNMENT COME IN".*
- (e) *'Manje ngati napyanga apa, ba Kanso ba za chita nchito bwanji' [now if I cleanup, what job will the council do] mentality should be the starting point in this education drive.*
- (f) *Zambia cannot afford to waste scarce resources on things which can easily be prevented. But ~~only~~ if ~~unless~~ you and I play our role, it will amount to nothing if I clean and you litter.*
- (g) *The NIMBY (Not In My Back Yard) syndrome is a major drawback in keeping Zambia clean. In as long as waste is not in [their] back yard no one cares about it, that the more reason we as individuals tend to litter around and indiscriminately dispose of waste in undesignated places such as drainage channels, roadsides, open spaces play parks, etc.*

'I don't care' attitude was also exhibited by members of the general public not paying bills for municipal services. For example, in January 2014, then LCC assistant public relations manager, Brenda Katongola stated that individuals and institutions owed LCC

K183 million (*Lusaka Times*, 22<sup>nd</sup> January, 2014). In response to this, comments made on social media were as follows:

- (a) *And you are busy blaming leaders [and] crying [about] how they are not doing their jobs?! All that ~~many~~ [money] could trigger good and better service[s] and save lives if you did your Job! I think it's just about time people became responsible and paid bills.*
- (b) *This is what I mean when I say everyone has contributed to Zambia's poor economy. Why are we even borrowing when there is money lying idle? People need to be educated on the importance of paying taxes; [and] bills. Zambians need to become stingy with money, I like one bloggers line which read "Rich people have money because they spend it as if they are poor"! I just love that and that is exactly how rich nations behave too; they are vigilantes [vigilant] when it comes to collecting taxes, bills, etc.!*

Some comments, however, showed that people were not paying bills because councils were allegedly providing shoddy services. This is evident in the following statements:

- (a) *Indeed, paying bills is the right thing to do for as long as it is a correct bill.  
Zambians have been paying and continue to pay bills without much ado but that which is wrong must be subjected to scrutiny and those responsible must be made to account. Stealing hard earned money from innocent people through bogus companies and contracts is what we shall not sit down and watch.  
Bottom line is that those companies collecting gabbage [garbage] in the city of Lusaka on behalf of the council must be paid by the council because the people have already paid the council for that service through rates.*

(Source: *Lusaka Times*, January 21, 2014)

- (b) *It's not like we are really seeing the value out of paying the money anyway. The drains are clogged, the turn offs have bushes growing which makes driving dangerous. No pedestrian crossings on any new roads or even speed humps to slow drivers down where kids pass [cross] from schools, street lights not even working, no public toilets and even if there are, hardly ever maintained. If the people saw value out of their payments, maybe then they would be willing to pay.*

(Source: *Lusaka Times*, January 21, 2014)

- (c) *I am sure Lusaka residents will gladly pay high fees for this exercise if they know and actually see that their money is giving them clean surroundings in return.*

(Source: *Lusaka Times*, February 4, 2014)

#### **5.5.4 Lack of incentives or motivation**

Official **OF 3** admitted that the programme was not using any incentives to encourage participation in the programme by residents. The results of the survey also showed that the participants were divided over the issue of incentives as a barrier to the effective implementation of the KZCH campaign. Only forty-two percent (42 %) of the participants affirmed that lack of incentives was a problem while another forty-two percent felt lack of incentives was not the main reason for lack of effective implementation of the programme. Fifteen percent (15 %) said they were not sure. On social media, information about incentives was scanty; only comments suggesting disincentives, such as the following, were found:

*(a) A fee should be attached to the waste collection services. To ensure compliance this should be attached to the electricity bills just like the TV levy, the Ward Development Committees or Area Development Committees should be strengthened and given the responsibility of dispensing the WM instrument, non-compliance should be prosecuted.*

(Source: *Lusaka Times*, January 30, 2013)

*(b) In Lusaka, the Lusaka City Council (LCC) has highly structured legislation on waste management, the waste management by-laws of 2004, but all to no avail. Under this legislation, the city council has arrested and charged a number of offenders. However, the LCC admits that the arrests and subsequent charging of offenders has not changed anything as there has not been any significant change of attitudes amongst the offenders. The challenge we have is that most offenders are able to pay the K450, 000 [K450.00 now] slapped on them for indiscriminate disposal of waste.*

(Source: Nawa, April 1, 2014)

#### **5.5.5 Lack of political will**

Fifty percent (50%) of the participants affirmatively indicated that lack of political will was a problem while the remaining fifty percent felt political will was not a factor. It can, therefore, be said that the participants were divided over the matter. However, other sources of data showed that political will was a strong factor, as shown by the following statements.

(a) *The will may be there, but is it accompanied by action?*

(Source: Official 1, Monday 10<sup>th</sup> August, 2015)

(b) *There was good will from politicians at the beginning since it [the programme] was launched by politicians. At the time of inception, franchise contractors were given mandate to sensitise people. Days were set aside when people cleaned the markets and councils were provided with transport for the waste. Vehicles were bought and were clearly marked 'Keep Zambia Clean'. Recent governments have paid a blind eye to the programme.*

(Source: Franchise Contractor 1, Tuesday 11<sup>th</sup> August, 2015)

(c) *There is lack of political will – government institutions do not pay fees for waste collection services. They say waste collection is not in their budget.*

(Source: Franchise Contractor 2, Tuesday 11<sup>th</sup> August, 2015)

(d) *The 'enabling' environment spiraled out of control when FTJ [Fredrick Titus Jacob Chiluba] [former republican President] brought street kids from CB [Copperbelt] and established the 'vendor's desk' at Plot 1 [State House]. Ever since that time, Zambia has suffered at the hands of, strictly speaking, preventable diseases...like cholera.*

(Source: Lusaka Times, June 29, 2007).

(e) *Mama [Minister Emerine Kabanshi], do not blame Zambians. Your PF government has caused it by allowing so much street vending. Luo [former minister of local government] was demoted for trying to clean the cities.*

(Source: Lusaka Times, January 22, 2014)

(f) *It is not clear why the president [Sata] has demoted Pro. Luo, but sources say it is because of Luo's uncompromising stand in wanting to remove the street vendors that has angered State House who are opposed to moves to clean the streets.*

(Source: Zambian Watchdog, July 26, 2012)

(g) *H. E. Sata [then republican president] brought this on Zambia and even demoted Nkandu Luo when she tried to remove them [street vendors].*

(Source: Zambian Watchdog, May 11, 2013)

(h) *Blame Sata for the filthy city [Lusaka]. You still call him man of action, my foot. Remove street vending, enforce civic laws and don't use street vending for political votes and you will have a clean city.*

(Source: *Lusaka Times*, January 23, 2014)

(i) *The only solution is for your PF party ... to REMOVE THE STREET VENDORS from the streets and shop corridors of Lusaka.*

(Source: *Lusaka Times*, January 23, 2014)

(j) *What about your PF policy not to remove street and railway line vending? I don't know why you people in govt., including Sata himself, can't see how EXPENSIVE filthy leaving [living] conditions are to the national treasury. Yes, it may be GOOD POLITICS for elections sake, but remember that you may NOT get elected again if you can't provide good health care for multitudes of people falling sick due to preventable diseases caused by dirty surroundings.*

(Source: *Lusaka Times*, January 23, 2014)

(k) *Yes, there are hidden costs in being cheap and having a cavalier attitude towards PUBLIC HEALTH. And public health begins with the kind of environment (dirty or clean) that citizens live in. Allowing "unlawful trading" of all sorts of merchandize on nearly every street and store corridor is the main contributor to our cities being as filthy as they are!*

(Source: *Lusaka Times*, January 23, 2014)

(l) *Kabanshi...Where on earth can you legalism [legalise] street vending and illegal trading all over. You have destroyed the Public Health Act and now your fellow in the Lands Ministry goes ahead and gives mining authority in a national park.*

(Source: *Lusaka Times*, January 23, 2014)

(m) *Strict enforcement of the instruments unlike the usual lackluster approach we see that has rendered many well-meaning laws toothless.*

(Source: *Lusaka Times*, January 30, 2013)

(n) *The issue of garbage has not been given serious attention by Minister of Local Govt. In Lusaka and many other towns, it is really an eyesore. National Housing Authority used to do some good work before their houses ~~sold~~ were sold for political gain (expedience) without due consideration of matters of sanitation. Let the political parties work together on this issue; their members are all affected in the same way.*

(Source: *Lusaka Times*, April 30, 2009)

*(o) There should be unwavering political will that transcends political patronage; no sacred cows please.*

(Source: *Lusaka Times*, January 30, 2013)

*(p) The cholera epidemic is still ongoing and just because the worst seems to be over the politicking has started. Stop this nonsense from State House and central govt. leave the municipalities to do their jobs without interference. I can just imagine what the situation will be by the time we get to 2021 [the election year]. We will lose on the ground gained these past weeks in prioritizing hygiene and cleanliness. It will all be overtaken by politics and vested interests.*

(*Lusaka Times*, January 28, 2018)

### **5.5.6 Lack of role models**

Participants appeared to be divided over the issue of lack role models. Forty-four percent (44 %) of the participants stated that there was need for role models. A further thirty-nine percent (39 %) did not think role models were necessary while 16 % were not sure. Concerning use of role models in the programme, official **OF 1** stated the following:

*Role models are there in different communities. The programme uses them in drama and also community mapping. People will also tell you which house in the neighbourhood is clean ...*

(Source: Official 1, 10<sup>th</sup> August 2015)

Not much was said on role models on social media. However, one comment compared Zambia with cleaner neighbours, as follows:

*A visit to a country like Botswana reveals how clean a country can be... You have people trying to make a living but you just don't start a market in an empty piece of land and start vending, there are designated places of trade with proper sanitation. It's no wonder I have never heard of a cholera outbreak there unlike here in Zambia.*

(Source: *Zambian Eye*, January 21, 2014)

### **5.5.7 Socio-cultural orientation**

The results of the study revealed that the majority of participants (45%) did not think the problem was socio-cultural, thirty-six percent (36 %) felt that socio-cultural orientation

was important while nineteen percent (19 %) were not sure. Official **OF 3** stated the following:

*I cannot say that the problem is socio-cultural. Rather, the problem is multifaceted. Some people want to pay [for waste collection services] but cannot afford the fees. People would rather spend the money elsewhere than on waste. Franchise contractors cannot collect [waste] for free.*

(Source: Official 2, Thursday 13<sup>th</sup> August 2015)

Comments compiled from social media also shed more light on the perceptions of many Zambians on the matter, as presented here below:

(a) *The minister [of Local Government and Housing, Emerine Kabanshi] has ... bemoaned the culture of indiscriminate dumping of waste among Zambians noting that this poses a health risk to the public.*

(Source: *Lusaka Times*, January 22, 2014)

(b) *The NIMBY (Not In My Back Yard) syndrome is a major drawback in keeping Zambia clean. In as long as waste is not in [their] back yard no one cares about it, that the more reason we as individuals tend to litter around and indiscriminately dispose of waste in undesignated places such as drainage channels, roadsides, open spaces, play parks, etc.*

(Source: *Lusaka Times*, January 29, 2013)

(c) *As Zambians, we are just too dirty in mind and behaviour. We like [it] when our cities are dirty and we don't have time to clean them. It is not only the humbly educated people but even the so called educated. Look at how the smartly dressed educated fellow throws the banana peels on ~~the~~ Cairo road while he/she is driving a posh car!!!! That's life for Zambians...too dirty. Peace and Prosperity to Mother Zambia.*

(Source: *Lusaka Times*, February 4, 2014)

(d) *Zambia comprise[s] of a dirty government, dirty people, dirty cities and towns and all in all, a dirty country. Nothing but garbage is found in most people' s heads and they are in the majority no wonder garbage is all over everywhere you go in the towns and cities of Zambia. Smart ones are very few and they [are] not tolerated by the dirty ones. The garbage in cities and towns of Zambia reflects the garbage which is paramount in people's heads.*

(Source: *Lusaka Times*, January 23, 2014)

*We're trashy people in all spheres of life (with very few folks being exceptions).*

(Source: *Lusaka Times*, January 23, 2014)

*(e) We are just a dirty country where no one cares where they dump dirt. We love dressing nicely but walk on streets or go to markets surrounded by mountains of garbage. We are just an appallingly unhygienic bunch of citizens who want good things but can't contribute and play our part.*

(Source: *Lusaka Times*, January 29, 2013)

*(f) All black communities are the same throughout the world.*

(Source: *Lusaka Times*, January 30, 2013)

*(g) Hahaha, Africans we're a hopeless lot. Lusaka is just as dirty as my home city Accra (a big village in reality). Come visit an area of Accra called Teshie and Sodom and you'll be hopeless. WE CAN DO BETTER THAN THIS MY AFRICAN BROTHERS AND SISTERS.*

(Source: *Lusaka Times*, January 23, 2014)

*(h) It's possible to have garbage-free cities in Zambia and many other African cities alike. For Zambia, currently the situation looks impossible following the ever increasing amount of uncollected garbage and the "it's government's responsibility" kind of mindset.*

(Source: Nawa, April 1, 2014)

### **5.5.8 Lack of time**

The majority of participants (62%) in this survey did not agree that lack of time was the main reason for failure to successfully implement the KZCH campaign, 13 % were not sure, while 30 % agreed that lack of time was a problem. The result, therefore, showed that very few participants attributed the problem to lack of time. A comment on social media, however, stated that,

*We like [it] when our cities are dirty and we don't have time to clean them.*

(Source: *Lusaka Times*, February 4, 2014)

### **5.5.9 Lack of money**

Figure 27 shows that the majority of the participants (57%) did not think that lack of money was a major contributor to lack effective implementation of the KZCH

programme; only forty-three percent (43 %) indicated that the problem was lack of money. Lack of financing was also cited by Franchise Contractors as one of the barriers to effective collection and transporting waste. Franchise Contractor **FC 1** noted that,

*the LCC had assured us that we would get loans from lending institutions to purchase the required equipment but this did not happen.*

(Source: Franchise Contractor1, 11<sup>th</sup> August, 2015)

The following comments were obtained from social media concerning the effect of lack of money on the implementation of the programme:

*(a) I know that the LCC has engaged private waste collectors but it is not for free and since I cannot afford the required amount I have decided to dig a rubbish pit behind my house and I have no worries. Each household pays [to the private waste collectors] between K15, 000 to K20, 000 [now K15.00 and K20.00] and this is too much for me.*

(Source: Nawa, April 2014)

*(b) I pay wheelbarrow pushers to dispose of my household waste because they are affordable and always available.*

(Source: Nawa, April, 2014)

*(c) There is also an urgent need to address the high cost of keeping Zambia clean. We know that cleanliness comes with a cost, but let's keep this to manageable levels or the whole campaign will soon collapse because of lack of funds. There is need to empower communities to keep their surroundings clean at a very low cost, or at no cost at all. A 'keep Zambia clean' campaign that is totally based on huge amounts of money being made available by the government or the councils is bound to fail because this type of money will not be found, it is not there. So, to keep our country clean let us devise a strategy that is based on what we have – people – and not what we do not have – money.*

(Source: Harvey and Mukosha, 2008).

Using the data given by the participants and social media sources, the barriers were ranked as appears in Tables 7 and 8.

Table 7: *Ranking of barriers according to participants*

<b>Rank</b>	<b>Barrier</b>	<b>% of Participants</b>
1.	Lack of waste bins and waste collection trucks	58
2.	I 'don't care' attitude	57
3.	Lack of information about the KZCH programme	53
4.	Lack of political will	50
5.	Lack of role models	44
6.	Lack of money	43
7.	Lack of incentives	42
8.	Lack of time	38
9.	Socio-cultural factor	36

(Source: Field data, 2018)

Table 7 shows that the participants ranked lack of waste bins and waste collection trucks as the strongest barrier to the effective implementation of the KZCH programme while socio-cultural orientation was ranked least. On the other hand, lack of political will is depicted as the strongest barrier in Table 8. In both tables, 'I don't care' attitude ranks quite highly.

Table 8: *Ranking of barriers according to information obtained from social media sources*

SN	Barrier	No.
1	Lack of political will	12
2	Lack of waste bins and waste collection trucks (a) Misuse/Abuse of bins (b) Need for adequate number of bins	4 8
3	I don't care attitude: (a) blamed I don't care attitude (b) blamed shoddy council services	7 4
4	Lack of knowledge and awareness	8
5	Poor socio-cultural orientation	9
6	Lack of role models	2
7	Lack of money	3
8	Lack of time	1

Source: Social media sources

This section has established and ranked the barriers to behaviour change in respect with the KZCH programme. The next section will focus on the interventions that may be used to deal with the barriers.

## 5.6 Behaviour Change Tools

In order to ascertain which behaviour change tools the participants required to participate in the KZCH programme, the participants were asked to indicate whether or not they needed certain behaviour change tools in order to perform an environmentally friendly

behaviour. The participants were required to indicate ‘yes’ or ‘no’ to each question. The responses are presented in Figure 28 and are explained in the subsections that follow.

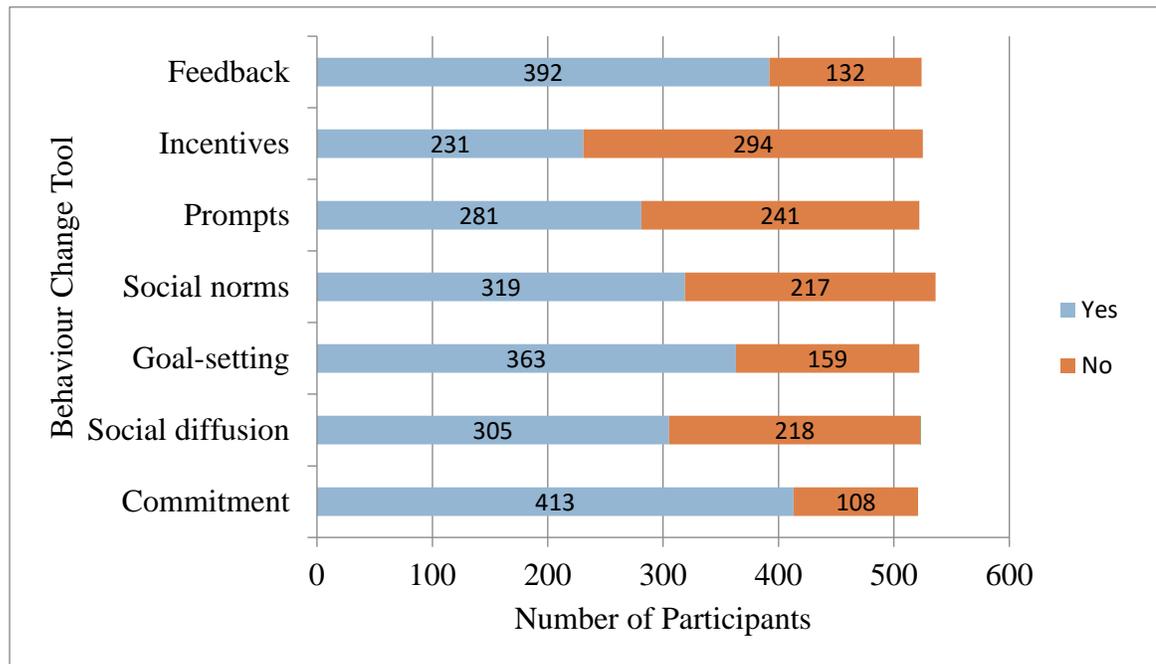


Figure 28: Required behaviour change tools

(Source: Field data, 2018)

### 5.6.1 Commitment

Figure 28 shows that seventy-nine percent (79 % or n = 413) or the majority of participants indicated that making a commitment would help them to perform an environmentally related behaviour. The remaining twenty-one percent (21 % or n = 108) indicated that they did not need to make a commitment for them to participate in the KZCH programme.

### 5.6.2 Social diffusion

Fifty-eight percent (58 % or n = 305) of the participants stated that they would adopt an environmentally friendly behaviour because their family, friends and/or colleagues have adopted it while forty-two percent (42 % or n = 218) indicated that they did not need information from their family members, friends and/or colleagues in order to perform a pro-environmental behaviour.

### **5.6.3 Goal-setting**

Figure 28 shows that seventy percent (70 % or n = 363) of participants stated that setting environment-related goals would help them to perform an environmentally friendly behaviour. This means that only 30 % or n = 159 of the participants did not think goal-setting was essential for participating in the programme.

### **5.6.4 Social norms**

As shown in Figure 28, sixty percent (60 % or n = 319) of the participants indicated that they thought social norms would help them to participate in the programme. The other forty percent (40 % or n = 217) indicated that they did not think social norms were necessary.

### **5.6.5 Prompts**

Figure 28 shows that fifty-four percent (54 % or n = 281) of the participants felt that they needed a reminder in case they forgot to perform an environmentally friendly behaviour. The other forty-six (46 % or n = 241) felt they did not need any reminder.

### **5.6.6 Incentives**

As Figure 28 shows, fifty-six percent (56 % or n = 231) of the participants indicated that they *did not* need a reward or incentive in order for them to perform an environmentally friendly behaviour. This means that forty-four percent (44 % or n = 294) felt the need for incentives. Although not in the majority, this is a substantial number of people.

### **5.6.7 Feedback**

Figure 28 shows that seventy-five percent (75 % or n = 392) of the participants stated that they would need to have feedback about their environmental behaviour against the much smaller percentage of 25 % or n = 139 who said they did not need feedback.

The tools for promoting pro-environmental behaviour change were ranked according to how the participants rated them. The results are presented in Table 8.

Table 8: *Ranking of behaviour change tools*

<i>Rank</i>	<i>Behaviour Tool</i>	<i>Percentage Yes</i>
1.	Commitment	79
2.	Feedback	75
3.	Goal-setting	70
4.	Social norms	60
5.	Social diffusion	58
6.	Incentives	56
7.	Prompts	54

(Source: Field data, 2018)

Table 8 shows that the participants rated commitment as the most important behaviour change tool. This was followed by feedback, goal-setting, social norm, social diffusion, incentives and prompts, in that order.

The next section presents the results of t-test analyses which compared different demographic groups to establish whether or not there were any significant differences in the responses they gave.

## **5.7 Differences among demographic groups**

The third objective of the study was to find out if there was any significant difference in the responses given by different demographic groups in the sample concerning their values, beliefs, attitudes and behaviours. The different demographic groups investigated were female and male, low density and high density residential areas of Lusaka, and rural (Mumbwa) and urban (Lusaka) areas. This section reports the findings of the t-test analyses performed on different test items.

### **5.7.1 Knowledge and awareness**

This section presents the results of the t-test analysis on knowledge and awareness. It has three subsections, namely personal importance of a clean and sanitary environment, perceived risk from unclean and unhealthy environments, and knowledge about the

KZCH programme. The results are presented in Table 9 and are explained in the subsections below.

