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Perceptions of sanitation structures among poor populations in Lusaka, Zambia: A qualitative study

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Abstract

Title: Perceptions of sanitation structures among poor populations in Lusaka, Zambia: A qualitative study**.**

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Key words: Sanitation, peri-urban, flush toilet, perception, behavior

Only 40% of Zambia's population has access to improved sanitation facilities. The remaining 60% (mostly people residing in peri-urban areas) share or use unimproved facilities; with others still practicing open defecation. 96% of Kalingalinga households use unimproved pit latrines. The Kalingalinga sanitation project was targeted at improving sanitation access to over 5,000 households through the construction of a condominial sewerage network. The first part of the project comprised of 156 households who are the main target for this research.

The purpose of this research was to explore the households' views about constructing their own flush toilets and connecting them to the sewerage network. The Psychological theories of social cognitive theory, theory of reasoned action and theory of planned behavior were employed to explain and understand respondents' perceptions and behavior.

13 semi-structured interviews and three focus group discussions (one each for women, men and combined men and women) were conducted. In total, 32 respondents participated in the study.

Major findings reveal respondents' lack of trust in the new sewerage network, affordability, dependency on husband or children to fund toilet construction, lack of prioritizing flush toilets and multiple households as perceived hindrances behind respondents' failure to construct their own flush toilets. However, findings also reveal that respondents had better understanding of health benefits of having flush toilets as sanitation facilities compared to pit latrines.

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Dedication

I dedicate this research paper to my husband Mr. Chanda Chibwe and my children Natasha Ruth Chibwe and Nkumbu Enoch Chibwe. You are special to me.

List of abbreviations

GRZ	Government of the Republic of Zambia
WHO	World Health Organization
UNICEF	United Nations Children Emergency Fund
UNDP	United Nations Development Programme
WSP	Water and Sanitation Program of the World Bank
LWSC	Lusaka Water and Sewerage Company Limited

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"Because human faeces can carry 50 communicable diseases, they are an efficient weapon of mass destruction. Half of the hospital beds in Sub-Saharan Africa are filled with people suffering from what are generally known as water-related diseases. Actually they are shit-related diseases" (George 2009, p.1)

1. Introduction

I sat one day and started contemplating on the sanitation challenges in Zambia. It would be that as Head Sanitation at my place of work, I flood my mind with thoughts of how possible Zambia would achieve the target of universal access to adequate sanitation by 2030. Is it a mere pipe dream or achievable someday? How is that possible in an era where water supply always overshadowed sanitation? As I continued to ponder on the possibilities of achieving this rather ambitious target, I was awaken to the realities of what has been done so far in Lusaka in an effort to bring sanitation at people's doorsteps in one of the compounds in Lusaka Province. What strike me was that despite the government of the Republic of Zambia (GRZ) through Lusaka Water and Sewerage Company (LWSC) having brought accessible sanitation by constructing a waterborne sewerage network in Kalingalinga phase one project area, most households have not benefited from it. I therefore wanted to explore the reasons behind peoples' reluctance to constructing their own toilets and connecting to this sewerage network. Failure to discover such reasons would be detrimental to future sanitation projects' implementation and sustainability. I would therefore argue that access to improved sanitation is all about households making decisions and choices to change their current sanitation facilities; in the case of Kalingalinga, to construct flush toilets and connect them to the sewerage network. People have to make choices to invest in flush toilet construction and connection in spite of competing priorities and setbacks. Zambia's attainment of universal improved sanitation access for all by 2030 hinges on people making decisions and choices to change their current sanitation status. Universal access to adequate sanitation coverage for all has to incorporate approaches that would empower people to make informed decisions and choices at household level to move up the sanitation ladder regardless of challenges around them. Improved sanitation facilities at household level reduces the risk of contracting and spreading diarrhea diseases through the oral-fecal route which has been the number one cause of morbidity and mortality especially among children under five years old (Skolnik, 2012; WHO, 2004; George, 2009).

1.1. Definition of terminologies

Before I go any further, it is important to define the terminologies to be used in this thesis for common understanding purposes.

Sanitation: Sanitation has a broader definition meaning different things to different people depending on the perspective one would approach the subject from. The simple definition of sanitation is provided by the Meriam Webster (2016)[1] online dictionary which defines sanitation as "the process of keeping places free from dirt, infection, disease, etc., by removing waste, trash and garbage, by cleaning streets, etc". It also defines sanitation in specific terms as "the promotion

[1] Definition of sanitation available on http://www.merriam-webster.com/dictionary/sanitation

of hygiene and prevention of disease by maintenance of sanitary conditions (as by removal of sewage and trash)" (Ibid). The World Health Organization (WHO) states that

> Sanitation generally refers to the provision of facilities and services for the safe disposal of human urine and faeces. Inadequate sanitation is a major cause of disease world-wide and improving sanitation is known to have a significant beneficial impact on health both in households and across communities. The