Table 9: Knowledge and awareness

Question	Social Group	Mean	t	Value of p
1. How important is the issue of keeping the environment clean and healthy	Urban/Rural	1.26/1.42	-2.698	0.008
	Low/High Density	1.24/1.28	-0.450	0.627
	Male/Female	1.32/1.35	-0.553	0.581
2. Do you think a dirty and unsanitary environment is something that is affecting your personal wellbeing?	Urban/Rural	1.03/1.25	-6.237	0.000
	Low/High Density	1.02/1.03	-0.505	0.614
	Male/Female	1.11/1.15	-1.009	0.324
3. How much do you know about the KZCH programme?	Urban/Rural	2.62/1.56	3.503	0.001
	Low/High Density	2.51/2.68	-1.136	0.257
	Male/Female	2.42/2.76	-2.501	0.013

(Source: Field data, 2018)

(a) Personal importance of a clean and sanitary environment

In this study, it was also important to compare what different demographic groups said about the *importance of keeping the environment clean and healthy*. This was done to determine whether there was a significant difference in knowledge, values and behaviour among different demographic groups. The first comparison was done between participants from rural and urban areas. A t-test analysis yielded  $ap = 0.008$ . Statistically, there was a significant difference in the importance attached to living in a clean and healthy environment between urban and rural participants. Since the mean for participants in urban areas ( $m = 1.26$ ) was lower than that for participants in rural areas ( $m = 1.42$ ), the conclusion was that more rural participants felt living in a clean and healthy environment was important than urban participants.

The study also compared responses from participants from low density areas with those from high density areas of Lusaka. The t-test analysis yielded a  $p = 0.627$ . This result

showed that there was no significant difference in the value placed on living in a clean environment between participants from low density and high density residential areas of Lusaka.

Next, the analysis showed that there was no significant difference between responses given by male and female participants with regard to the need to live in a clean environment since  $p = 0.581$ .

*(b) Perceived risk from unclean and unhealthy environment*

Under perceived risk from unclean and unhealthy environment, the question which was asked was: *Do you think your personal wellbeing is being affected by a dirty and unsanitary environment?* The t-test analysis revealed that there was a statistically significant difference between responses provided by rural and urban participants concerning their perception of the risk of living in a dirty and unsanitary environment since  $p = 0.000$ . Comparing the means of the two areas, 1.03 (urban) and 1.25 (rural), it was concluded that more participants from urban areas than rural areas thought their personal wellbeing was being affected by a dirty and unsanitary environment.

A t-test analysis comparing low and high density areas of Lusaka revealed that there was no significant difference between the responses given by the two groups since  $p = 0.614$ . Therefore, the perceptions of the two demographic groups were not significantly different. Likewise, a t-test analysis showed that there was no statistically significant difference between the perceptions of male and female participants since  $p = 0.324$ .

*(c) Knowledge about the KZCH programme*

The next question concerned the participants' knowledge about the KZCH programme. The question asked was: *How much do you know about the KZCH programme?* A t-test analysis showed that there was a statistically significant difference between the responses given by urban and rural participants with  $p = 0.001$ . Since the mean for urban area ( $m = 2.52$ ) was higher than the mean for rural area ( $m = 1.56$ ), more participants from Lusaka indicated that they knew about the programme than participants from Mumbwa. However, a t-test analysis revealed that there was no significant difference between the

responses provided by participants from low and high residential areas of Lusaka,  $p$  being 0.257. As for the t-test analysis between male and female participants, the test revealed that there was a statistically significant difference between the responses given by the two groups since  $p = 0.013$ . Since the mean for males ( $m = 2.42$ ) was lower than the mean for females ( $m = 2.76$ ), it was concluded that more female participants indicated that they knew about the programme than male participants.

### **5.7.2 Environmental perceptions and attitude**

This section presents the results for the t-test analysis for environmental perceptions and attitudes among the selected demographic groups. It has three subsections, namely perceived behaviour control, subjective norm, and behavioural intention. The t-test results for environmental perceptions and attitude are presented in Table 10 and are described in the subsections that follow.

#### *(a) Behavioural belief*

Under behavioural belief, the question which was asked was: *At the moment, how easy do you find it to participate in the KZCH programme?* A t-test analysis showed that there was a significant difference between the perception of urban participants and rural participants with  $p = 0.000$ . Since the mean for urban participants ( $m = 2.18$ ) was higher than the mean for rural participants ( $m = 1.65$ ), it was concluded that more urban participants indicated that they found it easier to participate in the KZCH programme than rural participants.

Further, a t-test analysis revealed that there was no statistically significant difference between the responses given by participants from low and high density residential areas of Lusaka since  $p = 0.343$ . However, it was found that there was a statistically significant difference between the behavioural beliefs of male and female participants since  $p = 0.002$ . With the mean for males ( $m = 2.07$ ) being higher than that for females ( $m = 1.79$ ), it was concluded that more male participants indicated that they found it easier to participate in the KZCH programme than female participants.

Table 10: *Environmental perceptions and attitudes*

<i>Question</i>	<i>Social Group</i>	<i>Mean</i>	<i>Value of p</i>
1. <i>At the moment, how easy do you find it to participate in the KZCH programme?</i>	Urban/Rural	2.18/1.65	0.000
	Low/High Density	2.26/2.14	0.343
	Male/Female	2.07/1.79	0.002
2. <i>Does anyone you know (friend, family member or colleague) participate in the KZCH programme?</i>	Urban/Rural	1.44/1.37	0.115
	Low High Density	1.38/1.44	0.281
	Male/Female	1.37/1.45	0.81
3. <i>How much influence do people you know (friend, family or colleague) have on your decision to participate in the programme?</i>	Urban/Rural	2.39/2.00	0.000
	Low High Density	2.42/2.37	0.720
	Male/Female	2.25/2.17	0.391
4. <i>In general, what do you think your family, friends and colleagues' views would be if they found out that you were participating in the KZCH programme?</i>	Urban/Rural	2.07/1.90	0.074
	Low/High Density	1.87/2.18	0.027
	Male/Female	1.95/2.05	0.315
5. <i>If you are not participating now, do you think you will participate in future?</i>	Urban//Rural	1.56/1.82	.004
	Low/High Density	1.56/1.56	0.964
	Male/Female	1.71/1.64	0.389

(Source: Field data, 2018)

*(b) Subjective norm*

Concerning subjective norm, the first question which was asked was: *Does anyone you know (friend, family member or colleague) participate in the KZCH programme?* A t-test analysis revealed that there was no statistically significant difference between responses given by participants from urban and rural areas since  $p = 0.115$ . This means that both groups stated that they knew someone who was participating in the KZCH programme. Similarly, a t-test analysis found no significant difference between responses given by participants from low and high density residential areas since  $p = 0.281$ . A comparison of

responses from male and female participants also showed no statistically significant difference between responses given by male and female participants with  $p = 0.81$ .

The second question asked under subjective norm was: *How much influence do people you know (friend, family or colleague) have on your decision to participate in the programme?* A t-test analysis showed that there was a statistically significant difference between the responses given by participants from urban and rural with  $p = 0.000$ . Since the mean for urban areas ( $m = 2.39$ ) was higher than the mean for rural areas ( $m = 2.00$ ), it was concluded that more participants from urban areas indicated that their decisions were influenced by people they knew than participants from rural areas. On the contrary, a t-test analysis found that there was no statistically significant difference between responses provided by participants from low and high density residential areas of Lusaka since  $p = 0.72$ . Also, there was no statistically significant difference between responses given by male and female participants since  $p = 0.391$ .

The third question asked under subjective norm was: *In general, what do you think your family, friends and colleagues' views would be if they found out that you were participating in the KZCH programme?* A t-test analysis revealed that there was no statistically significant difference between what participants from urban and rural areas said since  $p = 0.074$ . In contrast, a comparison of the means of the responses from low and high density residential areas of Lusaka showed that there was a statistically significant difference between the views expressed by participants from low and high density residential areas with  $p$  being 0.027. Since the mean for the low density residential areas ( $m = 1.87$ ) was lower than the mean for high density areas ( $m = 2.18$ ), it was concluded that more participants from high density areas reported that they thought that their families, friends and colleagues' views would be favourable if they found out that they (participants) were participating in the KZCH programme. On the basis of gender, the study found that there was no statistically significant difference between responses from male and female participants since  $p = 0.315$ .

### *(c) Behavioural intention*

The question that followed asked about behavioural intention. The question was: *If you are not participating now, do you think you will participate in future?* A t-test analysis

showed that there was a statistically significant difference between responses given by urban and rural participants since  $p = 0.004$ . With the mean for urban participants ( $m = 1.56$ ) being lower than the mean for rural ( $m = 1.82$ ), it was concluded that more participants from rural areas indicated that they would participate in the KZCH programme in future.

A t-test analysis of the responses provided by participants from low and high density residential areas revealed that there was no statistically significant difference between the responses given by participants from the two demographic groups since  $p = 0.964$ . The analysis also found that there was no statistically significant difference in the behavioural intentions of male and female participants who were not participating in the KZCH programme since  $p = 0.389$ .

### **5.7.3 Pro-environmental values**

Several questions were asked to ascertain the participants' pro-environmental values and the results are presented in Table 11. The first question asked was: *I think of myself as an environmentally-friendly person*. A t-test analysis found that there was a statistically significant difference between the responses given by rural and urban participants since  $p = 0.012$ . With the mean for urban ( $m = 1.87$ ) being lower than the mean for rural ( $m = 2.15$ ), it was concluded that more participants from the rural areas indicated that they were environmentally friendly people than participants from urban areas. A t-test analysis to compare responses given by participants from low and high density residential areas found that there was no statistically significant difference between the two groups since  $p = 0.589$ . Similarly, the study found that there was no statistically significant difference between responses given by male and female participants since  $p = 0.248$ .

The second question asked under pro-environmental values was: *I think of myself as someone who is very concerned with environmental issues*. A t-test analysis found that there was no statistically significant difference between the responses given by urban and rural participants since  $p = 0.299$ . Similarly, a t-test performed to compare responses from participants from low and high density residential areas showed no statistically significant difference between the two demographic groups since  $p = 0.074$ . Additionally, a t-test performed to compare responses of male and female participants found that there

was no statistically significant difference between male and female participants since  $p=0.291$ .

Table 11: *Participants' pro-environmental values*

<i>Question</i>	<i>Social Group</i>	<i>Mean</i>	<i>t</i>	<i>Value of p</i>
(a) I think of myself as an environmentally-friendly person	Urban/Rural	1.87/2.15	-2.534	.012
	Low/High Density	1.82/1.90	-.541	.589
	Male/Female	2.05/1.92	1.156	.254
(b) I think of myself as someone who is very concerned with environmental issues.	Urban/Rural	1.76/1.87	-1.041	.299
	Low/High Density	1.62/1.84	-1.795	.074
	Male/Female	1.76/1.87	-1.058	.291
(c) I would be embarrassed to be seen to have an environmentally-friendly life style.	Urban/Rural	4.06/3.05	7.368	.000
	Low/High Density	3.79/4.20	-2.173	.031
	Male/Female	3.63/3.58	.361	.718
(d) I would not want my family to think of me as someone who is concerned about environmental issues.	Urban/Rural	4.01/3.44	4.272	.000
	Low/High Density	3.88/4.08	-1.116	.265
	Male/Female	3.82/3.68	1.054	.293

(Source: Field data, 2018)

The third question asked under pro-environmental values was: *I would be embarrassed to be seen to have an environmentally friendly lifestyle*. A t-test analysis comparing urban and rural participants found that there was a statistically significant difference between the responses given by participants from urban and rural areas since  $p = 0.000$ . Since the mean for urban area ( $m = 4.06$ ) was higher than the mean for rural area ( $m = 3.05$ ), it was concluded that more participants from urban areas disagreed with the assertion that they would feel embarrassed to be seen as having an environmentally friendly lifestyle. A comparison between low and high density residential areas showed that there was a statistically significant difference between responses provided by the two groups since  $p = 0.031$ . However, an analysis of the responses given by male and female participants showed that there was no statistically significant difference in the responses given by the two gender groups since  $p = 0.718$ .

The fourth question asked under pro-environmental values was: *I would not want my family or friends to see me as someone who is concerned about the environment.* A t-test analysis revealed that there was a statistically significant difference between the responses from participants from urban and rural areas since  $p = 0.000$ . With the mean for urban area ( $m = 4.01$ ) being higher than the mean for rural area ( $m = 3.44$ ), it was concluded that participants from urban areas disagreed with the statement more than the participants from rural areas. As regards the comparison between low and high density residential areas, the t-test analysis found that there was no statistically significant difference between low and high density residential areas since  $p = 0.265$ . Similarly, a comparison of responses from male and female participants showed no significant difference between their responses since  $p = 0.293$ .

#### **5.7.4 Frequency of pro-environmental behaviour**

This section presents the results of the t-test analysis for the frequency of pro-environmental behaviour. The results of the t-test analysis have been presented in Table 12 and described in subsections 5.7.4 (a) to 5.7.4 (j).

##### *(a) Reducing or minimising waste production*

The results for waste minimisation or reduction analysis showed that there was a statistically significant difference between the responses provided by participants from urban and rural areas since  $p = 0.000$ . With the mean for urban areas ( $m = 1.11$ ) being lower than that for rural areas ( $m = 1.86$ ), it was concluded that more participants from rural areas indicated that they did waste minimisation than those from urban areas. The results also showed no statistically significant difference between the responses given by participants from low and high density residential areas since  $p = 0.18$ . Similarly, there was no statistically significant difference in responses between male and female participants since  $p = 0.473$ .

Table 12: *T-test results of frequency of environmental behaviour*

<i>Question</i>	<i>Social Group</i>	<i>Mean</i>	<i>t</i>	<i>Value of p</i>
(a) Waste minimisation	Male/Female	1.47/1.40	0.718	0.473
	Rural/Urban	1.11/1.86	-8.445	0.000
	Low/High Density	1.14/1.50	-2.388	0.18
(b) Re-use and recycling	Male/Female	1.45/1.55	-1.086	0.627
	Rural/Urban	1.42/1.60	-2.064	0.038
	Low/High Density	1.31/1.66	-2.738	0.007
(c) Burning of garbage	Male/Female	1.48/1.53	-0.486	0.270
	Rural/Urban	1.32/1.73	-4.601	0.000
	Low/High Density	1.34/1.59	-1.802	0.73
(d) Use of waste bins	Male/Female	1.85/1.77	0.860	0.390
	Rural/Urban	2.01/2.02	-0.079	0.937
	Low/High Density	1.97/2.11	-1.025	0.307
(e) Dumping in undesignated areas	Male/Female	1.06/1.14	-0.7740	0.436
	Rural/Urban	0.97/1.24	-2.838	0.005
	Low/High Density	0.84/1.05	-1.337	0.183

(Source: Field data, 2018)

*(b) Reusing or repairing items instead of throwing them away*

The results from reusing or repairing analysis showed that there was a statistically significant difference between responses provided by urban and rural participants since  $p = 0.038$ . Since the mean for urban areas ( $m = 1.42$ ) was lower than the mean for rural areas ( $m = 1.60$ ), it was concluded that more participants from rural areas indicated that they did more reuse and repair than those from urban areas.

The analysis also showed a statistically significant difference between responses given by participants from low and high density residential areas since  $p = 0.007$ . With the mean for low density areas ( $m = 1.66$ ) being higher than that for high density areas ( $m = 1.31$ ), it was concluded that more participants from low density residential areas indicated that they did more reuse and repair than those from high density residential areas. However,

the results did not show any statistically significant difference between the responses provided by male and female participants since  $p = 0.27$ .

*(c) Using a bin to discard waste*

The results from this analysis showed that there was no statistically significant difference between responses given by rural and urban participants since  $p = 0.937$ . Equally, there was no statistically significant difference in the responses provided by participants from low and high density residential areas since  $p = 0.307$ , although the higher mean for low density area ( $m = 2.11$ ) showed that more participants there used bins more than those in high density areas ( $m = 1.97$ ). There was also no statistically significant difference between responses from male and female participants since  $p = 0.284$ .

*(d) Demanding for a paper bag instead of a plastic bag*

This analysis yielded the following results: there was a statistically significant difference between responses provided by participants from urban and rural areas since  $p = 0.000$ . Since the mean for urban areas ( $m = 0.71$ ) was lower than the mean for rural areas ( $m = 1.68$ ), it was concluded that more participants from rural areas indicated that they demanded for paper bags more than participants from urban areas. There was no statistically significant difference in responses from participants from low and high density residential areas since  $p = 0.327$ . Also, there was no statistically significant difference between the responses given by male and female participants since  $p = 0.724$ , although males had a higher mean ( $m = 1.16$ ) than females ( $m = 1.12$ ).

*(e) Going shopping with a shopping basket*

The results of this analysis showed that there was a statistically significant difference between responses provided by participants from urban and rural areas with  $p = 0.000$ . Since the mean for urban areas ( $m = 0.87$ ) was lower than the mean for rural areas ( $m = 1.88$ ), it was concluded that more participants from rural areas carried a shopping bag when they went shopping than those in towns. However, there was no significant difference in the responses given by participants from low and high density residential areas since  $p = 0.150$ . Similarly, there was no significant difference in responses given by

male and female participants since  $p = 0.172$ , although female participants had a higher mean ( $m = 1.40$ ) than male participants ( $m = 1.26$ ).

*(f) Telling friends and family members about need to keep environment clean*

The following results were found: there was a statistically significant difference between responses provided by participants from rural areas and those from urban areas with  $p = 0.000$ . Since the mean for rural areas ( $m = 2.08$ ) was higher than the mean for urban areas ( $m = 1.70$ ), it was concluded that more participants from rural areas indicated that they told their friends and families about the need to keep the environment clean than participants from urban areas. Similarly, there was a statistically significant difference between the responses provided by participants from low and high density residential areas of Lusaka since  $p = 0.001$ . However, there was no significant difference between responses provided by female and male participants since  $p = 0.800$ , although the mean for female participants ( $m = 1.88$ ) was slightly higher than that of male participants ( $m = 1.86$ ).

*(g) Burning waste*

The results showed that there was a statistically significant difference between the responses from participants from rural areas and those from urban areas since  $p = 0.000$ . Since the mean for urban areas ( $m = 1.32$ ) was lower than that for rural areas ( $m = 1.73$ ), it was concluded that more participants from rural areas indicated that they used opening burning of waste more than participants from urban areas. Nevertheless, there was no significant difference between the responses provided by participants from low and high density residential areas since  $p = 0.73$ . In a similar manner, there was no significant difference between the responses of male and female participants since  $p = 0.627$ .

*(h) Using a rubbish pit to discard waste*

The results showed that there was a statistically significant difference in responses provided by participants from rural and urban areas since  $p = 0.000$ . Since the mean for urban areas ( $m = 1.51$ ) was lower than that for rural areas ( $m = 2.20$ ), it was concluded that more participants from rural areas indicated that they used rubbish pits than those from urban areas. There was no statistically significant difference between the responses

provided by participants from low and high density residential areas since  $p = 0.175$ . Likewise, there was no statistically significant difference in the responses provided by male and female participants since  $p = 0.39$ .

*(i) Dumping waste on a garbage heap in an undesignated area*

The results showed that there was a statistically significant difference in the responses given by participants from urban and rural areas since  $p = 0.005$ . Since the mean for urban areas ( $m = 0.97$ ) was lower than that for rural areas ( $m = 1.24$ ), it was concluded that more participants from rural areas dumped their waste in undesignated more than those from urban areas. However, there was no statistically significant difference between responses provided by participants from low and high density residential areas since  $p = 0.183$ . Similarly, there was no statistically significant difference between the responses provided by male and female participants since  $p = 0.436$ .

*(j) Raising the issue of cleanliness with local leaders*

The results of this analysis showed that there was a statistically significant difference in the responses provided by participants from rural areas and urban areas since  $p = 0.000$ . Since the mean for urban areas ( $m = 0.73$ ) was lower than the mean for rural areas ( $m = 1.77$ ), it was concluded that more participants from rural areas indicated that they raised issues with local leaders than participants from urban areas. There was also a statistically significant difference between responses provided by participants from low and high density residential areas since  $p = 0.024$ . Since the mean for low density areas ( $m = 0.99$ ) was higher than the mean for high density areas ( $m = 0.66$ ), it was concluded that more participants from low density areas raised issues with their local leaders than those from high density residential areas. However, there was no statistically significant difference between responses provided by male and female participants since  $p = 0.634$ .

The results for this section show that most of the participants did not indicate that they practice pro-environmental behaviour. Therefore, there is a gap between the knowledge and awareness that the participants have and their actions. There was no significant difference in the responses provided by male and female participants in many aspects. There was a significant difference in the responses given by participants from rural areas

and those from urban areas in almost all the aspects inquired about. There was no significant difference in the responses given by participants from low and high density residential areas in many aspects.

### **5.7.5 Perceived barriers to pro-environmental behaviour**

Table 13 shows the results of a t-test conducted for data obtained for different barriers to pro-environmental behaviour.

#### *(a) Lack of information about the KZCH programme*

The t-test for lack of information about the KZCH programme showed that there was no statistically significant difference between the responses given by participants from low and high density residential areas since  $p = 0.438$ . Similarly, there was no significant difference between the responses given by urban and rural participants since  $p = 0.222$ . In the same way, the t-test showed that there was no statistically significant difference between responses given by male and female participants since  $p = 0.764$ .

#### *(b) Lack of waste bins and waste collection trucks*

Concerning lack of waste bins and waste collection trucks, the results of the t-test showed that there was no significant difference in the views of participants from low and high density residential areas since  $p = 0.169$ . However, there was a significant difference between the views of participants from rural and urban areas since  $p = 0.000$ . Considering that the mean for rural areas ( $m = 3.23$ ) was higher than that for urban areas ( $m = 2.09$ ), it was concluded that more participants from rural areas attributed the problem of lack of implementation of the KZCH programme to lack of waste bins and waste collection trucks.

#### *(c) 'I don't care' attitude*

The results showed no statistically significant difference between responses from low and high density residential areas since  $p = 0.9058$ . However, the results showed a statistically significant difference between responses from participants from rural and urban areas since  $p = 0.000$ . With the mean for rural areas ( $m = 3.30$ ) being higher than that for urban areas ( $m = 2.01$ ), it was concluded that more participants from rural areas indicated that

the problem was ‘I don’t care’ attitude. As for the t-test comparing male and female participants, the results showed that there was no statistically significant difference between the responses given by the two demographic groups,  $p$  being 0.334.

Table 13: *Perceived barriers to pro-environmental behaviour*

<i>Question</i>	<i>Social Group</i>	<i>Mean</i>	<i>t</i>	<i>Value of p</i>
(a) Lack of information about the Keep Zambia Clean and Healthy	Male/Female	2.50/2.55	-3.00	.764
	Urban/Rural	2.54/2.31	1.237	.222
	Low/High density	2.59/2.45	-7.77	.438
(b) Lack of refuse bins and garbage collection trucks	Male/Female	2.5/2.47	.243	.765
	Urban/Rural	2.09/3.23	-7.544	.000
	Low/High density	2.16/1.93	-1.380	.169
(c) I don’t care attitude	Male/Female	2.40/2.54	.243	.334
	Urban/Rural	2.01/3.30	-8.915	.000
	Low/High density	1.89/2.22	1.911	.058
(d) Lack of incentives/motivation	Male/Female	2.91/3.13	-1.496	.135
	Urban/Rural	2.84/3.32	-3.145	.002
	Low/High density	3.12/2.28	-4.799	.000
(e) Lack of political will	Male/Female	2.61/2.85	-1.504	.105
	Urban/Rural	2.45/3.20	-5.064	.000
	Low/High density	2.51/2.32	-1.036	.301
(f) Lack of role models	Male/Female	2.98/3.04	-.442	.104
	Urban/Rural	3.08/2.89	1.251	.212
	Low/High density	3.31/2.62	-3.614	.000
(g) The problem is social-cultural	Male/Female	3.09/3.34	-.444	.077
	Urban/Rural	3.02/3.54	-3.514	.000
	Low/High density	3.16/2.76	-2.276	.024
(h) Lack of time	Male/Female	3.73/3.92	-1.369	.074
	Urban/Rural	4.00/3.48	3.520	.000
	Low/High density	4.20/3.61	-3.302	.001
(i) Lack of money	Male/Female	3.50/3.67	-1.244	.170
	Urban/Rural	3.71/3.32	2.587	.010
	Low/High density	4.02/3.13	-4.839	.000

(Source: Field data, 2018)

*(d) Lack of incentives or motivation*

The t-test analysis for lack of incentives as a barrier to the implementation of the KZCH programme showed that there was a statistically significant difference between the views of participants from low and high density residential areas with  $p= 0.000$ . Since the mean for high density ( $m = 3.12$ ) was higher than the mean for low density ( $m = 2.28$ ) residential areas, it was concluded that more participants from high density residential areas felt that there was need for incentives than those from low density residential areas. This was also true when responses from urban and rural participants were compared. The results showed a statistically significant difference between the responses for the two groups since  $p= 0.002$ . It was concluded that more participants from rural areas ( $m = 3.32$ ) felt that they needed incentives than participants from urban areas ( $m = 2.8$ ). Comparing the responses of male and female participants, the t-test results showed that there was no statistically significant difference between the responses given by the two demographic groups since  $p = 0.135$ .

*(e) Lack of political will*

The t-test analysis showed that there was no statistically significant difference between the views expressed by participants from low and high density residential areas since  $p= 0.301$ . However, the results show a significant difference between the views of participants from urban areas and those from rural areas since  $p= 0.000$ . With the mean for rural areas ( $m = 3.20$ ) being higher than that for urban areas ( $m = 2.45$ ), it was concluded that more participants from rural areas blamed lack of political will for lack of success for the KZCH programme. The t-test result for views expressed by male and female participants showed that there was no statistically significant difference in the views expressed by the two groups since  $p = 0.105$ .

*(f) Lack of role models*

The next t-test analysis was done on the lack of role of models as a barrier to successful implementation of the KZCH programme. The results in Table 16 reveal that there was a statistically significant difference between the views expressed by participants from low and high density residential areas since  $p = 0.000$ . More participants from high density residential areas felt that role model were needed ( $m = 3.31$ ) than participants from low

density residential areas ( $m = 2.62$ ). However, there was no significant difference between the views expressed by participants from urban and rural areas since  $p = 0.212$ , although the mean was higher for urban areas. Likewise, there was no statistically significant difference between the views expressed by male and female participants since  $p = 0.104$ .

*(g) Socio-cultural orientation*

The t-test results on socio-cultural orientation as a barrier to behaviour change showed a significant difference between responses from low density and high density residential areas in Lusaka with  $p = 0.024$ . Since the mean for the high density areas ( $m = 3.16$ ) was higher than that for participants from low density areas ( $m = 2.76$ ), it was concluded that more participants from high density residential areas felt that the problem was lack of proper socio-cultural orientation. Likewise, the study found a significant difference between views expressed by participants from urban and rural areas since  $p = 0.000$ . With the mean for urban area ( $m = 3.02$ ) being lower than for rural area ( $m = 3.54$ ), it was concluded that that fewer participants from urban areas attributed the problem to socio-cultural orientation than participants from rural areas. However, the t-test results showed no statistically significant difference between the views of male and female participants since  $p = 0.077$ .

*(h) Lack of time*

Concerning lack of time as a barrier to pro-environmental behaviour, a t-test analysis revealed that there was a statistically significant difference between the views expressed by participants from low and high density residential areas of Lusaka since  $p = 0.001$ . With the mean for high density areas ( $m = 4.20$ ) being higher than for low density areas ( $m = 3.61$ ), it was concluded that more participants from high density areas thought lack of time was not the source of the problem. It means more participants from low density residential areas felt that time was a constraint. The study also showed that there was a statistically significant difference in the responses received from urban and rural participants since  $p = 0.000$ . Because the mean for urban area ( $m = 4.00$ ) was higher than the mean for rural area ( $m = 3.48$ ), it was concluded that more participants from urban areas felt lack of time was a problem than participants from rural areas. Results for male

and female participants showed no statistically significant difference between responses from the two demographic groups since  $p = 0.074$ , although the mean for female participants ( $m = 3.92$ ) was higher than the mean for male participants ( $m = 3.73$ ).

(i) *Problem is lack of money*

The results of the t-test on lack of money showed that there was a statistically significant difference between the views expressed by participants in high and low density residential areas since  $p = 0.000$ . After comparing the means, it was concluded that more participants from high density residential areas (with a higher mean of 4.02) thought that lack of money was a hindrance. Results for participants from low density residential areas had a lower mean of 3.13. The results also show a statistically significant difference between responses given by participants from rural and urban areas since  $p = 0.010$ . More participants from urban areas felt that lack of money was a problem (higher mean of 3.71) than those from rural areas (lower mean of 3.32) since  $p = 0.170$ . However, the results also show no statistically significant difference between responses from male and female participants,  $p$  being 0.170.

## **5.8 Behaviour change tools**

A t-test analysis was performed on data obtained for behaviour change tools (Table 14). The results are explained in subsections 5.8.1 to 5.8.7.

### **5.8.1 Commitments**

A comparison of low and high density residential areas showed that there was a significant difference between the views expressed by participants from these areas since  $p = 0.001$ . Since the means for the low density and high density residential areas were 1.11 and 1.28, respectively, it was concluded that more participants from high density residential areas felt they needed to make a commitment in order to participate in the KZCH programme. On the other hand, there was no significant difference between the views expressed by participants from urban and rural areas ( $p = 0.825$ ) and also those expressed by male and female participants ( $p = 0.627$ ).

Table 14: *Behaviour change tools for KZCH programme*

<i>Question</i>	<i>Social Group</i>	<i>Mean</i>	<i>t</i>	<i>Value of p</i>
(a) Commitments	Male/Female	1.21/1.23	-.486	.627
	Urban/Rural	1.22/1.21	.221	.825
	Low/High density	1.11/1.28	-3.338	.001
(b) Social diffusion	Male/Female	1.34/1.45	-2.464	.014
	Urban/Rural	1.43/1.31	2.686	.008
	Low/High density	1.35/1.48	-2.136	.034
(c) Goal-setting	Male/Female	1.28/1.33	-1.181	.238
	Urban/Rural	1.24/1.41	-3.553	.000
	Low/High density	1.12/1.30	-4.007	.000
(d) Social norms	Male/Female	1.37/1.47	-2.292	.022
	Urban/Rural	1.43/1.38	1.032	.303
	Low/High density	1.22/1.54	-5.767	.000
(e) Prompts	Male/Female	1.46/1.49	-.729	.466
	Urban/Rural	1.44/1.54	-2.227	.027
	Low/High density	1.24/1.53	-5.213	.000
(f) Incentives	Male/Female	1.52/1.61	-1.943	.053
	Urban/Rural	1.55/1.58	-.612	.541
	Low/High density	1.42/1.62	-3.313	.001
(g) Feedback	Male/Female	1.23/1.26	-.831	.407
	Urban/Rural	1.24/1.25	.065	.948
	Low/High density	1.18/1.28	-1.903	.058

(Source: Field data, 2018)

### 5.8.2 Social diffusion

Comparing participants from low and high density areas showed that there was a significant difference between the views given by the two groups since  $p= 0.032$ . More participants from high density residential areas indicated that they would benefit from the knowledge that their significant others were participating in the programme ( $m = 1.48$ ) than those from low density residential areas ( $m = 1.35$ ). The results also show a significant difference in the views expressed by urban and rural participants since  $p= 0.008$ . In this case, more participants from urban areas felt they needed social diffusion

( $m = 1.43$ ) than participants from rural areas ( $m = 1.31$ ). A comparison of male and female participants also showed a significant difference between the two gender groups since  $p = 0.014$ . The mean for male participants was 1.34 while that for female participants was 1.45. Therefore, more female participants felt that they needed social diffusion than male participants.

### **5.8.3 Goal-setting**

The results show that there was a significant difference between the views expressed by participants from low and high density residential areas since  $p = 0.000$ . Since the mean for high density ( $m = 1.30$ ) is higher than the mean for low density ( $m = 1.12$ ) areas, it was concluded that more participants from high density residential areas felt they needed goal-setting more than those from low density areas. This was the case also when urban and rural areas were compared. The mean for rural ( $m = 1.41$ ) was higher than for urban areas ( $m = 1.25$ ). The conclusion was that participants from rural areas indicated that they needed goal-setting more than those from urban areas since  $p = 0.000$ . However, there was no significant difference between the views of male and female participants on this matter since  $p = 0.238$ .

### **5.8.4 Social norms**

The comparison between low and high density residential areas showed that there was a significant difference in the views between the two groups of participants since  $p = .000$ . Since the mean for low density areas ( $m = 1.22$ ) was lower than that for high density areas ( $m = 1.54$ ), it was concluded that more participants from high density residential areas indicated that social norms were necessary than those from low density residential areas. This was the same for male and female participants where more female participants felt that social norms were necessary than male participants ( $p = 0.022$ , means = 1.37 for males and 1.47 for females).

### **5.8.5 Prompts**

A comparison of participants from low and high density residential areas showed that there was a significant difference between the views of the residents in the two categories since  $p = 0.000$ . Since the mean for high density residential areas was higher ( $m = 1.53$ )

than for low density residential areas ( $m = 1.24$ ), it was concluded that more participants from high density residential areas felt the need for prompts than participants from low density residential areas. In the same vein, there was a significant difference between the views expressed by participants from urban and rural areas since  $p = 0.027$ . A comparison of the means (1.44 for urban and 1.54 for rural areas) showed that more participants from rural areas indicated that they needed prompts than those from urban areas. However, the results indicate that there was no significant difference between the views expressed by male and female participants since  $p = 0.466$ .

### **5.8.6 Incentives**

Table 14 shows the results of the t-test analysis. Comparing low density and high density residential areas shows that there was a significant difference between the views of participants in the two residential area categories since  $p = 0.001$ . Further, since the mean for high density is higher ( $m = 1.62$ ) than that for low density ( $m = 1.42$ ), it was concluded that more participants in high density residential areas indicated the need for incentives than those from low density residential areas. Similarly, the study showed a significant difference between the views expressed by male and female participants. Since the mean for female participants ( $m = 1.61$ ) was higher than that of the male participants ( $m = 1.52$ ), it was concluded that more female participants felt that they did not need incentives than male participants. The study also compared responses from participants from rural and urban areas. The results showed that there was no significant difference between the views expressed by participants from rural and urban areas since  $p = 0.541$ .

### **5.8.7 Feedback**

A t-test analysis showed that there was no significant difference between responses given by participants from low and high density residential areas since  $p = 0.58$ . There was also no significant difference between the responses given by male and female participants since  $p = 0.407$ . This shows that there was general agreement that feedback was necessary for people to continue participating in the KZCH programme.

In concluding this section, it can be said that:

- (a) there was a consistently significant difference in the responses provided by participants from rural and urban areas in many aspects.
- (b) there was no significant difference in the responses given by participants from low and high density residential areas in many aspects.
- (c) there was no significant difference in the responses given by male and female participants in many respects.

## **5.9 Conclusion**

This Chapter on the presentation of the findings of the study shows that most of the participants thought of themselves as knowledgeable about the need to keep the environment clean. The participants also thought about themselves as environmentally friendly people. Nevertheless, the results concerning environmental behaviour and action revealed that most of the participants were not engaged in behaviours which were environmentally friendly. This shows a discrepancy between what the participants professed and what they did, what is called the environmental values-behaviour (EVB) gap. Furthermore, the results reveal that the participants needed various behaviour change tools in order for them to behave in an environmentally friendly manner. In their order of importance, these tools are commitments, feedback, goal-setting, social norms, social diffusion, incentives and prompts. The chapter also shows statistically significant differing views from participants from rural and urban areas in a lot of aspects. But this was not so when high density and low density residential areas of Lusaka or when male and female participants were compared. The next chapter will discuss these findings.

## **CHAPTER SIX**

### **DISCUSSION OF FINDINGS**

#### **6.1 Introduction**

This Chapter presents a discussion of findings of the study and their implications on attitudes and behaviour towards implementation of the KZCH programme. The findings are discussed in relation to the research objectives and the existing knowledge on human behaviour, behaviour change and the role of Environmental Education. In order to interpret the results, effort has been made to reflect, confirm and extend current knowledge and thinking in human behaviour change.

#### **6.2 Determinants of human behaviour**

This study argued that for the KZCH programme to succeed, there was need for radical change in people's perceptions, values and lifestyles from that of 'I don't care attitude' to those which promoted care and sustainable living. It was argued that such change could be brought about through Environmental Education because of its ability to impart a triad of knowledge, skills and values. However, the extent to which these triad parameters existed was not known. The sections that follow discuss the findings of the study in relation to these parameters.

##### **6.2.1 Environmental knowledge and awareness**

As was reported in Figure 13, this study found that the majority of the participants (90%) indicated that they were aware of the importance of keeping the environment clean and health. The finding is consistent with the findings of Banda (2013) whose study in Mutendere Township of Lusaka established that awareness of the importance of a clean environment among residents was as high as 94 %. Furthermore, the current study established that participants also knew the risks posed by an unclean and unhealthy environment. Most of the participants (92%) indicated that a dirty and unsanitary environment was something that was affecting their quality of life. It is clear, therefore, that the knowledge and awareness levels about the need for a clean and healthy

environment were very high among the participants. This finding agrees with Harvey and Mukosha (2008 cited in Banda, 2013: 45) who asserted that “most of the community members are aware of the awareness campaign and understand its benefits ...” At face value, this finding appeared to be a good thing for the KZCH programme. Nevertheless, the finding was not matched by good responsive behaviour towards keeping the environment clean. Like in the case of pupils studied by Molapo et al. (2014) in Lesotho (subsection 3.3.1 under knowledge), there was no relationship between levels of knowledge and the action taken. According to Molapo et al., this means that people often have knowledge which they cannot apply to their everyday life encounters. This study contends that the mismatch negated the benefits of the awareness observed among the participants. Several reasons can be suggested for this discrepancy. In the first place, it was noted in Chapter Three that knowledge leads to abstract and not concrete willingness to act. This means that people may be aware of a problem but may still not do anything about it. Molapo, Stears and Dempster contend that people are likely to be aware or to know because sensitisation centres on telling them about the environment. The trio suggests education which makes learners *action competent* through acquisition of new values, motivations and habits. These aspects are emphasised in Environmental Education. Secondly, as advanced by both the TPB and the HBM, people may be aware of a sanitation problem in the environment but may not act because they do not see the danger of living in a dirty and unsanitary environment (lack of immediacy of environmental problems). Mukosha and Harvey (2008) state that community members do not act appropriately because they are not convinced of the consequences of the contaminated environment, that is, they do not aware perceive the risks of a dirty environment; the greater the perceived risk, the greater the likelihood of engaging in behaviours to decrease the risk (see perceived susceptibility in Chapter Two). Thirdly, people may be aware of a problem in the environment but may not act because they do not see the benefits of their actions or that their efforts will not amount to anything. For example, Banda (2013) found that 79 % of the participants in his study indicated that there were no benefits accruing from the KZCH programme. Similarly, some contributors on social media indicated that people do not pay for services because they feel that they do not receive any good services for their money. In this sense, the role of Environmental Education is to make people see the benefits of a new behaviour.

As stated in Chapter One, the KZCH programme has been running for many years now. Although Mukosha and Harvey (2008) assert that the programme is a good motive, members of the general public may not see it that way. In the current study, for example, only slightly above half of the participants (53%) indicated that they knew much about the programme (Figure 14). It can, therefore, be concluded that the majority of participants were aware of the need to keep the environment clean and healthy and even the effects of dirty and unsanitary surroundings, but had had very little information about the programme itself and its benefits. This is particularly true for rural participants who indicated lack of knowledge about the existence of the programme. In line with this finding, Mukosha and Harvey (2008) feel that the programme has failed to produce the expected results of seeing public response in relation to waste disposal. According to the duo, this is because of failure by implementers to involve the communities from the initial stages of planning and implementation. Analysis of comments made on social media also shows that people on the ground have also indicated that there was lack of education and sensitisation on waste management in general and about the KZCH programme in particular. It is clear that there is not only need to escalate information dissemination as a matter of urgency but also to increase the involvement of stakeholders at every stage of programme planning and implementation or the bottom-up approach. One of the tenets of Environmental Education is to emphasise *active participation* among individuals and social groups in preventing and solving environmental problems.

### **6.2.2 Pro-environmental perceptions and attitudes**

Using the Theory of Planned Behaviour, the following predictors of behaviour were studied: behavioural belief, subjective norm, behavioural intention, perceived behaviour control, and past behaviour. This section discusses the findings of the study concerning these aspects of human behaviour.

#### *(a) Behavioural beliefs*

In this study, a total of 76 % of the participants indicated that they found it easy to participate in the KZCH programme (Figure 21). The implication for the KZCH programme is that most of the members of the general public thought they had no problem taking part in the programme. Aligning this finding with Sheppard et al.'s(1988)

assertion, this result can be explained that most of the participants felt that the programme was worthwhile and taking part in it was positive behaviour. This is what Poortinga et al. (2004) classified as intent-oriented behaviour (as opposed to impact-oriented behaviour) which is undertaken by the actor with the intention to help the environment. However, intent-oriented behaviour has to be supported by the right values, beliefs and norms as well as attitude (behavioural intention) and past behaviour. The findings on these aspects are discussed in subsections (b) to (d).

*(b) Subjective norm*

The results of this study (Figure 17) show that the subjective norm is a strong predictor of behaviour in the implementation of the KZCH programme. A total of 61 % of the participants indicated that they would seek the approval of their significant others before engaging in a behaviour or action. This finding shows that the participants were not averse to norms and is consistent with the first principle of behavioural economics which states that much of our behaviour is strongly influenced by other people's behaviour or what we think other people will think about our behaviour (Aronson, Wilson & Akert, 2005; NEF, 2005). In addition, a total of 69 % (Figure 18) stated that they would be supported by their significant others if they decided to participate in the KZCH programme. It is, therefore, imperative for the KZCH programme to identify the existing *social capital* (that is, where there are strong networks between people and a high level of mutual trust) and use them to influence people's behaviour. As stated in Chapter Three, social diffusion and influence of role models appear to be viable tools which can be used to foster public participation in the programme.

*(c) Behavioural intention*

In this survey, the finding (Figure 19) was that whether people were taking part in the programme at the time of the study or not, their behavioural intention was to take part in future. This was another good indicator for the KZCH programme because it showed that the participants had the right attitude towards the programme. What programme implementers needed to do was to sustain motivation (including feedback) for those already taking part in the programme and to put in place initiatives that would bring on

board those who were not. This would be achieved, for example, through the use of behaviour change tools which is presented in Appendix B.

At this point, it is important to elaborate behavioural intention in terms of how, when and where the action will be performed. In this study, participants were only asked to express goal intention and not implementation intention. Gollwitzer and Brandstatter (1997) explain that when people are asked to state intentions without necessarily specifying the implementation intention plan, it is likely that the behaviour may not be performed. Therefore, the participants in this study could have been asked to state the behavioural intention in terms of specific situations, such as, “when I go to a shopping outlet, I will not accept a plastic shopping bag.”

*(d) Past behaviour*

The results of this study (Figure 19 and Table 6) show a discrepancy between past behaviour and behavioural intention. The case in point is that participants who had not taken part in the programme in the past were willing to take part in future. It was also likely that participants who had taken part in the programme in the past were not willing to continue taking part in future. In this regard, it can be concluded that participants may not have been influenced by past behaviour, that is, their future behaviour may not have depended on past behaviour. This finding is consistent with Franklin’s (2013) assertion that some past behaviour does not recur (see Chapter Three). Among the conditions for a behaviour to recur is that it should be a high frequency, habitual behaviour, not an infrequent one. This gives the cue that the implementation of the KZCH programme should not be episodic or sporadic, but an ongoing activity if past behaviour is going to have an effect on future behaviour.

So far, this study has established that participants demonstrated high levels of knowledge about the need to live in a clean and sanitary environment. They also displayed knowledge of the effects of living in a dirty and unsanitary environment. They subscribed to subjective norms and their intentions to participate in the KZCH programme were also very high. Some of the participants were influenced by past behaviour while others were not. In the next section, the results of the participants’ pro-environmental values will be discussed.

### 6.2.3 Pro-environmental values

It is clear from the results on pro-environmental values that most of the participants subscribed to promoting pro-environmental values and attitudes (Figures 22, 23, 24 and 25). It can be concluded that, ideally, the participants valued the environment and were willing to act pro-environmentally. Again, this is a good indicator for the KZCH programme since values are good predictors of pro-environmental behaviour (Gatersleben, Murtagh & Abrahamse, 2014). Therefore, an Environmental Education programme can be used to inculcate the right values with regard to the implementation of the KZCH programme.

### 6.3 Pro-environmental behaviour

The answers given by participants as reported above (subsection 6.2.3) show that most of them were aware of the KZCH programme and were concerned about the need to keep surroundings clean and healthy. Nonetheless, the participants did not appear to translate this knowledge and willingness into acting pro-environmentally (Figure 26). This finding affirms the observation by Kollmuss and Agyeman (2002) that there is usually a gap between the possession of environmental knowledge and values and displaying pro-environmental behaviour, a gap which has already been established in this study. Kennedy, Beckley, Macfarlane and Nadeau (2009: 151) refer to the incompatibility between pro-environmental values and environmentally-supportive behaviour as the ‘environmental values-behaviour (EVB) gap or the *ideal-reality gap* while Fila and Smith (2006) call the lack of association between intention and behaviour as *intention instability*. Kollmuss and Agyeman (2002) explain that although many people are concerned about the environment (*a stated preference*), this does not always translate into taking practical steps to perform an environmental behaviour (*revealed preferences*). This study, therefore, argues that a rift exists between possession of knowledge and values on one hand and action on the other. This gap does not seem to apply to Zambia alone. Study after study has confirmed this conclusion. For example, in 1999, a research by *Keep America Beautiful* found that 75 % of Americans admitted to littering in the previous five years, yet 99 % of them admitted that they enjoyed a clean environment. Wharton (2012: 1) also notes that “as much as customers value sustainability, very few are willing to pay more for it, at least right now. Similarly, the current study found that

people who were given bins for storage of waste in Kafue town turned the bins into receptacles for water and mealie meal, even though they knew the correct use for those bins. This does not show congruence between the participants' knowledge (and even desire) and their behaviour. The significance of this finding is that the study, done in Zambia with a completely different socio-cultural and economic context, appears to be consistent with findings of studies which were done in western countries. The role of Environmental Education then would be to close up this gap by addressing factors that promote or inhibit environmental behaviour. To better understand their behaviour, participants were asked about whether or not they performed some environmentally and/or non-environmentally friendly behaviours. The following sub-sections discuss the findings.

### **6.3.1 Reduction of waste production**

The finding that only a third (32%) of the participants indicated that they were actively making an effort to reduce waste generation shows that very few participants were minimising waste production (Figure 26). This finding is important to this study because it shows that as long as people produced and consumed more goods, more waste would be generated that would enter the environment. There is, therefore, need for the KZCH programme to encourage sustainable consumption habits which do not escalate the amounts of waste generated. If the trend of waste generation continued, the country may find itself contending with what Mweemba (in press) calls an ecological crisis. The current perception is that the environment is an important determinant of health, earning a variety of goods and services for humans (Brocklesby & Hinshelwood, 2001). Good common sense, thus, would be to deal with the environment in a more sustainable way by reducing the amount of waste that enters into it.

### **6.3.2 Recycling or reuse**

The results of this study showed that very few participants were recycling (Figure 26). This result was not surprising because recycling was not a widespread practice in the country. Reuse, on the other hand, was quite often practiced: plastics, plastic bags, bottles, metals and other items were retrieved from general waste and used again. For example, a significant amount of waste was retrieved from dumpsites such as Chunga

Landfill by waste pickers (*Lusaka Times*, August 1, 2013). The material destined for recycling (such as metal) mostly went to manufacturers while re-usable materials ended up in markets (for example, plastic bags) or small-scale food processing enterprises (such as water and juice bottling). However, because of its benefits, recycling is a practice which should be stepped up and encouraged by the KZCH programme (see section on recycling in Chapter Three).

### **6.3.3 Using a waste bin to discard garbage**

The results showed that more than half of the participants were not using waste bins to dispose of waste (Figure 26). Unequivocally, such waste probably ended up in garbage pits, on the streets or some undesignated dumpsite within the townships. The question is whether there was a lack of waste bins or it was mere lack of concern for the environment on the part of those participants who reported that they were not using waste bins. If lack of waste bins was the problem, then the difficult was institutional rather than behavioural, and relevant municipalities should have attended to the problem by providing bins. If the problem was behavioural, then the KZCH should have used sensitisation to bring about change. However, as reported earlier, sometimes residents used the bins for purposes which they were not intended. The galvanised waste bin (*ing'ungulu*) was probably the most abused, as the Kafue waste bin case had shown. This, as stated before, could be very frustrating to the local authorities who have to scout for more money to buy new bins or contend with heaps of waste which ended up being dumped into undesignated places in the absence of waste bins.

### **6.3.4 Demand for a paper bag instead of a plastic bag**

The current study shows that although participants had professed willingness to behave environmentally friendly, they were not demanding for paper shopping bags when they went shopping (Figure 26). This did not demonstrate pro-environmental behaviour. Shoji and Susumu (2014: 57) note that “reduction of the usage of plastic bags is an effective pro-environmental behaviour that relatively few people engage in, despite the small effort”. This result affirms the assertion that just because one has decided to get involved, doesn't mean that they will carry through with the action. The challenge, nonetheless, is that Zambian shops hardly stock reusable cloth or paper bags. Like the Japanese case

cited by Shoji and Susumu (2014), Zambian supermarkets provide free plastic bags to their customers to carry their purchases. Even if one asked for a paper bag, they would not get it simply because it is not there. This boils down to institutional or situational constraints that prevent people from acting pro-environmentally even if they wanted to (Blake, 1999; Elberly Centre for Education, 2015). The KZCH programme could, therefore, target supermarkets to get them to give their clients paper/cloth bags rather than plastic ones or shoppers could be asked to go with their own cloth shopping bags. The best alternative to plastic bags is to use reusable shopping bags, sometimes called *bag-for-life* in the UK, although there are counter arguments about their use (Dillon, September 2<sup>nd</sup>, 2016). These bags could be made out of cloth/canvas or grass/bamboo. As pointed out in Chapter Three, Reiss (2008) shows that 94% of the participants in his study thought that the use of plastic grocery bags should be reduced in grocery stores. The use of appropriate carrier bags is a challenge which people with political power could take up and enforce and also enforce regulations that spell out how to use and dispose of plastics, or to ban their use altogether, as the case was in Rwanda.

### **6.3.5 Telling friends and family members about the need to keep environment clean**

The results of this survey show that a significantly large number of participants (a total of 86 %) stated that they had told friends and family members about the need to keep the environment clean (Figure 26). However, only forty-four percent of these had done so in the last one year while the rest had done it over one year ago. The implication is that under 50% of the participants were actively involved in telling their acquaintances about the need to keep the environment clean and healthy. According to Boud, Cohen and Sampson (2002), sharing of knowledge, ideas and experience among members of social groups can be described as a way of moving beyond independent to interdependent or mutual learning. It also promotes working collaboratively with others, giving and receiving feedback and evaluating one's own learning. Social networks, therefore, are a good way for people to exchange information about pro-environmental behaviour and the need to live in clean and sanitary environments. They needed to be strengthened by the KZCH programme as the behaviour was not being used as efficiently as it should have been.

### **6.3.6 Open burning of waste**

The small number of participants (only 16%) that stated that they never used open burning of waste as a method of garbage disposal shows that although the participants knew the problems that were brought about by open burning of waste, they still used the method to dispose of their waste. Open burning of waste comes with attendant problems such as chest and bronchial infections, reduced visibility and caused unpleasant odours in the neighbourhood (Woodford, 2010). Therefore, there was need for programme implementers to deal with this problem decisively. For example, the practice could be outlawed, as was the case in Saskatchewan, Canada, where burning of municipal waste at a waste disposal site was prohibited under the Environmental Management and Protection Act, 2002 (EMPA 2002) (Saskatchewan Ministry of Environment, n.d.).

### **6.3.7 Using a rubbish pit (*umug'anda*) to discard waste**

The findings of this study are that some participants (39 %) indicated that they had used a rubbish pit to discard waste within the last one year (Figure 26). As stated in Chapter Three, however, rubbish pits have the disadvantage that, unless they are well managed, they can be a source of groundwater contamination and a breeding ground for disease-carrying vectors and pathogens such as cockroaches, flies, rats and bacteria. In addition, the pit can exude pungent odours which have the potential to disturb entire neighbourhoods. These are issues that programme implementers of the KZCH programme could discuss with stakeholders in order to discourage them from using rubbish pits as a method of waste disposal.

### **6.3.8 Dumping waste on a garbage heap in an undesignated area**

In this study, very few participants (only 24%) had indicated that they had used open dumping as a method of getting rid of their household waste (Figure 26). The rest stated that they had either never used the method or they had used it more than a year ago. This finding was good for the KZCH programme, although it was important to ensure that this group of people was encouraged to keep on disposing of waste in appropriate places.

### **6.3.9 Raising the issue of cleanliness with local leaders**

Raising issues can be defined as assertive communication of community concerns through information, questions or opinions where immediate action is needed to avoid harm for the community (Schwappach and Gehring, 2014). The results show that most participants did not raise issues of cleanliness with local leaders (Figure 26). However, it has been clearly shown that people have a role as stakeholders in waste management to take up matters with local leaders when something disturbing happens in their local area. According to World Bank (1995), the importance of community participation in waste management helps stakeholders to influence and share control over the development initiatives, decisions, and resources that affect them. The problem, however, is that residents are usually afraid of being candid about problems in their locale due to the fear of repercussions. Therefore, for residents to be free to raise issues with local leaders, there is need for a deliberate open door policy meant to encourage them to voice their concerns and give feedback. The findings of this study agree with the findings of a survey conducted by Samuel et al. (2012) in the USA which showed that most medical students were willing to speak up to other students about poor hand hygiene practices but only a few would speak up towards registrars (9 %) and consultants (6 %). It is important to understand that leaders generally benefit from listening to people they superintend over. Therefore, when people choose to keep their feelings to themselves, or communicate their thoughts only to their colleagues or family members, leaders can miss out on learning about new ways to serve the communities or make operational enhancements. Again, Environmental Education can be used to sensitise members of the general public about how to voice their concerns.

All in all, it can be concluded that, although participants indicated good knowledge and values about the environment, their behaviours were largely not pro-environmental. This shows that knowledge and awareness messages which normally have the intention of stimulating action in members of the general public had failed to make that happen. Studies in other contexts have produced similar results (Fila & Smith, 2006; Lakin, 2006; Prokop, Tuncer & Kvasničák, 2007; Molapo et al., 2014). The role of Environmental Education is to sensitise individuals and communities about getting involved in matters of maintaining clean and sanitary environments.

The next section discusses the barriers that might have affected public behaviour.

## **6.4 Perceived barriers to behaviour change**

The second objective of this study was to identify barriers that affected behaviours of the general public with respect to the implementation of the KZCH programme. This study argues that the environmental values-behaviour (EVB) gap found in this study can be explained by the presence of barriers that hindered pro-environmental behaviour among the participants. Consistent with the community-based social marketing theory, the Theory of Planned Behaviour, and the Health Behaviour model, this study found that the barriers hindering effective implementation and participation in the KZCH programme were social, economic and political. These factors are discussed in the subsections that follow.

### **6.4.1 Lack of information about the KZCH programme**

The finding of this survey that 53 % of the participants stated that there was not much information about the KZCH programme appears to contradict Banda (2013) whose findings suggested that 89.3 % of the participants in his study were aware of the KZCH programme. However, the low percentage of participants professing lack of knowledge about the KZCH programme in this study can be explained by the fact that while Banda's study was solely done in an urban setup, this study considered both urban and rural areas. Clearly, rural areas are harder to reach with information than urban areas. But the low percentage for this study is also consistent with the comments made on social media that there was still need for public awareness and education for some members of the general public, as follows:

- (a) people needed to be educated about the dangers of waste and dirt.
- (b) people needed to understand their obligations.
- (c) young people needed to be taught about the importance of hygiene.
- (d) authorities needed to formulate school curricula at all levels of school so that at an early age, children should begin to learn about how to handle waste.
- (e) parents needed to teach their children good hygiene at home.

Therefore, lack of information about the KZCH programme could have led to inaction among members of the general public who did not have the information. This is attested to by Chanda Makanta, then spokesperson for the Lusaka City Council (LCC), who in 2009 stated that what people needed to *know* and *understand* was that dumping garbage anyhow was illegal (The *Lusaka Times*, September 14, 2009). This statement implies that, to a certain extent, lack of awareness and knowledge of the impacts of their actions on the environment drove some residents of Lusaka to not acting pro-environmentally. As Kollmann and Agyeman (2002) put it, lack of knowledge about the effects of ecological degradation can lead to emotional non-involvement in pro-environmental behaviours. In this regard, some participants felt that a lot needed to be done to sensitise members of the general public concerning living in clean and healthy surroundings.

On the other hand, some participants felt that lack of knowledge was not always the problem. This finding is consistent with the findings by Fliegenschnee and Schelakowsky (1998, cited in Kollmuss & Agyeman, 2002) that knowledge and awareness contribute very little to behaviour change (section 3.3.1) and also the statement on social media that “*It is not only the humbly educated people [who litter] but even the so called educated*”. The implication of these statements is that even where people have information, they may not always act pro-environmentally. This may be explained by inertia and/or the presence for hedonic and egoistic values which people may have to meet (Steg et al., 2014). Therefore, implementers of the programme may have to deal with this inertia.

#### **6.4.2 Lack of waste bins and garbage collection trucks**

The result that most of the participants felt that lack of waste bins and garbage collection trucks contributed to the problem of not effectively implementing the KZCH programme is consistent with what Molapo et al. (2014) found in their study of secondary school pupils in Maseru (see Chapter 3). However, comments on social media also provided a dimension that where the city councils provided facilities such as waste bins, people sometimes abused them by using them for other purposes such as storing water and mealie. One comment on social media explained that if mealie meal and taps with running water were readily available, there would be no need for people to store water

and mealie meal in waste bins. This makes the problem more complicated with dimensions of a vicious circle or no-win situation.

Lack of waste bins and garbage collection trucks can either be an economic problem or lack of political will. In other words, lack of resources and facilities can be explained in terms of capacity and will. Therefore, the then minister of Local Government and Housing, Emerine Kabanshi, had indicated that government had prioritised the procurement, mobilisation and distribution of modern solid waste collection and disposal equipment to local authorities. At individual level, some people may not manage to pay for services provided by private waste collectors. Such people may not have alternatives but to throw their waste anyhow and anywhere, as long as the waste is ‘not in their backyards’ (the NIMBY syndrome).

### **6.4.3 ‘I don’t care’ attitude**

The current study found that “I don’t care” attitude was responsible for lack of effective implementation of the KZCH campaign (Figure 27). This was consistent with studies made elsewhere (Oteng-Ababio; 2012 cited in Yoda et al., 2014; Banda, 2013; Molapo et al., 2014). This “I don’t care” attitude, also called ‘*fikaisova*’ (things will take care of themselves) in Zambia, manifested itself in the way people handled government or public property when they said *va boma* (it’s for government). This *va boma* ‘syndrome’ is a nonchalant, lassie faire or detached attitude which sometimes included willful damage to property and infrastructure ‘owned by the government’. Some bloggers claimed that it was the responsibility of the city council (not the community) to keep the environment clean. The claim was that *ngati napyanga apa, ba Kanso ba za chita nchito bwanji?* (If I clean up, what work will council workers do?). This attitude, as was reported in Chapter Three, seems to be prevalent in Third World countries (Amin, Mahmood & Hossain, 2005 cited in Yoda et al, 2014; Solomon, 2011) and is supported by a Ghanaian blogger who sates that “*Hahaha, Africans we’re a hopeless lot. Lusaka is just as dirty as my home city Accra (a big village in reality). Come visit an area of Accra called Teshie and Sodom and you’ll be hopeless [helpless]. WE CAN DO BETTER THAN THIS MY AFRICAN BROTHERS AND SISTERS*’ (Lusaka Times, January 23, 2014).

Another sign of detachment or I don't care attitude was the comment on social media that *"I have no idea of the last destination to the waste I generate. My business ends at paying this guy [a wheelbarrow pusher] K5.00 [about half a dollar] to dump waste wherever."* If people were showing an attitude of "I don't care", they supposedly did not know the dangers of environmental degradation or they were acting out of expediency which emanates from hedonic and egoistic tendencies. In 2009, then spokesperson for the Lusaka City Council, Chanda Makanta, noted that sections of society were still *hostile* to the garbage collecting companies and did not want to subscribe to waste collection companies but only wanted to be dumping garbage anyhow (*Lusaka Times*, September 14, 2009). This behaviour was attitudinal and, therefore, what was required was *"attitude change* among the majority of our people who still *see nothing wrong with indiscriminate disposal of waste"* (*Lusaka Times*, September 14, 2009). Bradford Machila, then acting Minister of Local Government and Housing, also observed that for the KZCH programme to succeed there was need for changing people's mindset. He noted that many people were still spitting, urinating and throwing human excreta in public places and were engaged in other vices such as street vending (*Sanitation Updates*, August 24, 2009).

Another area where members of the general public showed laxity was in paying for services provided by the councils. According to then LCC Assistant Public Relations Manager, Brenda Katongola, individuals and institutions owed LCC K183 million by January 2014 in service fees (*Lusaka Times*, January 21, 2014). The Assistant Public Relations Manager claimed that as long as the public was owing the council such huge amounts of money, it was difficult for local authorities to provide quality services to communities and also to meet its operational costs. However, bloggers also clearly put it that people were willing to pay bills if they were sure that their money would be put to good use. Clearly, the 'I don't care' attitude was a malaise that needed to be healed if the KZCH programme was going to be implemented effectively. Like one comment on social media noted,

*charity begins at home; people should be responsible for their own cleanliness.*

As observed in Chapter Three, attitude is mutable. This means the ‘I don’t care’ attitude can be changed when the right approach is used. One way to do this is by providing incentives, the subject discussed in the next section.

#### **6.4.4 Lack of incentives or motivation.**

In this study, participants seemed to be divided over whether or not lack of incentives was one of the problems for lack of effective implementation of the KZCH programme (Figure 27). This is understandable because, as Armstrong (2013) argues, just giving people incentives is not necessarily enough to make them change their behaviour. Apart from receiving incentives, people want to feel involved and effective to make a change. With this understanding, the former Bank of Zambia governor, Caleb Fundanga, on the occasion of a review walk for the KZCH programme (17<sup>th</sup> September, 2009) urged people to get involved in the programme and to extend it to their homes (Fundanga, 2009). In addition, it is not always true that people will ask for incentives in order to undertake an action; sometimes people will also be motivated to participate in a programme if they think it is ‘the right thing’ to do. The notion that people want to do good is also supported by one participant who said:

*No, I do not think it would be right for me to ask for anything. Am I not the one surrounded by the garbage?*

A comment on social media notes that Lusaka residents *would gladly pay high fees* [for waste management] if they knew and actually saw that their money was giving them clean surroundings in return. The conclusion of this matter is that implementers of the KZCH programme needed to use incentives reservedly because people might not always want to participate in the programme if there were rewards attached to it.

#### **6.4.5 Lack of political will**

This study established that political will was one of the strongest factors that could bring about environmental behaviour change and support the KZCH programme (Figure 27). Political will in Zambia rests in the hands of government and ruling political parties. Mweemba (in press) asserts that the present state of the environment clearly indicates that while environmental awareness has been growing in many corners of the world, the

commitment to address these issues by governments has not been strong enough to produce a real impact. In other words, people may know that it is wrong to litter but still go ahead and litter because political will is lacking (Molapo et al., 2014). To some extent, the government of Zambia had shown some political will by launching the programme, organising some resources and materials (including trucks for waste collection), and encouraging the general public to join the campaign. One franchise contractor felt that government will was initially strong but had waned over the years with successive governments. Thus, continuity of effort became a problem and implementation came to be episodic or sporadic than continuous. Banda (2013: 2) is of the view that although efforts to rejuvenate the KZCH programme had been made they had remained abstract ideas as government officials were making statements without concrete action and systematic approach. By and large, people at every level had only paid lip service to the programme. According to UNEP (2013: 12), “*lack of political will makes waste management among the most significant planning challenges faced by developing and transition economies in the 21<sup>st</sup> century.*” Therefore, there was need for government to step-up its effort and ensure there was continuity in the implementation of the programme.

#### **6.4.6 Lack of role models**

In this study, the participants were divided about whether or not lack of role models was one of the problems responsible for lack of the successful implementation of the KZCH programme (Figure 27). Nevertheless, the study cannot underplay the part that role models play in bringing about desired environmental behaviour. For example, one comment on social media indicated that the challenges of waste management and failure to generate enough income to manage waste was as a result of lack of proper planning on the part of local authorities. The comment, therefore, urged local authorities to learn from other utility companies, such as Zambia National Broadcasting Corporation (ZNBC), Zambia Electricity Supply Corporation (ZESCO) and Lusaka Water and Sewerage Company (LWSC) who were ably collecting money for the services they provided. In other words, the participant was saying ZNBC, ZESCO and LWSC were role model institutions which LCC and Mumbwa District Council could learn from. Another comment gave Botswana as an example of a country where surroundings had been kept

clean; Botswana, therefore, was a role model country for Zambia. This study argues, therefore, that using role models as a tool for behaviour change can help to effectively implement the KZCH programme. Learning that takes place by seeing others engage in an activity or task which they participate in successfully is what Haambokoma (2015) calls *vicarious learning*. Bandura (1994) shows why role models or '*social models*' are important to learning in general and the KZCH programme in particular. The KZCH programme could, therefore, identify people and institutions in communities who could perform the part of role models.

#### **6.4.7 Socio-cultural orientation**

Marshall et al. (2011) assert that influences such as *social class* and *culture* constitute an integral part of family and social systems and are essential constructs for investigating, understanding, and addressing the challenges that families and societies face. In this study, however, almost half of the participants (45 %) did not think the problem of lack of participation in the KZCH programme was a socio-cultural problem. Perhaps this is the reason why Zender (1999) is of the view that the role of culture in solid waste management is subtle or elusive. Nevertheless, a critical look at the comments made by members of the general public on social media gives an insight into the feelings that some Zambians have about the country's socio-cultural dispositions vis-à-vis waste management. The views presented on social media were that there was disorder in the manner that Zambians handled waste. For example, it was learnt from the comments that when Zambians travelled abroad, they did not throw litter anyhow. However, as soon as they crossed back into Zambia, they began to litter anyway. It was also stated that people who were educated, or lived *ku mayard* (low density residential areas), who were expected to behave in a better way, were also seen throwing litter through the windows of their moving posh cars. The lack of sympathy, empathy and emotional attachment to the environment was obvious among a whole spectrum of social and cultural groups. Therefore, the assertion by Marshall et al. (2011) that considering a socio-cultural group's rules, values, beliefs and customs was necessary to understanding how access to, and understanding of, otherwise available interventions for a programme can be limited appears to be largely valid. It can be argued that whether or not people adopted an innovation such as the KZCH programme partly depended on the socio-cultural hurdles

that they must overcome. Therefore, people's socio-cultural dispositions mattered in the implementation of behaviour-related programmes such as the KZCH programme.

#### **6.4.8 Lack of time**

The majority of participants (62%) in this study felt that lack of time was not one of the main reasons for failure to implement the KZCH programme successfully (Figure 27). Nonetheless, it might also be true that people's perception that the KZCH programme required time may have dissuaded them from potential acts which favoured the programme. In this study, however, most of the participants felt that time was not an important constraint to participating in the KZCH programme. In a case where time was a factor, techniques could be designed to teach target audiences how to manage their time in order to make time for a particular behaviour (Hirst, 2011). These techniques seek to facilitate the behaviour by freeing up times when it could be performed.

#### **6.4.9 Lack of money**

Like for time, this study found that lack of money did not constrain participation in the KZCH programme (Figure 27). This appears to agree with the assertion by Kennedy et al. (2009) that affluence or material comfort is generally rejected in the literature as a predictor of pro-environmental values (Dunlap & Mertig 1995; Diekmann & Franzen, 1999). However, it is also apparent that high-income versus low-income individuals may support the environment differently (see section on socio-economic determinants in Chapter Three). Kennedy and his colleagues (2009: 154) explain that, "regardless, a perceived lack of money can clearly, for example, prevent individuals who hold pro-environmental values from purchasing expensive, environmentally-friendly products, such as organic foodstuffs. Affluence, on the other hand, can also allow individuals to afford less environmentally supportive behaviours such as driving a vehicle to work rather than relying on public transport."

Although participants in this study did not attribute lack of involvement in the KZCH programme to lack of money, studies in other developing countries have shown that lack of money to procure materials for waste collection and construction of materials recovery facilities and commercial and engineered landfills, was a big challenge at institutional

level (Peter, 2002; UNEP, 2013; Guerrero et al., 2013, Yoda et al., 2014). It constrained councils from engaging in appreciable waste management efforts and might have required a lot more political will to inject more money into waste management if this problem was to be attended to effusively. Financial resources needed to be mobilised by both national and local governments in order to garner required materials for the programme. Nevertheless, there were a lot of activities that individuals, communities and organisations could have done without necessarily needing money. For example, picking litter from the environment may not need money. In any case, the cheapest method of keeping the environment litter free was not to litter in the first place.

This section has discussed barriers that were perceived to have affected the implementation of the KZCH programme. The section has pointed out how these barriers played and what could have been done in order to overcome them. The next section addresses the disparities that might have been portrayed by different socio-economic groups in terms of knowledge, perceptions, values, beliefs and attitudes in relation to the implementation of the KZCH programme and how these disparities could be addressed through Environmental Education.

## **6.5 Comparison of differences in behaviour among demographic groups**

The third objective of this study was to find out if there were significant differences in responses given by different socio-demographic groups surveyed in the study. As indicated in Chapter Three, a number of studies have shown an association between environmental concern and socio-demographic factors. The intention of such studies has been to find a link between high environmental concern and particular socio-demographic attributes in order to explain the major causes of environmental awareness as well as environmental action. In the current study, the socio-demographic groups compared were male and female, rural-urban, and low and high density residential areas. This section discusses the findings of the study pertaining to this objective.

### **6.5.1 Comparison of responses of male and female participants**

The study compared responses from male and female participants concerning knowledge and awareness of the need to live in a clean and sanitary environment. The analysis

showed that there was no significant difference between responses given by male and female participants with regard to this matter. Likewise, there was no significant difference in the responses given on perception of risks from unclean and unhealthy environments among these demographic groups. Therefore, on the basis of knowledge and awareness, the findings seem to support Hayes' (2001) assertion that gender does not influence what people know and the values they hold (in this respect, in relation to environmental behaviour). The implication of this finding is that an educational programme designed to broaden the understanding of waste management issues among members of the general public would not segregate between the two gender groups.

Results for frequency of pro-environmental behaviour and barriers to pro-environmental behaviour also showed that there was no statistically significant difference between responses given by male and female participants in all the areas of pro-environmental behaviour examined. The implication of this finding is that male and female participants behaved and perceived environmental behaviour and barriers to pro-environmental behaviour in the same way. This finding does not seem to support Kastleman's (2012) earlier findings that for nearly all men and women, there were significant differences in how men and women behaved, felt, thought, or responded. It also counters the claims that women showed greater concern and responsibility for nature and the environment than men (Shiva, 1988; d'Eaubonne, 1974; Besthorn & Pearson McMillen, 2002; Loots, 2011). The findings appear to agree with studies that have stated that some differences between males and females may purely be socio-cultural rather than physical (Haambokoma, 2015).

The finding that there was no significant difference between male and female participants is important for the KZCH programme because, as it has been stated before, there could not be sustainable human development without the joint participation of males and females in all innovative activities, including waste management. This is whether one is looking at the issue from the perspective of contributing to economic development, improved quality of life for all or from an equity and social justice point of view (Reddy, 2001). In Chapter Three, it was stated that liberal feminists believe that if females were given appropriate chances and motivation, they could enter male-dominated domains and perform just as well as men (Wacjman, 2007 cited in Haambokoma, 2015). Therefore,

this finding buttresses the belief that women are capable of doing what men can do because they have the same intellectual abilities as males (Haambokoma, 2015). The impact on Environmental Education is that female members of society would be expected to put as much effort into education about environmental dimension of sustainable development as their male counterparts.

Concerning tools which could be used for behaviour change, the results showed no significant difference in the views expressed by male and female participants in the areas of commitment, goal-setting, need for prompts, and receiving feedback. However, the results showed a significant difference between responses given by male and female participants in the need for social diffusion, social norms, and incentives with more female participants indicating that they needed these aspects more than male participants. The lack of any significant difference between male and female participants in many aspects is consistent with assertions made by many scholars who have challenged the stereotypes (see Chapter Three under the section Gender). The implication for Environmental Education is that there is no reason to fear that one gender category is less engaged with environmental problems than the other (McEwen et al., 2015).

### **6.5.2 Comparison of responses from rural and urban participants**

This section discusses results of the t-test on the difference in knowledge and awareness between participants from rural and urban areas. The results showed that, statistically, there was a significant difference in the importance attached to keeping and living in clean and sanitary environments between urban and rural participants. A higher mean for rural areas indicated that more participants from rural areas valued living in clean and healthy environments than urban participants. This finding may have indicated that surroundings were cleaner in rural areas than in urban areas. This is not completely surprising since there were more waste products (such as paper, plastics, and cans) which contributed to littering in urban areas than in rural areas. The finding is also in line with Hamlin's (2009: 11) assertion that, "In urban areas, with the greater density of population and constant business activity, there is a greater risk of unsanitary waste disposal and its effects." Similarly, the study by Hinds and Sparks (2008) in the UK showed that students who had grown up in rural areas reported more positive orientations towards the natural

environment than urban-raised students. However, this finding is contrary to the findings elsewhere. For example, Chen et al. (2011, cited in Gifford and Nilsson, 2014) found that, in China, people living in larger cities were more likely to engage in pro-environmental behaviours than people living in smaller cities. Also, a study by Lutz, Simpson-Housley, and de Man (1999) in the Canadian Province of British Columbia revealed relatively high levels of environmental concern among both rural and urban dwellers.

Concerning perceived risk from unclean and unhealthy environments, more participants from urban areas indicated that their personal wellbeing was being affected by dirty and unsanitary environments. Again, this is expected because urban environments, especially in developing countries like Zambia, are likely to be dirtier than rural ones. As stated above, generation of waste is lower in rural areas than in urban areas. This is because waste generation is related to population size and the amount of commercial and industrial activity in an area (Kumar, 2013). Clearly, both population size and commercial/industrial activity are greater in urban than in rural areas. Yoada et al. (2014: para 2) affirm that “an important feature of the urbanisation of the developing world is the rapid growth of cities and metropolitan areas. The high rate of urbanisation in African countries implies a rapid accumulation of refuse.” Furthermore, the IBRD/World Bank (1999) argue that, although very little information is available about waste generation rates in Asian countries, one can assume that rural populations will generate less waste because of their lower per capita incomes. These statements show that waste generation in rural areas is significantly less than in urban areas. Therefore, rural dwellers are likely to live in cleaner and more sanitary environments than urban dwellers. However, it should also be acknowledged that, although urban areas produce more waste, they usually have better waste collection services than rural areas and, because housing units are closer together in urban areas, it is easier and cheaper to provide waste management services than in rural areas where houses are farther apart. According to Hoa (2013), it is less sustainable to provide services in rural areas because of the lower population density. Further, practices of waste disposal are difficult to upgrade in rural areas due to poverty, lack of education and adherence to customs that do not easily fit into the modern world (Thomas-Hope, 1998). Additionally, rural areas also receive the urban garbage – polluted

air, contaminated water, and all sorts of wastes discharged by the cities (Hanlon, 2007). Rural areas are also more distant from government as regulator and provider of services while access to infrastructure and services is limited (largely because of distance, low density and limited capacity to pay) (DANIDA, 2000). All these factors militate against provision of waste management services in rural areas. In this regard, therefore, rural urban areas may need a completely different package of solutions from that which may be designed for urban areas. Alternatively, the emphases for the successful implementation of the KZCH programme may be completely different in the two areas.

Results of the t-test analysis also show a big disparity in knowledge between urban areas and rural areas. This knowledge gap has been a source of concern, raised time and again about information not permeating into the countryside as it does in urban areas. The reason for the gap has been that programme implementers (including NGOs and FBOs) tend to concentrate on providing information to urban areas, neglecting rural areas. Furthermore, urban dwellers have additional sources of information such as newspapers, television and radio (and, of late, the internet). Clearly, there was need to balance up information dissemination about the KZCH programme between rural and urban areas if the programme was going to be implemented in the same way across the country. Thomas-Hope (1998) ascribes lack of proper waste management practices in rural areas to lack of education, that is, lack of information, skills and right values concerning waste management. This finding affirms the need for a viable Environmental Education programme to get information across to the whole breadth of the country.

T-test results were also compared for pro-environmental behaviour between responses given by participants from rural and urban areas. Apart from the use of waste bins where the results showed no significant differences, the rest of the results showed a significant difference in all aspects of pro-environmental behaviour between rural and urban participants. More rural participants indicated that they met all behaviour criteria asked about than urban participants.

Concerning barriers to pro-environmental behaviour, the results varied from one barrier to another. For example, more participants from rural areas attributed the problem of lack of implementation of the KZCH programme to lack of waste bins and waste collection

trucks. The majority of them also felt that the problem was ‘I don’t care’ attitude; that they needed incentives; and that lack of political will was a problem. Furthermore, more rural participants indicated that the problem was lack of money and time. However, the results showed no significant difference between the views of participants from urban and rural areas on the need for role models, although the mean was higher for urban areas. As pointed out above (under knowledge and awareness), rural areas had more challenges when it came to waste management than urban areas. Needless to say that they lacked basic infrastructure (such as bins and waste collection trucks) at the moment, and residents needed to be incentivised in order for them to sacrifice their time to do KZCH work. Time was of paramount importance for rural dwellers because they spent most of their lives trying to find a means of livelihood, which is looking for food and other necessities of life.

With these discrepancies between rural and urban dwellers, it is important for the implementers of the KZCH programme to find a way of working in these various contexts to make the programme succeed.

### **6.5.3 Comparison of responses from low density and high density residential areas**

Comparing responses from participants from low density areas with those from high density areas of Lusaka, the results showed that the participants, whether from low or high density residential areas, indicated that they knew the importance of living in a clean and sanitary environment. The defining factors between the two groups were, therefore, not in whether they knew but, rather, in the factors that they said would help them to participate in the KZCH programme more effectively and efficiently. Because of those differences, the needs of low and high density residential areas in terms of barriers and behaviour change tools were different and should be handled as such by the KZCH programme implementers.

With regard to pro-environmental behaviour, there was a significant difference between low and high density residential areas in reusing, raising issues with local authorities and telling friends about the need to live in clean and sanitary surroundings. In all these cases, more participants from low density residential areas indicated that they performed those actions than participants from high density residential areas. In this regard, therefore, it

can be concluded that people with higher social status and education portrayed more pro-environmental behaviour than those with lower social status and education. This is consistent with Mwiinga's (2014) findings in her study in Choma (see Chapter Three).

On the other hand, there was no significant difference in the responses provided by participants in the two residential area categories concerning minimising waste, using bins, demanding for a paper bag, going shopping with a basket, burning waste, using a rubbish pit to dispose of waste and dumping of waste in undesignated areas. This lack of difference is supported by observations made by a blogger on social media that "*it is not only the humbly educated people but even the so called educated [who are responsible for littering]*". This study concluded that there was no significant difference in responses given by residents of high density residential areas and those from low density residential areas. The knowledge-behaviour gap existed in both groups. In this regard then, both residential area categories may be approached with similar education strategies.

Next, the study compared low and high density residential areas in terms of which barriers they perceived to affect pro-environmental behaviour. The study found that more participants from high density residential areas indicated that they needed incentives and role models than those from low density residential areas. They also attributed lack of effective implementation of the KZCH programme to socio-cultural factors and lack of time and money more than those from low density housing areas. However, both groups indicated lack of waste bins and waste collection trucks, 'I don't care' attitude and lack of political will as problems which were hampering the effective implementation of the KZCH programme. This study concluded that participants from high density residential areas needed more support by programme implementers in terms of providing them with incentives and role models. These participants also thought that they lacked time and resources to take part in the programme and were hampered by socio-cultural factors. This again proves the assertion that the poor spend more time looking for means of survival than on the cleanliness of their surroundings (Mweemba, in press).

## 6.6 Conclusion

This study has argued that while environmental awareness in Zambia had been growing, the commitment to address the issues surrounding waste management by individuals, private sector organisations and government had not been strong enough to produce a real impact. There was, therefore, need for a more vigorous effort by all stakeholders to identify a sustainable waste management agenda which could truly and effectively address the challenge. This called for a paradigmatic shift in the way waste management was viewed and conducted. The argument in this study has been that since the KZCH programme was a multifaceted campaign, it required a multidimensional approach to implement it which could be provided through Environmental Education. As shown in this chapter, the multifaceted campaign would require that the implementers of the programme first build capacity by providing the necessary infrastructure, sensitise members of the general public about the need to dispose of waste properly and then to motivate them through the use of behaviour change tools. Members of the general public should also have been provided with skills, such as recycling, reusing, using appropriate waste bins and so on. Practices which were detrimental to the environment such as open dumping, burying and burning of waste should have been discouraged. Thus, for the programme to succeed, a three-tier approach was required: information about the KZCH programme should have been disseminated, infrastructural support should have been put in place, and people's perspectives, values, attitudes and lifestyles should have been radically transformed, through the employment of behaviour change tools, to promote environmental care and sustainable living. Change would only come when people saw that government was committed to the task and the consequences of a clean and healthy environment were made clear to them. This is the whole essence of Environmental Education: to empower people of all ages and backgrounds to assume responsibility for creating and enjoying a sustainable future (UNESCO, 2001). The next chapter brings all these concerns together into a behaviour change toolkit which may be used to implement the programme.

# CHAPTER SEVEN

## CONCLUSIONS AND RECOMMENDATIONS

### 7.1 Introduction

This chapter summarises the findings of the study and makes recommendations. It also attempts to present the main research findings as answers to the research questions raised in Chapter One. In addition, the chapter indicates how the gap in knowledge that was raised in Chapter three has been filled. The chapter further presents the recommendations of the study and also the theoretical and practical implications of the findings. Suggestions for future research are also made towards the end of the chapter.

### 7.2 Conclusions

A clean and sanitary environment has been reported to be a good avenue for healthy and prosperous living. It is, therefore, important that people engage in activities that ensure clean and sanitary environments. The present study arose from the researcher's concern about the dirty and unsanitary surroundings in the country in spite of the proclamation of the KZCH campaign almost a decade ago. The researcher got interested in the programme because of personal interest in clean surroundings and also the conviction that certain aspects of human development will only take place in clean and healthy conditions.

Beyond the researcher's personal interest, exploring the roots of environmental action has been the preoccupation of many psychologists and sociologists over the last few decades. The pertinent questions have been: Why do people act environmentally and what are the barriers to pro-environmental behaviour? The answers have been very variable and extremely complex. In this study, the same questions have been asked concerning the Keep Zambia Clean and Healthy programme. The concern of this researcher was that the programme has been running for several years now but it has not been able to achieve its goals. This study, therefore, sought to investigate the social-cognitive determinants of pro-environmental behaviour and why the KZCH programme was not performing as

anticipated as well as to show that Environmental Education was relevant to solving the problem of environmental management in the country. The following sub-sections present the main findings and conclusions of the study.

### **7.2.1 Environmental knowledge, values, attitudes and behaviours**

Research question one intended to elicit information on the level of environmental knowledge, values and behaviours that members of the general public have with regard to the KZCH programme. For theoretical underpinning, the study applied the Community-based Social Marketing Theory, the Theory of Planned Behaviour, and the Health Behaviour Model. The study found that the perceived behavioural control was high (76%) just as was the subjective norm (81%). The participants also felt that they were the type of people who would participate in the KZCH programme (78%) and were concerned about environmental issues (77%).

However, results for pro-environmental behaviour showed lower percentages of involvement in the programme. Consistent with earlier studies, this study has established that a gap exists between the possession of environmental knowledge and awareness, on one hand, and displaying pro-environmental behaviour, on the other hand. Although the participants displayed an awareness of knowledge about the need to make and keep environments clean and healthy, they were not taking necessary action to bring about that desired clean and healthy environment. The explanation is that there are many individual, organisational and societal factors impacting on individual and group behaviour. These may serve to prevent individuals from changing and engaging in pro-environmental behaviour, regardless of how appropriately a programme is designed. It is the inter-relationships between these multiple factors and organisational levels that support the argument for a ‘whole systems’ approach to encouraging behaviour change (DEFRA, n.d.). Environmental Education is the pathway to this approach because the discipline considers the environment in its totality and in an interdisciplinary manner.

### **7.2.2 Barriers affecting public behaviour with respect to the KZCH programme**

This study found that the factors or barriers to involvement in keeping Zambia clean, according to the participants rating, were lack of waste bins (or infrastructure) (58%),I

don't care attitude (57%), socio-cultural orientation/perspective (55%), lack of information (53%), lack of incentives (50%), lack of political will (50%), lack of role models (50%), lack of time (48%), and lack of money (43%). The ranking of infrastructure as the number one problem is in agreement with earlier studies which stated that lack of infrastructure was a key challenge in waste management and should be dealt with before other considerations.

### **7.2.3 Behaviour toolkit for the KZCH programme**

With respect to factors which might have influenced public behaviour in relation to the KZCH programme, the participants rated the tools as follows: commitments (79%), feedback (75%), goal-setting (70%), social norms (60%), social diffusion (58%), prompts (54%), and incentives (44%). Literature shows that combining Environmental Education with these tools yield better results than using education in isolation.

The study has also suggested a behaviour change toolkit which could be used in the implementation of the KZCH programme.

### **7.2.4 Theoretical implications of the study**

It can be said that the findings of this study are largely consistent with the theoretical framework presented in Chapter Two. In the first place, this study has established that a knowledge – action gap exists in the implementation of the KZCH programme. It is also clear that lack of socio-economic amenities, human resource, infrastructure, and political will have combined to make the implementation of the programme problematic.

### **7.2.5 Implications for practice**

The findings of this study have practical implications. In the first place, the knowledge-action gap needs to be addressed because it has implications on the implementation of the programme. the lack of knowledge about the existence of the programme by some participants, the lack of engagement in the programme by most of the participants, the presence of various behavioural, institutional and infrastructural barriers, all rallied together to result in lack of implementation of the KZCH programme. These are areas which need attention by the programme implementers.

### **7.3 Recommendations**

Arising from findings of Chapter Five, the main recommendations of this study are presented in the next subheadings.

#### **7.3.1 Using Environmental Education to continuously equipping the audience with awareness and knowledge about the need to keep the environment clean**

There is need to continue using Environmental Education to disseminate information about the causes of dirty environments, the effects of unsanitary surroundings and the role that members of the general public can play to make surroundings clean and healthy. This recommendation is based on the finding that most of the participants (53 %) conceded that there was not much information about the KZCH programme and that people move in and out of an area so that those who received the information may leave and new people come (section 5.3.1 and 5.5.1).

#### **7.3.2 Providing audiences with skills in waste management**

There is need for programme implementers to use Environmental Education to provide target audiences with skills in waste management, such as prevention of waste creation, separation of waste, recycling and proper methods of waste disposal. This recommendation is as a result of the finding that many participants were not practicing pro-environmental behaviour because they lacked skills in waste management (section 5.5).

#### **7.3.3 Changing the audience's attitudes**

There is need for programme implementers to use Environmental Education to help members of the general public to acquire social values, strong feelings of concern for the environment and the motivation for actively participating in bringing about clean and healthy surroundings. In order to effect emotive feelings among the audience, the information provided to them should be value-congruent, that is, appealing to people's beliefs, norms, preferences and attitudes. This addresses the finding that many participants (57 %) agreed that 'I don't care' attitude was responsible for lack of effective implementation of the KZCH campaign (section 5.5.3).

#### **7.3.4 Providing infrastructure**

There is need for programme implementers to use Environmental Education to engage with national and local government officials to provide necessary infrastructure for waste management, such as waste bins and waste collection trucks. The provision of infrastructure should be commensurate with population increase. This will also include funding waste collection companies to enable them procure necessary equipment. It also entails sensitising citizens on the correct use of waste bins. This recommendation arises from the finding that most of the participants (64 %) felt that lack of waste bins and waste collection trucks contributed to lack of effective implementation of the KZCH campaign, that waste collection companies were ill-funded and that residents abused the infrastructure(section 5.5.2).

#### **7.3.5 Enforcement of rules, regulations and fines**

There is need for government and municipalities to enforce rules and regulations governing waste disposal in the country. It is noted that this will require a lot of greater and unwavering political will on the part of government to enforcement of rules and regulations. This recommendation is also premised on the understanding that waste management has succeeded in countries which have imposed stricter rules, regulations, and fines. It also arises from the finding that there is generally lack of political will in the implementation of the programme (section 5.5.5).

#### **7.3.6 Cultivating the spirit of Umuganda**

There is need to cultivate the spirit of working together (Umuganda) – industrial establishments, political parties, NGOs, CBOs, government and members of a general public. There is need for everybody to create time for the purpose of waste management. For example, choosing and enforcing a specific day for clean-up activities. This recommendation arises from the finding that lack of time may contribute to lack of proper implementation of the programme (section 5.5.9).

### **7.3.7 Applying behaviour change tools**

There is need for programme implementers to incorporate behaviour change tools in the administration of the programme. These tools, in their order of importance, are commitment, feedback, goal-setting, social norms, social diffusion, incentives, and prompts. This recommendation is based on the finding that participants indicated that they needed certain behaviour change tools in order to perform environmentally friendly behaviours (section 5.6).

### **7.3.8 Paying attention to the requirements of different socio-economic groups**

The Environmental Education programme should pay attention to the differences in the needs of different socio-economic groups in the country. This recommendation stems from the findings in section 5.7.

### **7.3.9 Addressing the audience both as individuals and as society**

There is need for programme implementers to aim at changing both the individual and society, helping them to develop a sense of responsibility and urgency regarding waste management and helping them to actively participate in preventing and solving the problem of dirty and unsanitary environments in the country. This will involve reaching out to the audience both in-school (formal education) and out-of-school (non-formal and informal education). This recommendation results from the finding that pro-environmental behaviour is desirable at both individual and societal levels (section 5.4). It is also out of the understanding that changing individual and group behaviour is often central to the effective delivery of policy outcomes.

### **7.3.10 Implementing the programme as an on-going and continuous process**

There is need for programme implementers to view and implement the programme as an ongoing and continuous process rather than as a single, sporadic event. This will help to strengthen the target audience's behavioural intentions, that is, their desire to do or not to do a behaviour or action. This recommendation arises from the finding that programme implementers can sustain behavioural intention by ensuring that a programme is continuous. This is because for a behaviour to recur, it should be a high frequency, habitual behaviour, not an infrequent one (subsection 5.3.2b).

#### **7.4 Reflections on the Research Process**

It is important to address the issue of originality of this thesis for two reasons: first, because it is a criterion for assessing the quality of this doctoral research and second, because it ensures that the study has made a significant contribution to the waste management discourse in Zambia.

Concerning originality, this thesis depicts new knowledge levels among Zambians concerning the KZCH programme, as well as their values, attitudes and behaviours. Although literature shows a growing interest in the successes and failures of the KZCH programme (for example, Banda, 2013 and Mwiinga, 2014), this topic is still burgeoning and has not been adequately and conclusively dealt with. This study exposes the gap between knowledge and action among Zambians which must be addressed. It has tested theory and shown that, to a large extent, the foundations of theory have practical applicability to the Zambian context.

Using the mixed methods approach enabled the researcher to elicit both qualitative (knowledge, values, attitudes and behaviour) and quantitative information. This study, therefore, brings in a new element of employing statistics to interrogating a problem which previous studies in the country had not done. This mixed methods approach has yielded results which have challenged the perceived stereotypes, such as that women were more environmentally friendly than men. In this way, the present study is the first of its kind in Zambia and, therefore, its findings have made a noteworthy contribution to the understanding of factors which have made it difficult for the KZCH programme to succeed. The study has also provided insight into what that the implementers of the programme ought to do in order to make the KZCH programme successful.

Lastly, the findings and conclusions of this study are not imposed on the study but reflect the views, understandings and situations of the various participants who took part in the study. Therefore, it can be said that the findings are original and have contributed to the general understanding of the problems and solutions of waste management in Zambia. As pointed out in the chapter on findings of the study, there is an aggressive debate going on

concerning waste management in the country and this thesis effectively contributes to that debate.

## **7.5 Suggestions for Further Research**

It is the belief of this study that not everything pertaining to the problem has been brought out in this single research. Therefore, more needs to be done since no-one study can ever exhaust a topic. This study, therefore, suggests that future research should endeavour to employ the behaviour change tools explained in this report in the field to determine how effectively they can assist behaviour change.

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# APPENDICES

## APPENDIX A: STATUTORY INSTRUMENT NO. 44 OF 2007

*Supplement to the Republic of Zambia Government  
Gazette dated Friday, 29<sup>th</sup> June, 2007*

### GOVERNMENT OF ZAMBIA

STATUTORY INSTRUMENT No. 44 OF 2007

**The Local Government Act**  
(Laws, Volume 16, Cap 281)

### **The Local Government (Street Vending and Nuisances)**

### **(Amendment) Regulations, 2007**

IN EXERCISE of the powers contained in section *eighty-four* of the Local Government Act, the following Regulations are hereby made: Title

- |   |   |
|---|---|
| 1. These Regulations may be cited as the Local Government (Street Vending and Nuisances) (Amendment) Regulations, 2007, and shall be read as one with the Local Government (Street Vending and Nuisances) Regulations, 1992, in these Regulations referred to as the principal Regulations. | S.I. No. 134 of 1992                          |
| 2. The principal Regulations are made by the revocation of the First Schedule and the substitution therefor of the First Schedule set out in the Appendix to these Regulations.   | Revocation and replacement of Firrst Schedule |

### APPENDIX (Regulation 2)

### FIRST SCHEDULE (Regulation 2)

#### PENALTIES FOR STREET VENDING AND NUISANCES

- |  |      |
|--|------|
| 1. Throwing litter on, or along, a street or prescribed road   | 500  |
| 2. Defecating in any unauthorised place  | 2500 |
| 3. Passing urine in any unauthorised place   | 1000 |
| 4. Spitting or vomiting on, or along, a street or prescribed road  | 2500 |
| 5. Singing an obscene song or saying obscene word/words in a street or public place  | 500  |
| 6. Writing an obscene word or drawing an indecent figure or representation or defacing a permanent structure.  | 1500 |
| 7. Wilfully or negligently extinguishing or damaging a street lamp-post, telephone or electric light wire, cable, insulator or bracket or standard supporting any such cable, or causing an interruption in the supply of electric current by means whatsoever, without the permission of the council or its authorised agent. | 2500 |

*Copies of this Statutory Instrument can be obtained from the Government Printer,  
P.O. Box 30136, 10101, Lusaka. Price K1000 each.*

8. Plying trade by any licensed hawker within an area on more than five days in a calendar month, in the same place for more than thirty consecutive minutes or plying on two or more occasions during twenty-four consecutive hours in the same place.	2500
9. Sale of local produce in any street or in any public place, other than a market established by the Council, except with permission of the Council:	
(a) Food	1500
(b) Any other item or produce	1500
(c) Live animals/birds	1500
10. Depositing or allowing to accumulate or keeping upon any premises any dirt, filth, refuse, rubbish or, any offensive matter likely to become offensive.	2500
11. Offering or exposing for sale or depositing in any place for the purpose of sale or preparations for sale and intended for the consumption of man, any animal, carcass, meat, poultry, game, fresh fish, fruit, vegetables, corn, bread, flour, milk, butter, eggs or other food which is diseased or unsound or wholesome or unfit for human consumption.	2500
12. Keeping any of the products in item 11 on one's premises or, owning any such products.	1500
13. Exposing for sale, meat, bread, cakes, cheese, dried fruits, fish, butter or other perishable foodstuffs other than in fly proof containers or in such other manner as the Council, on the advice of the Medical Officer may approve.	1500
14. Occupying any brick yard, quarry, market, garden or other land without any title, lease or licence.	1500
15. Sale, other than sale negotiated between the parties privately, exposure of goods for sale by auction or otherwise within the area, or placing wares, merchandise, ownings or packages or materials of any description in any part of the area used by persons in common without the previous written permission of the Council.	2500
16. Exposing for sale unwrapped bread or unpackaged sugar, salt or any consumable foodstuff.	1500
17. Omitting to do or, doing a thing which may be offensive, dangerous to life.	2500
18. Unauthorised tyre mending along a street or premises, establishing a fee paying car park, car wash, nursery school without the express permission of the Council.	2500
19. Operating unlicensed taxi.	2500
20. Heavy vehicle parking in an authorised place, loading and offloading in undesignated premises.	2500
21. Unlicensed tailoring business along a street premises.	2500
22. Illegal repair, sale of vehicle along a street or premises.	1500
23. Extended parking in any area designated for a limited parking period.	2500
24. Unlicensed tailoring business, hair saloon, sign writing, ntemba, telephone.	1500
25. Public gatherings in residential areas likely to disturb the peace of neighbours e.g. church services, parties playing loud music.	2500
26. Trading in inflammable substances (i.e. fuel) explosives and other toxic substance in an authorised place and manner.	2500
27. Establishing a business place for the purpose of administering herbal medicine along a street or premises without prior permission of the local authority.	1500
(a) Local Herbalists	2500
(b) International Herbalists	2500
(c) Drug stores	2500
28. Forceful entry on a business by the owner after council has executed closure of the said premises.	2500

LUSAKA

S.T. Masebo,

28<sup>th</sup> June, 2007

*Minister of Local Government and Housing*

## **APPENDIX B: PROPOSED BEHAVIOUR CHANGE TOOLKIT**

### **Introduction**

Welcome to the *Behaviour Change Toolkit* for the Keep Zambia Clean and Healthy programme! The toolkit is a resource written for you as implementers of the KZCH programme, and is intended to assist you in developing more effective Environmental Education strategies for implementing the programme. It is designed to help you prepare, plan, implement and evaluate behaviour change initiatives supporting the programme.

The Toolkit addresses the knowledge, values, beliefs, attitudes and behaviours of the general public, who are the audience of the KZCH programme. It has five main parts. The first part looks at the reasons why this Toolkit was developed. The second part addresses the main environmental problems that result from a dirty and unsanitary environment. The third part deals with barriers to effective behaviour change. The fourth part is about the behaviour change tools that you may find useful for the implementation of the programme. The fifth part discusses the pedagogical aspects of implementing the programme, detailing the resources and methods required, as well as aspects of evaluation.

### **Aim of the Toolkit**

The aim of this Toolkit is to help you to plan and execute the campaign programme effectively and efficiently. It is designed to provide you with guidance on how best to plan for, manage, implement and evaluate stakeholder engagement in the programme. It was developed to bridge the gap between knowledge and action.

### **Objectives of the Toolkit**

The objectives of this Toolkit are to help you identify:

- (a) the behaviour which needs to be changed by the KZCH programme.
- (b) the audience or target group for the programme.
- (c) the environmental knowledge, values and skills that are needed to share with the audience.
- (d) the barriers to behaviour change.

- (e) the methods and resources required to implement the programme.
- (f) the behaviour change tools needed to implement the programme.

These objectives are depicted in the model for behaviour change for the KZCH programme presented in Diagram A1.

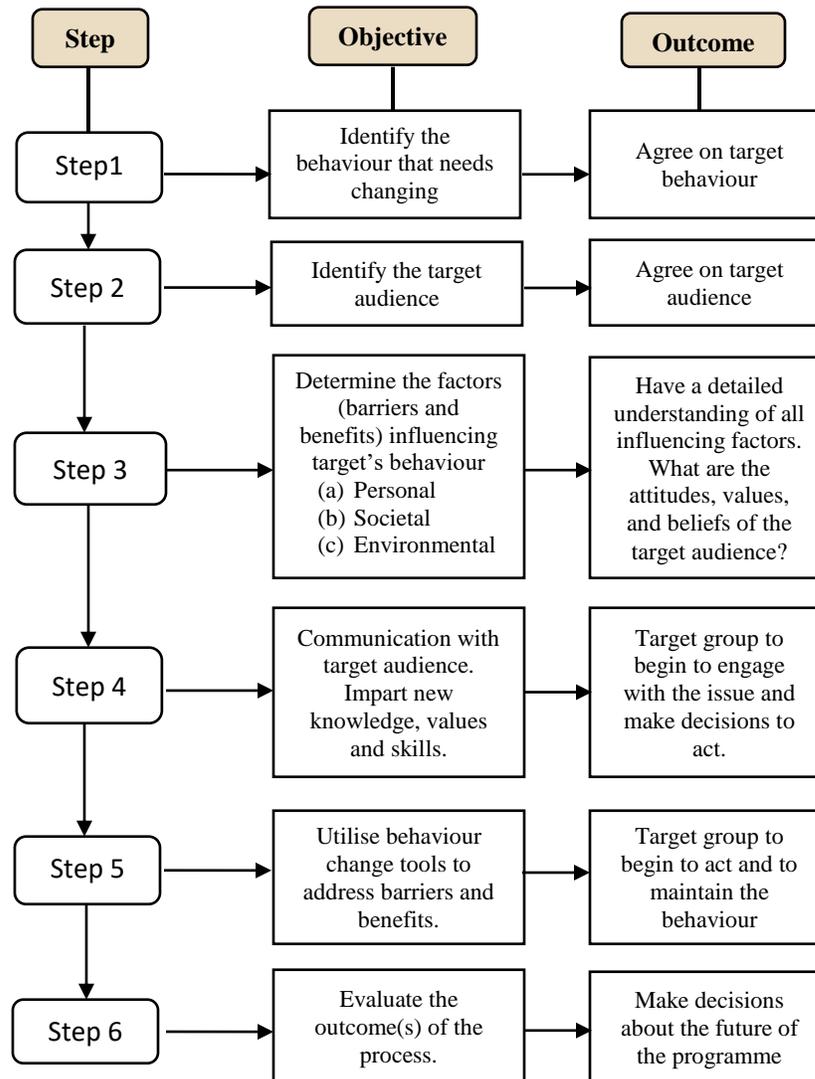


Diagram A1: *Behaviour change model for the KZCH programme*

The sections that follow provide a detailed description of the items in Diagram A1.

## **Identify behaviour which needs changing**

As programme implementer, the starting point for you is to identify the behaviour which needs changing. Some of the pertinent questions that you may ask at this time are as follows:

- (a) What current behaviour needs changing?
- (b) What is the desired behaviour?
- (c) Does the behaviour change involve the target audience starting, stopping, maintaining or preventing?

### ***Current behaviour that needs changing***

In the context of the KZCH programme, the behaviour that needs changing is lack of responsiveness of members of the general public to the implementation of the programme.

### ***Desired behaviour***

The desired behaviour is keeping surroundings clean and healthy so as to ensure healthy and sanitary living.

### ***What does the desired behaviour change involve?***

The desired behaviour change involves getting the target audience *to start* practicing behaviour which helps in cleaning and maintaining clean, healthy and sanitary surroundings.

### ***Activity 1: Identifying the behaviour or situation that needs changing***

As the implementing group, discuss the following issues:

1. What core problem does your campaign seek to address?
2. What are the adverse effects of this problem?
3. What would the situation be without this problem?
4. Do you have resources (time, money, power, etc.) to tackle the problem?
5. What are the benefits of changing the situation?

## **Target audience**

After identifying the problem, the next important step is for you to identify the audience (targets or stakeholders). The following points would help you to identify the audience:

- (a) willingness to support the programme.
- (b) being adversely affected by the issue in question.
- (c) having the power to change the situation.
- (d) being responsible for the problem that has been identified.

The target audience includes local authorities, community leaders, religious leaders, teachers, donors, manufacturers, non-governmental organisations, indigenous populations and opinion formers.

### *Activity 2: Identifying stakeholders: Mapping stakeholders and their relationships*

To identify the target audience, consider the following:

1. entities with a stake in your issue.
2. who creates the problem and who is affected by it.
3. how and why these entities are connected to one another.
4. the interactions among entities that represent what you seek to change.
5. the kind of relationships they have: power, mutual benefits, conflict.

## **Environmental knowledge that needs to be shared with the Audience**

Now that you have identified the target audience, you need to share with them the problem and the knowledge and skills necessary for solving the problem.

### ***Knowledge***

The target audience requires knowledge of the environment and their understanding of the relationship between their own health and the cleanness of the environment. Some of the pertinent questions that you may ask are as follows:

- (a) What kind of environmental knowledge does the audience already have?
- (b) What kind of knowledge do they require?
- (c) Is the audience aware of the need to change their behaviour?
- (d) Is the requirement to change behaviour known to them?

In relation to the KZCH programme, the knowledge that the audience may require falls under the following areas:

- Major environmental problems related to dirty and unsanitary environments, including types of illnesses that result from living in a dirty environment.
- How a clean environment prevents diseases.
- The role of communities in keeping environments clean.

*Activity 3: Environmental knowledge that you need to share with the audience*

Brainstorm on the following question:

What kind of knowledge do you think the audience needs to have in order to effectively participate in the KZCH programme?

Consider the following:

- (a) Knowledge of environmental problems related to dirty surroundings.
- (b) Types of waste.
- (c) Disease burden resulting from a dirty environment.
- (d) Measures to be taken to avoid the problems.

Let us look at each one of these knowledge areas.

*(a) Major environmental problems related to dirty and unsanitary environment*

You may need to make target audience aware of the innumerable environmental problems that affect their wellbeing and that of the wider environment that may result from a dirty and unsanitary environment. Diagram A2 shows diseases that may result from living in dirty and unsanitary environments while Diagram A3 shows the naissances that come from dirty surroundings.

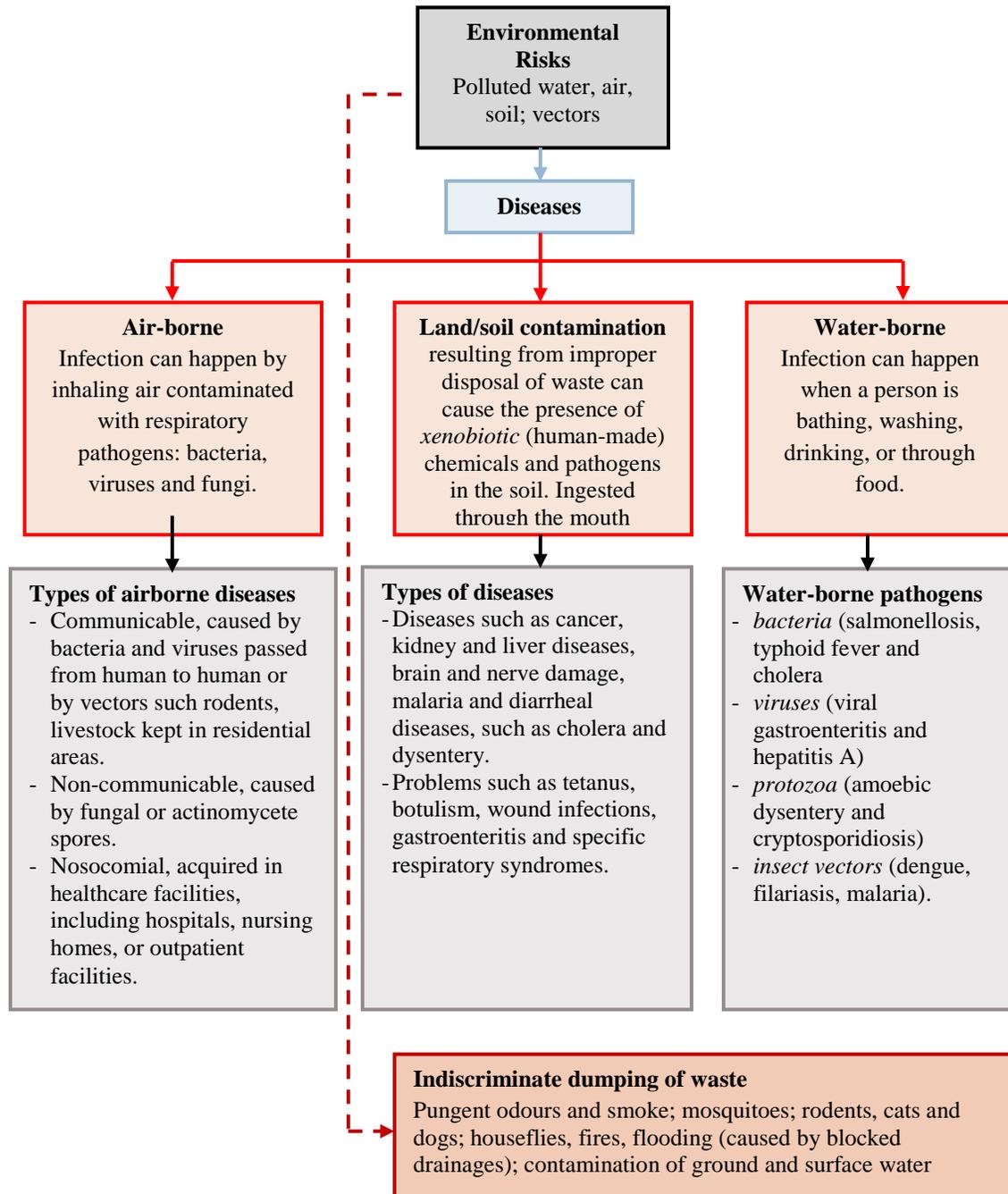


Diagram A2: *Illnesses and nuisances caused by dirty environment*

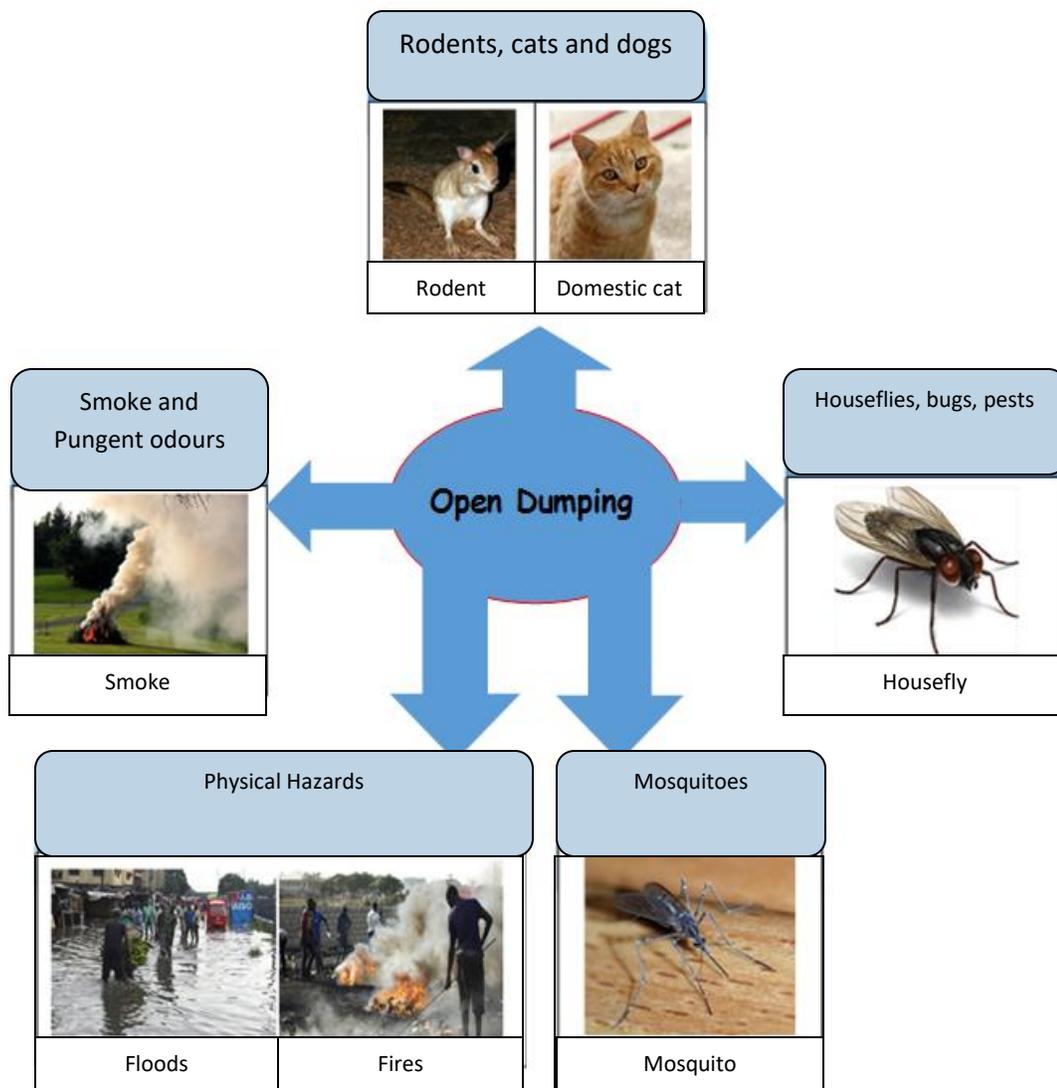


Diagram A3: *Nuisances caused by open dumping.*

### **Preventing Diseases through a Clean Environment**

You should teach the target audience to also know about the benefits of living in a clean environment. The three fundamentals of a civilised society are provision of clean water, provision of food, and removal of waste. For the environment to provide the greatest health protection, you need to teach individual, community and society to:

- (a) isolate the user from their own waste.
- (b) prevent nuisance organisms (such as rodents, flies, cockroaches) from contacting the waste and subsequently transmitting diseases to humans.

- (c) inactivate the pathogens (parasites, worms, bacteria and viruses) before they enter the environment or prevent the waste from entering the environment.

Diagram A4 shows some of the things communities can do to prevent prevalence of diseases in the environment.

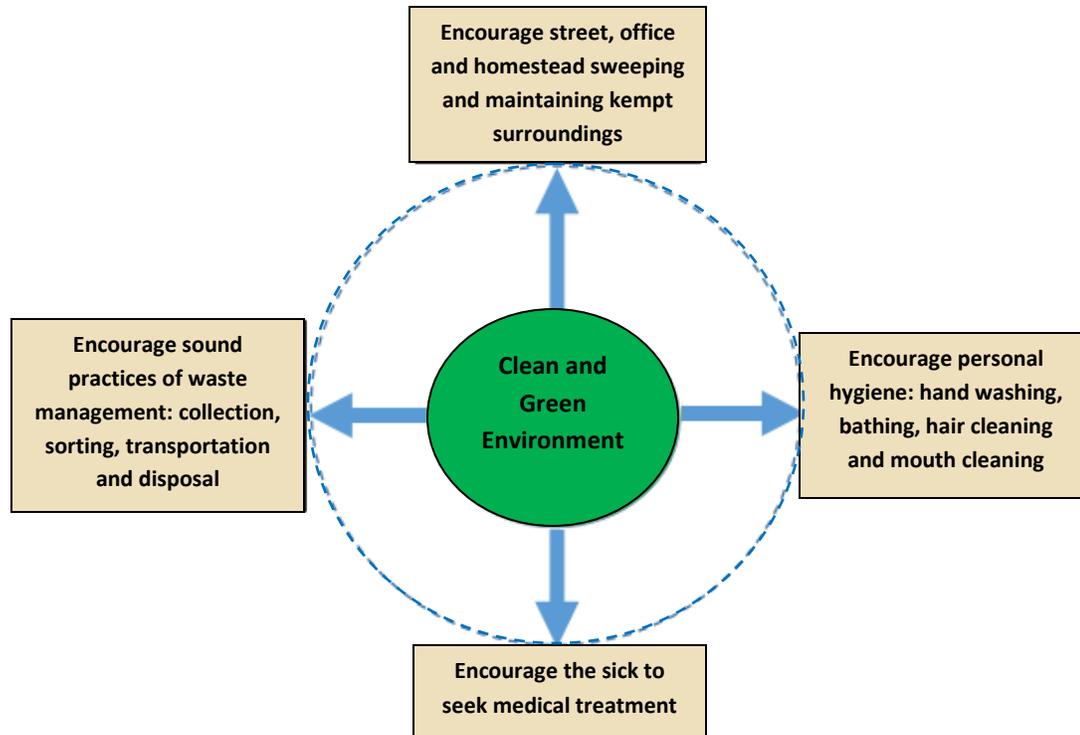


Diagram A4: *Preventing diseases through clean and green environment*

### **Role of communities in keeping Environments clean**

Ensure that individual and communities understand that keeping environments clean is their responsibility. What role can they play in keeping environments clean? Let them participate in keeping the environment clean and healthy by undertaking the following actions:

- (a) Desisting from littering and dumping garbage in undesignated areas.
- (b) Ensuring personal hygiene.
- (c) Taking a key role in sensitising those people who may not have information on the need to keep the environment clean and healthy.
- (d) Co-operating with service providers by paying for waste collection services.
- (e) Getting water from clean and safe sources.

- (f) No open defecation and urinating.
- (g) Insisting that everyone in the neighbour acts responsibly.
- (h) Seeking treatment when unwell.

Diagram A5 shows some of the things that communities can do to live healthy lives.



Hand washing



No littering



Teaching children good health practices



Using clean and protected water



Bathing



No open defecation



Cooperating with others



Declaring sanitation events



Talking and listening to others about need for clean and green environment



Attending clinic when one is sick



Using a toilet and using good methods of waste disposal

Diagram A5: *Keeping clean and healthy is a responsibility of all community members*

Activity 4: Major environmental problems related to dirty and unsanitary environment

Discuss the following questions with your target audience:

1. What types of waste are generated in your community?
2. Identify the commonest methods of disposing of waste in your community.
3. Compare the methods of waste disposal in your community with those used in other communities. What are the advantages and disadvantages of your methods?
4. Identify any diseases or illnesses that are related with the types of waste generated in your community. How could these be prevented?
5. Discuss the things that your community can do to keep the environment in your locality clean and healthy.

**Values and attitudes**

Values are responsible for shaping much of human intrinsic motivation. As such, you need to emphasise the point that, much as individuals are expected to look out for their own welfare, they are also expected to consider what is best for society as a whole. These questions could be asked at target audience’s personal level, social level, and environmental level, as shown in Diagram A6.

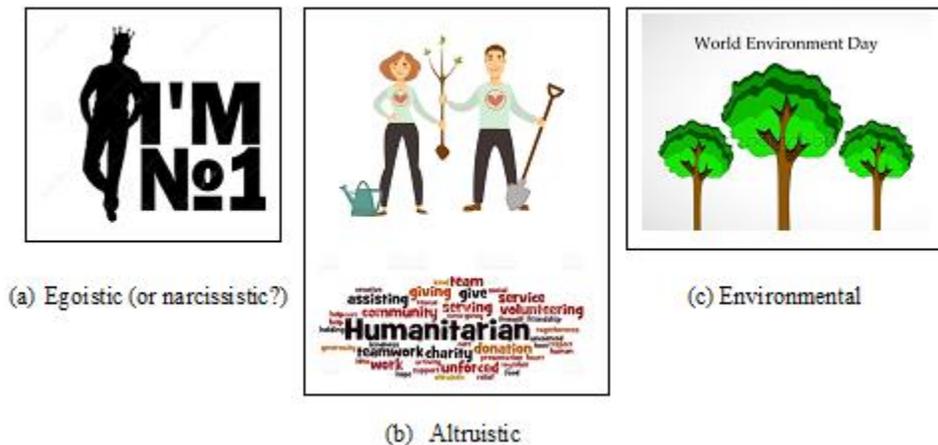


Diagram A6: Three types of values that can support the KZCH programme

At personal level, values are *egoistic* or *self-enhancement*. The following questions are suggested:

- What are the attitudes, values and beliefs of the target audience?
- Is there a gap between attitudes and behaviour?
- Is the behaviour habitual or one-off?
- Are people confident about changing the behaviour?
- If people do change their behaviour, will the outcome be beneficial to them?
- What emotions are involved in the current and desired behaviours?
- What biases/heuristics might be at play?

At social level, values are *altruistic* or *self-transcendent*. The following questions may be asked:

- Is the behaviour in line with or against social norms?
- Is peer pressure likely to be an influence?
- Who will influence them, and how strong will their influence be?

At environmental level, values are *biospheric* and *self-transcendent*. Some of the questions that may be asked are:

- What factors influence the target audience at the local and wider environmental level (infrastructure, access, price/cost, opportunity, services and proximity)?
- How do factors differ across audiences?
- How does their importance vary across different audience groups?

Answering these questions will help you to decide what interventions you ought to undertake.

Activity 6: *Values and attitudes*

Discuss the following questions with your target audience:

1. What values, personal, social, environmental, are prevalent in your community?
2. What values and attitudes are you going to teach the audience? respect – respect for self, for others and for the environment.
3. Are these values a solution to the social dilemma?
4. How are these values influencing pro-environmental behaviour in your area?
5. If the values are not resulting in positive attitude towards the environment, suggest how change can result in more positive values.
6. Can formal and informal sanctioning systems augment values?
7. How are values affected by the audiences' perceptions of costs and benefits of an action?

**Skills**

One of the objectives of Environmental Education is to help individuals and social groups acquire skills for solving environmental problems. Once you have dealt with the target audience's values and attitudes, you may need to move on to dealing with skills. *Skills* are learned abilities to carry out a task with pre-determined results often within a given amount of time, energy, or both. Diagrams A7 and A 8 show some of the skills you may have to teach your audience.

<i>Domain</i>	<i>Competencies Required</i>
1. Waste	• Waste mass balance • landfill management • alternate waste management technologies • quality management • environmental auditing • environmental economics and governance • policy and data analysis
2. Research and Development	• Ethics • data generation and gathering skills, capturing and processing
3. Business/social	• Introduction to business management • entrepreneurial skills • people management skills

Diagram A 7: *Specialised competencies which might be required of a waste management professional*

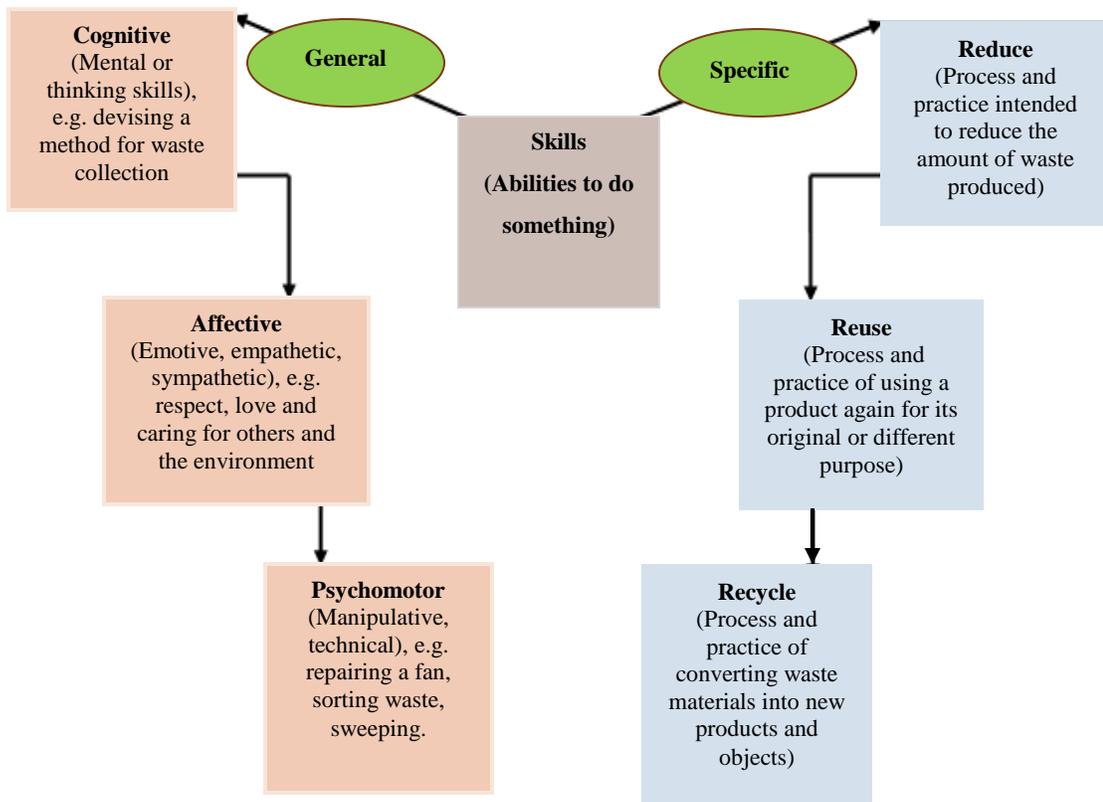


Diagram A8: Skills needed by members of the general public to participate in the implementation of the KZCH programme

### Activity 7: Skills

Discuss the following questions with your target audience:

1. Get the target audience to define the term 'skill'.
2. Find out the skills currently held by the target audience in your community.
3. Are these skills being used to influence pro-environmental behaviour in the area?
4. What new skills does the target audience require to effectively deal with the environmental problems in their area?
5. Does the target audience require waste management skills such as reduce, reuse, recycling, repair and composting?

### Barriers to behaviour change

Once people have known the benefits of a clean and healthy environment, they should honestly change their behaviour and begin to live pro-environmental lifestyles. However, this does not always happen! People have the knowledge and skills but they do not do action. Your task then is to identify the factors (barriers or *situational constraints*) that impede individuals from taking action. Diagram A 9 suggests some of the barriers.

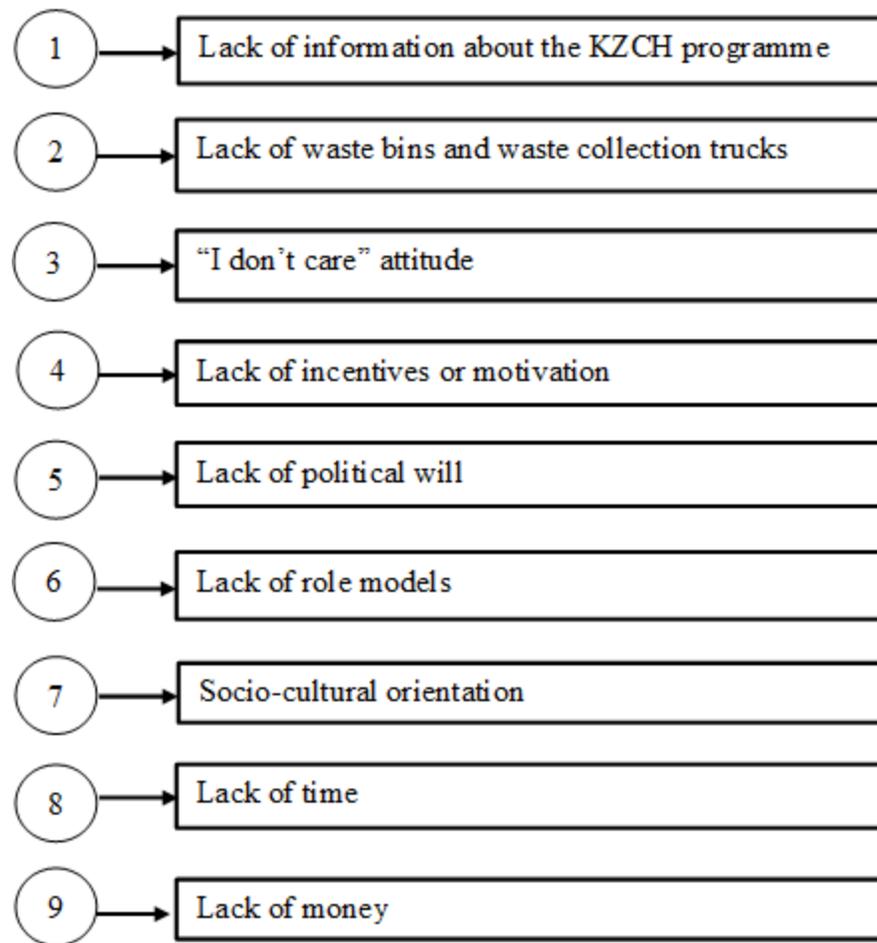


Diagram A9: *Barriers to the implementation of the KZCH programme*

As implementers of the KZCH programme, you need to understand which of these barriers people face in effectively participating in the KZCH programme.

*Activity 8: Barriers*

1. What is the nature of the barriers that people in your area face in effectively implementing the KZCH programme?
2. Design a strategy that utilises information dissemination as well as behaviour change tools to address the barriers.
3. What resources (in terms of infrastructure, capital, technology and human resource) do you need to put together?
4. What pedagogical framework (content, methods, teaching and learning materials, and assessment procedure) are you considering for the programme?

## Resources required to implement the programme

As programme implementers, you may need to provide the following resources:

- (a) *Institutional resources* consist of capital and technology. Lack of capital and access to advanced technologies can jeopardise improvements in waste management.
- (b) *Human resource* (or *human capital*) is the set of individuals who make up the personnel or workforce on the programme. These must be highly qualified and trained members of staff or volunteers.
- (c) *Infrastructure* is the basic physical and organisational structure required to operate the programme; physical networks such as the utilities, waste collection trucks, communication systems, material recovery facilities, dumpsites and waste bins and access roads to waste collection points (hard infrastructure), and non-physical assets, including the governing rules and regulations, the financial system, and the organisational structure (soft infrastructure). Diagrams A 10, A11 and A 12 show some hard infrastructure needed to sweep, collect and transport waste.

<i>Activity</i>	<i>Methods</i>
Sweeping and loading	(a) Shovels and rakes (b) Wheeled scoops (c) Brooms
Collection and storage (Kerbside/curbside bins)	(a) Polythene bags (b) Waste bins (trash cans) (c) Wheelie bins (usually plastic bins that are mobile) (d) Dumpsters or skips (large receptacles similar)
Transportation	(a) Wheelbarrows (b) Handcarts (c) Animal carts (d) Pedal tricycles (e) Motorised tricycles (f) Tractor and trailer systems (g) Light commercial trucks (h) Fore and aft tippers (i) Container-hoist (j) Trains (k) Barges (l) Transfer stations

Diagram A 10: *Equipment needed for waste sweeping, collection and transportation.*

(Source: Adapted from UN-Habitat, 2010: 54)

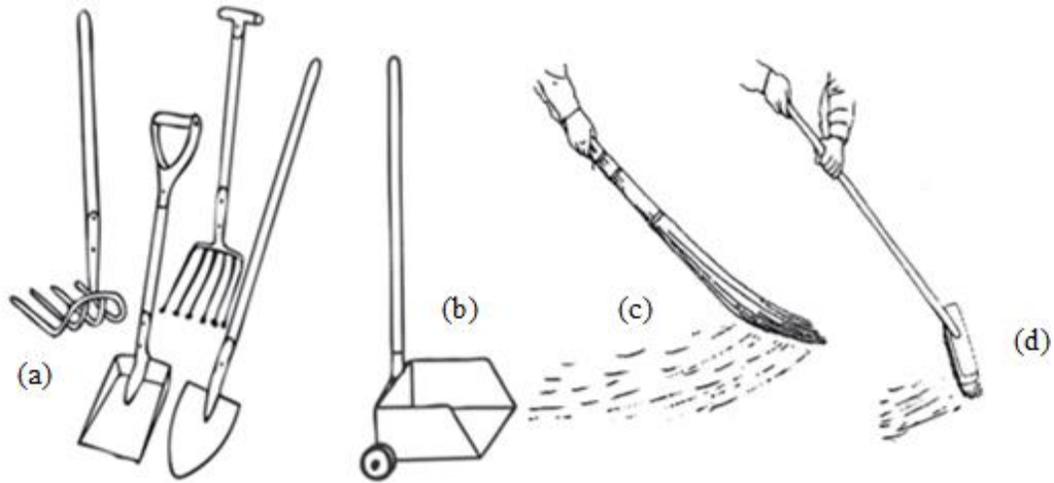


Diagram A 11: *Street sweeping tools - (a) Hand tools (b) Wheeled scoop (c) Bunch broom and (d) Stock broom*

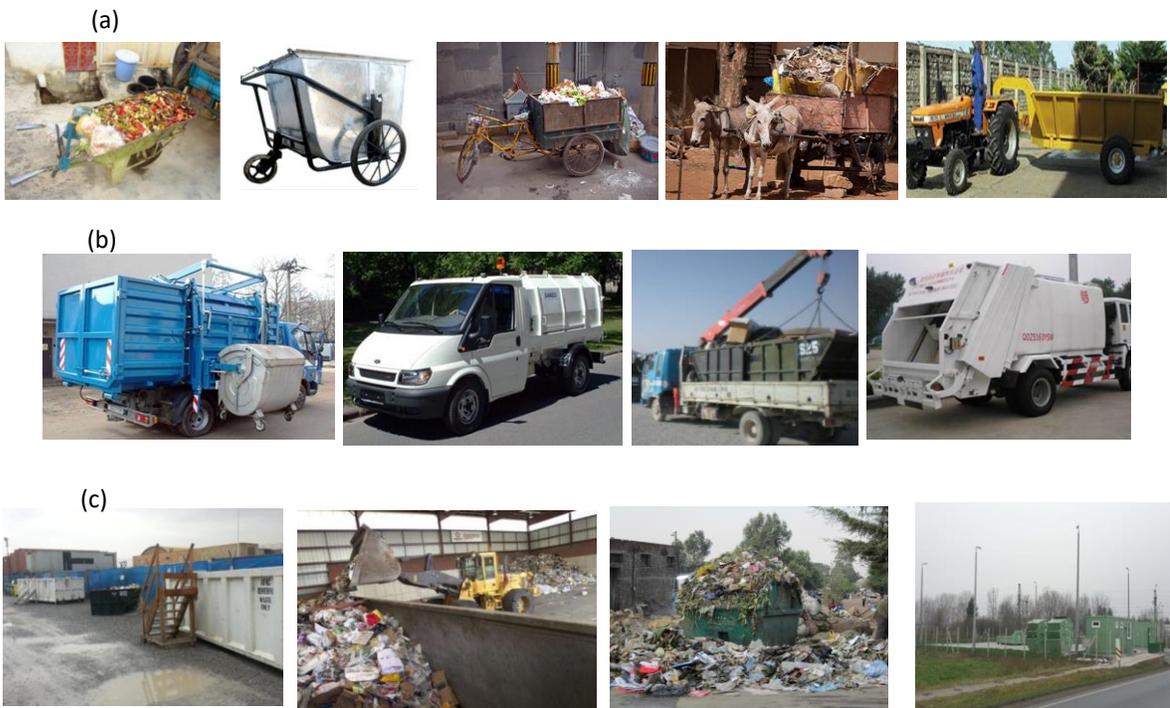


Diagram A 12: (a) *Primary waste collection vehicles - wheelbarrow, handcart, cycle cart, donkey cart, and tractor* (b) *Secondary waste collection vehicles - truck fitted with bin lifter, enclosed light truck, flatbed crane truck, compactor* (c) *Transfer stations – simple transfer station, mechanically loaded transfer station, badly equipped and poorly managed transfer station and a well-designed transfer station.*

## Activity 9 Resources

Discuss the following issues with the target audience:

1. What kind of resources does your community already have?
2. What additional resources does the community need to foster the activities of the KZCH programme?
3. Does your community have sufficient physical infrastructure to effectively implement the KZCH programme?
4. If the answer to question 3 is no, what factors are hindering the acquisition of the infrastructure?
5. How could you overcome these obstacles?
6. Do you need outside help or support?

### **Educational Methodology**

If your Environmental Education programme is to succeed, it must be guided by sound methodology, availability of teaching and learning materials, and a sound assessment procedure. Some of the key issues you need to take note of concerning methodology are that methods should:

- be eclectic since learners learn in a variety of ways. The methods can be lectures, debates, discussions, experiments, role-plays, audio-visual aids and hands-on activities.
- depend on whether the target audience is being contacted as individuals or groups, or whether they are near (face-to-face) or at a distance.
- be designed to increase knowledge, build positive attitudes and values, dispel myths, increase skills and provide support for a clean and healthy lifestyle.
- be selected on the basis of lesson objectives. For example, a lecture is an effective way to increase knowledge but is less effective in influencing beliefs than discussions or debates.
- address environmental issues through a comprehensive, learner-centred approach which does not aim at teaching about the right solutions to environmental issues but at focusing on enabling the learners to construct their own understanding of the issues based on their previous knowledge and acting on them.

- impart practical information that will enable the audience to reduce their exposure to unhealthy environments and create safe and supportive environments.

Diagram A 13 illustrates some of the methods you may use to teach your audience.



Diagram A 13: *Methods that can be used for teaching and learning by the KZCH programme.*

### Activity 10 *Methods and techniques*

Consider your community and target audience and then answer the following questions:

1. On the basis of effectiveness, local relevance, practicality, affordability and acceptability, identify the techniques that will bring about effective learning among your target audience.
2. What methods or combination of methods do you think will work in your community?
3. What challenges are there to using the methods that you have proposed?
4. Do you need outside help or support?

### **Educational Materials and Resources**

Teaching and learning materials make teaching and learning easier. The materials you will use in your programme can be explained in terms of *stimulus mode* and *media*. The mode is the kind of stimulus presented to the learner, for example, written symbols or pictures. The media is the vehicle carrying the stimulus mode, for example, books, posters, flyers, and films.

Diagram A 14 shows the five stimulus modes: human interaction (verbal and non-verbal); realia (real things, people, events); pictorial representation (still and moving images); written symbols (words, figures, etc.); and recorded sound (speech, music, natural noises).

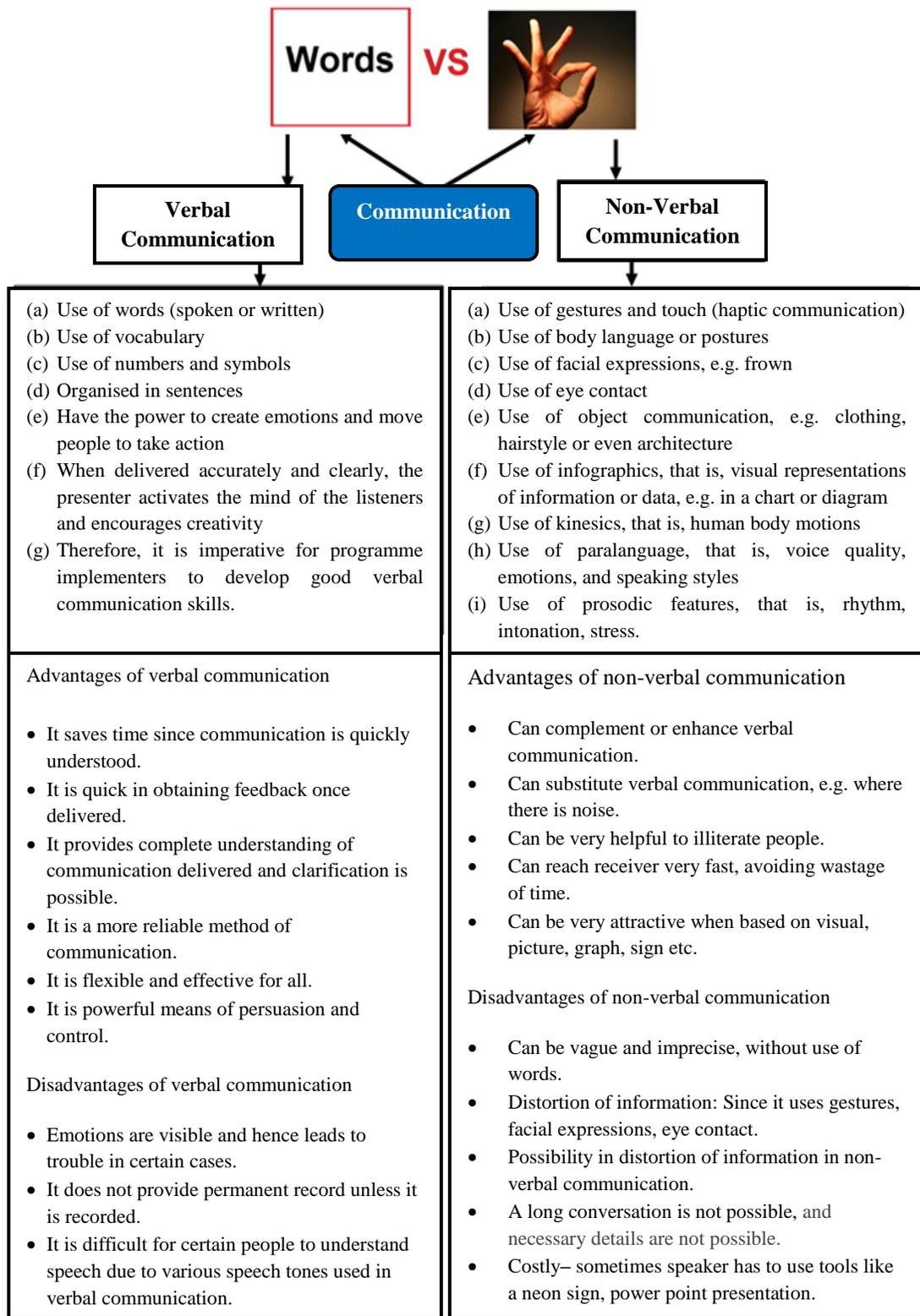


Figure A 14: *Verbal versus non-verbal communication.*

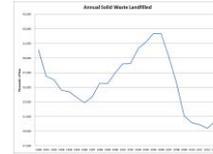
Diagram A 15 shows the media. As you can see, the media include books, posters, fliers, or films.



Chalkboard and Whiteboard



Poster



Chart



PowerPoint presentation

There are several media that you can use to teach Environmental Education, for example pictures, books, posters, fliers, or films.

(a) A chalkboard (also whiteboard) is a multipurpose, reusable writing surface on which text or drawings are made with chalk or other erasable markers.

(b) A poster is a bill or placard displayed in a public place, attached to a wall or vertical surface, often decorated with designs or illustrations, used to generate support for a programme, raise awareness about an event, or inform the public about a community issue.

(c) A sticker is a type of label or a piece of printed paper or plastic with pressure sensitive adhesive on one side.

(d) A chart or graph is a type of information graphic or graphic organiser that represents tabular numeric data (data in table form) and/or functions.

(e) A billboard (or hoarding) is a large outdoor panel for displaying information for the public. It is mostly placed along highways or on the sides of buildings where a lot of people pass. The idea is to capture the attention of passing pedestrians and drivers.

(f) A flip chart is a collection of large pages which are bound together at the top. The pages are 'flipped' or brought up and to the back as they are used.

(g) A map is a visual representation of an area on the earth's surface, drawn on a flat piece of paper and usually to scale, showing how things are related to each other by distance, direction, and size.

(h) A model is a teaching and learning aid which attempts to imitate real objects. It is a representation of reality constructed to explore particular aspects or properties of the real thing. It is, therefore, a simplification of reality.

(i) A flyer is a small handbill advertising an event or product

(j) A textbook treats a subject comprehensively and is used by learners as a basis for study. It may contain pictures, diagrams, and maps which may enhance learning and understanding of the subject matter.



Sticker



Textbook



Billboard



Picture



Flip chart



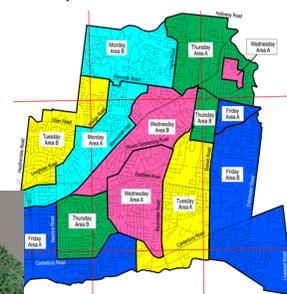
CD



Flyer



Model of a landfill



Map showing waste collection schedules

Diagram A 15: Teaching and learning media

## Activity 11: *Teaching materials and resources*

Considering your situational (locational) context:

1. What teaching and learning aids would you need to support teaching and learning?
2. Which of these aids are readily available in your locality?
3. Which aids can you make yourself?
4. Which aids would you need to bring in from outside?
5. What challenges would you face trying to acquire these aids?
6. Who do you think can help you to procure these aids?
7. Do you have the competence or know-how to use technological equipment such as LCD projectors, computers, and film projectors?

## Tools for implementing a KZCH programme

Alongside Environmental Education, you can employ behaviour change tools. You may find the tools shown in Diagram A 16 useful in your implementation of the KZCH programme.

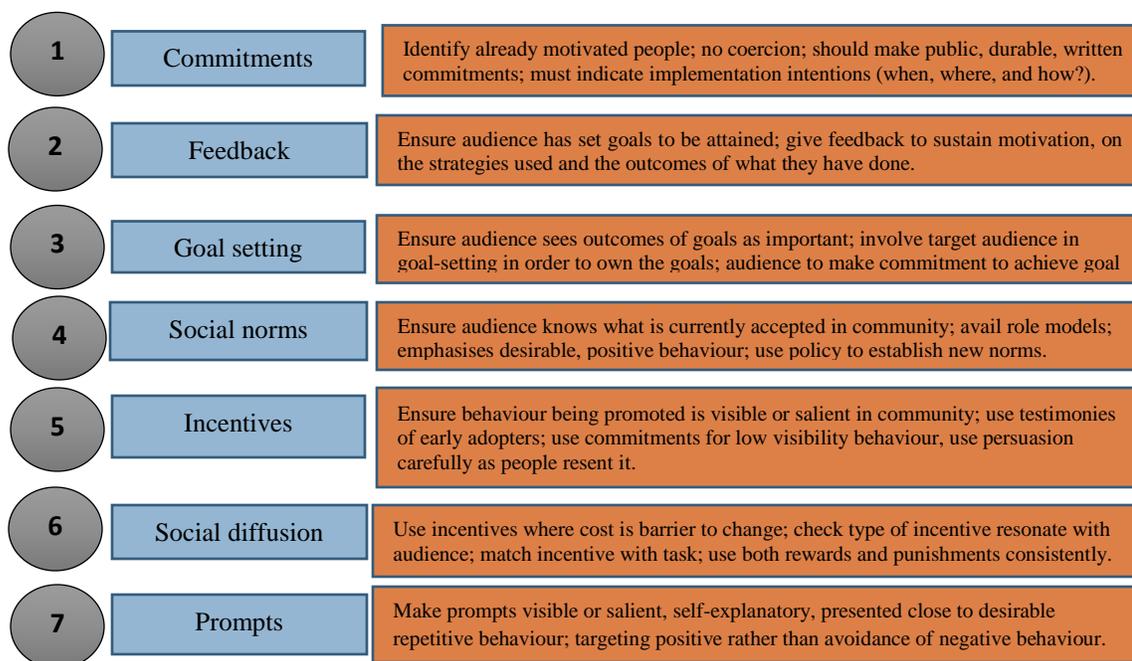


Diagram A 16: *Behavioural change tools for the KZCH programme.*

Activity 12: Tools for the implementation of the KZCH programme

Answer the following questions in consultation with your target audience.

1. Find out from the target audience what behaviour change tools they would require to effectively take part in the KZCH programme.
2. Rank the tools in their order of importance, as stated by the target audience.
3. Implement the tools according to their order of importance.

### Assessment in the programme

Assessing the programme is one thing you do as the programme progresses and after you have completed it. The reason for assessment is to gauge the success of the programme – the content taught, the methods used and how the teaching and learning was done. Assessments should provide you with evidence of how well the learners have learned what was intended for them to learn. For the KZCH programme, assessment should focus on changes in the wellbeing of communities in terms of the cleanliness of the environments in which they live. The central question would be: ‘what would have happened to the people if the intervention had not taken place’? Types of assessment are shown in Diagram A 17.

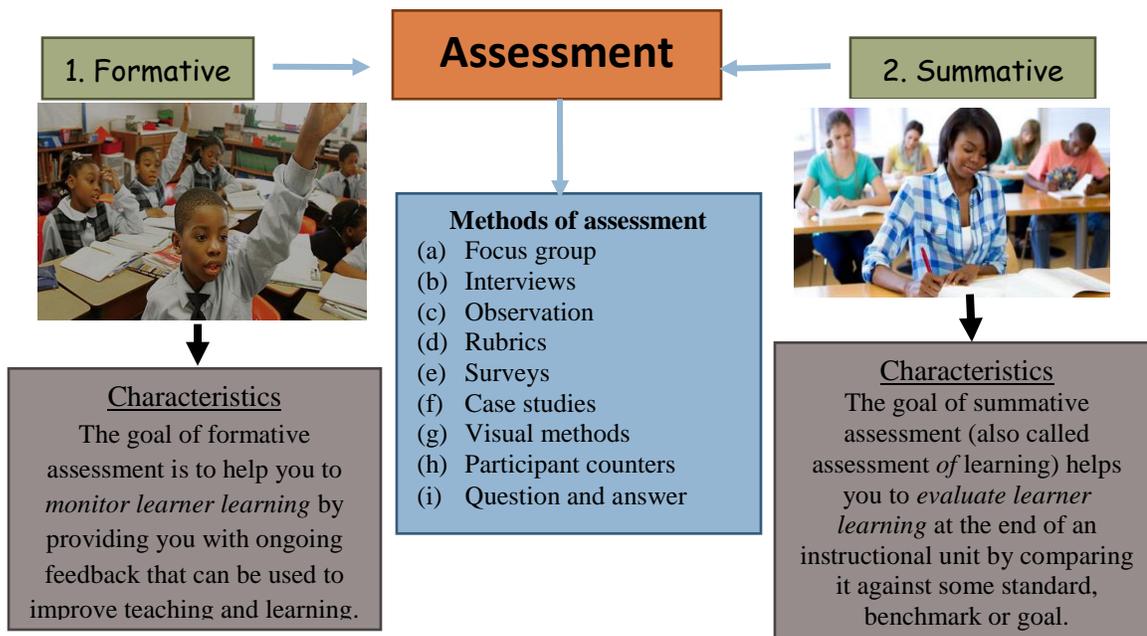


Diagram A 17: Types of assessment.

### Activity 13: Assessing the programme

1. Decide on the method(s) you are going to use to evaluate your programme.
2. What is the success or failure rate of the programme?
3. What remedial measures are you going to take to correct the situation in case of failure?
4. How are you going to proceed in case of success?

### **Conclusion**

Thank you for using this Toolkit. I hope you have found it useful for your kind of work. The information provided in the Toolkit is very useful for any individual or organisation interested in planning, changing or implementing a waste management system (or any other environmental programme) in a city, region or country. The Toolkit has shown that environmental management is a multi-dimensional issue. Therefore, for a programme such as the KZCH campaign to address waste management effectively, it will require a lot of considerations: technological, environmental, socio-cultural, legal, institutional and economic. All these aspects should be attended to, to enable the overall system to function. You, therefore, need to pay unequivocal attention to all these dimensions.

## APPENDIX C: QUESTIONNAIRE

**Questionnaire ID Number** *(for official use only):*

### Instructions

Many questions in this survey make use of rating scales. Kindly tick the number that best describes your opinion.

In making your ratings, please remember the following points:

- \* Be sure to answer all items – do not omit any.
- \* Never circle more than one number on a single scale, unless requested to do so.

Some of the questions may appear to be similar, but they do address somewhat different issues. Where box spaces are provided, please write your responses in there.

Please read each question carefully.

### General Information

*Demographic factors:*

Age:

Please insert your age in the box space below:

Gender:

Male	1	2	Female
------	---	---	--------

Level of education:

Primary school	1
Secondary	2
College	3
University	4

Occupation:

Please indicate your occupation in the box space below:

--

Urban/Rural:

Urban	1	2	Rural
-------	---	---	-------

**Theory of Planned Behaviour and self-identity in relation to the Keep Zambia Clean and Healthy programme**

*Perceived behaviour control*

1. At the moment, how easy do you find it to participate in the Keep Zambia Clean and Healthy programme?

Very easy	1	2	3	4	Not easy at all
-----------	---	---	---	---	-----------------

*Subjective norm*

2. Does anyone you know (friend, family member or colleague) participate in the programme?

Yes	1	2	No
-----	---	---	----

3. How much influence do people you know (e.g. family members, friends or colleagues) have on your decision to participate in the programme?

Very influential	1	2	3	4	No influence
------------------	---	---	---	---	--------------

4. In general, what do you think your family's, friends' or colleagues' views would be of you participating in the programme?

Very favourable	1	2	3	4	5	Very unfavourable
-----------------	---	---	---	---	---	-------------------

*Behavioural intention*

5. If you are not participating now, do you think you will participate in the future?

Definitely will	1	2	3	4	Definitely won't
-----------------	---	---	---	---	------------------

6. If you are participating now, do intend to continue participating into the future?

Definitely will	1	2	3	4	Definitely won't
-----------------	---	---	---	---	------------------

*Off-setting identity*

7. I am not the type of person who would take part in the programme.

Agree	1	2	3	4	5	Don't agree
-------	---	---	---	---	---	-------------

8. I am the type of person who would take part in the programme.

Agree	1	2	3	4	5	Don't agree
-------	---	---	---	---	---	-------------

*Past behaviour*

9. Have you ever taken part in the Keep Zambia Clean and Healthy campaign?

Yes	1	2	No
-----	---	---	----

**Pro-environmental values and self-identity**

10. I think of myself as an environmentally-friendly consumer.

Strongly agree	1	2	3	4	5	Strongly disagree
----------------	---	---	---	---	---	-------------------

11. I think of myself as someone who is very concerned with environmental issues.

Strongly agree	1	2	3	4	5	Strongly disagree
----------------	---	---	---	---	---	-------------------

12. I would be embarrassed to be seen to have an environmentally friendly lifestyle (scoring reversed).

Strongly agree	1	2	3	4	5	Strongly disagree
----------------	---	---	---	---	---	-------------------

13. I would not want my family or friends to think of me as someone who is concerned about environmental issues (scoring reversed) 5-point agreement scale.

Strongly agree	1	2	3	4	5	Strongly disagree
----------------	---	---	---	---	---	-------------------

14. Please indicate the last time you took this action (if at all):

(a) Recycling or reuse

Never	0	5 or more years ago	1	1-3 years ago	2	In the last year	3
-------	---	---------------------	---	---------------	---	------------------	---

(b) Using a trash bin to discard garbage

Never	0	5 or more years ago	1	1-3 years ago	2	In the last year	3
-------	---	---------------------	---	---------------	---	------------------	---

(c) Demand for a paper bag instead of a plastic bag

Never	0	5 or more years ago	1	1-3 years ago	2	In the last year	3
-------	---	---------------------	---	---------------	---	------------------	---

(d) Telling friends and family members about need to keep environment clean

Never	0	5 or more years ago	1	1-3 years ago	2	In the last year	3
-------	---	---------------------	---	---------------	---	------------------	---

(e) Burning garbage

Never	0	5 or more years ago	1	1-3 years ago	2	In the last year	3
-------	---	---------------------	---	---------------	---	------------------	---

(f) Using a rubbish pit to discard garbage

Never	0	5 or more years ago	1	1-3 years ago	2	In the last year	3
-------	---	---------------------	---	---------------	---	------------------	---

(g) Throwing garbage on a garbage heap in an undesignated area

Never	0	5 or more years ago	1	1-3 years ago	2	In the last year	3
-------	---	---------------------	---	---------------	---	------------------	---

(h) Raising the issue of cleanliness with local leaders (e.g. ward councilors)

Never	0	5 or more years ago	1	1-3 years ago	2	In the last year	3
-------	---	---------------------	---	---------------	---	------------------	---

(i) Reduce waste production

Never	0	5 or more years ago	1	1-3 years ago	2	In the last year	3
-------	---	---------------------	---	---------------	---	------------------	---

15. Please indicate how often you take each action

(a) Reuse or repair items instead of throwing them away

Never	0	Occasionally	1	Often	2	Always	3
-------	---	--------------	---	-------	---	--------	---

(b) Use a trash bin to discard garbage

Never	0	Occasionally	1	Often	2	Always	3
-------	---	--------------	---	-------	---	--------	---

(c) Demand for a paper bag instead of a plastic bag

Never	0	Occasionally	1	Often	2	Always	3
-------	---	--------------	---	-------	---	--------	---

(d) Go shopping with a shopping basket

Never	0	Occasionally	1	Often	2	Always	3
-------	---	--------------	---	-------	---	--------	---

(e) Tell friends, colleagues and family members about need to keep environment clean

Never	0	Occasionally	1	Often	2	Always	3
-------	---	--------------	---	-------	---	--------	---

(f) Burn garbage

Never	0	Occasionally	1	Often	2	Always	3
-------	---	--------------	---	-------	---	--------	---

(g) Use a rubbish pit to discard garbage

Never	0	Occasionally	1	Often	2	Always	3
-------	---	--------------	---	-------	---	--------	---

(h) Throw waste on a garbage heap in an undesignated area

Never	0	Occasionally	1	Often	2	Always	3
-------	---	--------------	---	-------	---	--------	---

(i) Raise the issue of cleanliness with local leaders (e.g. ward councilors)

Never	0	Occasionally	1	Often	2	Always	3
-------	---	--------------	---	-------	---	--------	---

(j) Reduce waste production

Never	0	Occasionally	1	Often	2	Always	3
-------	---	--------------	---	-------	---	--------	---

### **Knowledge, Attitudes and Perceptions in relation to Keeping the Environment Clean and Healthy**

#### *Personal importance of a clean and sanitary environment*

16. How important is the issue of keeping the environment clean and healthy? (4-point scale from 'very important' to 'not at all important').

Very important	1	2	3	4	Not important at all
----------------	---	---	---	---	----------------------

#### *Perceived risk from unclean and unhealthy environment*

17. Do you think a dirty and unsanitary environment is something that is affecting your personal wellbeing?

Yes	1
No	2
Don't know	3

#### *Self-assessed knowledge about the Keep Zambia Clean and Healthy programme*

18. How much do you know about the programme?

A lot	1	2	3	4	5	Nothing, have never heard of it
-------	---	---	---	---	---	---------------------------------

*Socio-economic and political factors that affect behaviours of the public with respect to the Keep Zambia Clean and Healthy programme*

19. Which of the following do you think contributes to lack of environmentally friendly behaviour in Zambia?

(a) Lack of information about the Keep Zambia Clean and Healthy programme

Strongly agree	1	2	3	4	5	Strongly disagree
----------------	---	---	---	---	---	-------------------

(b) Lack of waste bins and garbage collection trucks.

Strongly agree	1	2	3	4	5	Strongly disagree
----------------	---	---	---	---	---	-------------------

(c) I don't care attitude

Strongly agree	1	2	3	4	5	Strongly disagree
----------------	---	---	---	---	---	-------------------

(d) Lack of incentives/motivation

Strongly agree	1	2	3	4	5	Strongly disagree
----------------	---	---	---	---	---	-------------------

(e) Lack of political will

Strongly agree	1	2	3	4	5	Strongly disagree
----------------	---	---	---	---	---	-------------------

(f) Lack of role models

Strongly agree	1	2	3	4	5	Strongly disagree
----------------	---	---	---	---	---	-------------------

(g) The problem is socio-cultural

Strongly agree	1	2	3	4	5	Strongly disagree
----------------	---	---	---	---	---	-------------------

(h) Lack of time

Strongly agree	1	2	3	4	5	Strongly disagree
----------------	---	---	---	---	---	-------------------

(i) Lack of money

Strongly agree	1	2	3	4	5	Strongly disagree
----------------	---	---	---	---	---	-------------------

(j) The problem is psychological (e.g. why is there no time?)

Strongly agree	1	2	3	4	5	Strongly disagree
----------------	---	---	---	---	---	-------------------

20. Indicate if you will need the following in order to perform an environmentally friendly behaviour:

(a) Commitment

(Making promises to adopt environmentally friendly behaviour)

Yes	1	2	No
-----	---	---	----

(b) Social diffusion

(Adopting an environmentally friendly behaviour because your family, friends and colleagues have adopted it)

Yes	1	2	No
-----	---	---	----

(c) Goal-setting

(Agreeing on an environment related goal with an environmental educator)

Yes	1	2	No
-----	---	---	----

(d) Social norms

(Adopting an environmentally friendly behaviour because it is the common behaviour within your community)

Yes	1	2	No
-----	---	---	----

(e) Prompts

(A reminder in case you have forgotten to adopt/practice an environmentally friendly behaviour)

Yes	1	2	No
-----	---	---	----

(f) Incentives

(A reward when you perform an environmentally friendly behaviour)

Yes	1	2	No
-----	---	---	----

(g) Feedback

(Getting an updated information about your environmental behaviour)

Yes	1	2	No
-----	---	---	----

**Thank you for completing this questionnaire**

## **APPENDIX D: INTERVIEW GUIDE FOR COUNCIL AND MINISTRY OFFICIALS**

1. What is the KZCH programme?
2. What methods have you been using to sensitise/educate members of the general public?
3. Have these methods been effective/successful?
4. If yes, how?
5. If not, why?
6. What have been the levels of participation of members of the general public?
7. How many franchise contractors are operating in this town?
8. If you have franchise contractors, how successful have they been?
9. Have you used behaviour change tools such as incentives, goal-setting and others?
10. Do you think the residents have received enough information about the KZCH programme?
11. How can you make people begin to think that a clean environment is important?
12. Make a comment on the following:
  - (a) The I don't care attitude by the people
  - (b) Political will by people in power
  - (c) Role models in our communities
  - (d) Socio-cultural perspectives in our societies
13. Any other comment.

**Thank the participants**

## **APPENDIX E: INTERVIEW GUIDE FOR FRANCHISE CONTRACTORS**

1. What is the KZCH programme?
2. What is your role in the programme as a franchise company?
3. What challenges are facing?
4. How many trucks and compactors do you have?
5. What other equipment do you have?
6. Do you provide bins to your clients?
7. Have you ever thought about recycling or waste recovery?
8. What solutions can you suggest for the challenges you indicated in Question 3?
9. Any other comment.

**Thank the participants**

**APPENDIX F: LIST OF WASTE MANAGERS FOR LUSAKA**

<i>SN</i>	<i>NAME OF WASTE MANAGER</i>	<i>AREA OF OPERATION</i>
1.	LCC-WMU	CBD, Part of Industrial Area, Villa, Thorn Park and Kamwala
2.	Cleanfast Limited	Roma and surrounding areas, Olympia,
3.	Twin Care	Chelstone and Avondale
4.	Citi Mop	Makeni, Northmead, Rhodes Park, Longacres
5.	Catrone	Part of Industrial Area, Nyumba Yanga, Kabulonga, Woodlands
6.	G.L. Carriers	Ridgeway, Kabwata Estates, Madras, UTH
7.	ACKA Foods	Chilenje, Chilenje South, Part of Chalala
8.	Cherishes Clean Care	Ibex Hill, Salama Park, UNZA area, Handsworth
9.	Zoomlion	Kamwala, Kamwala South, Kabwata Site and Service, Libala Site and Service, Waterworks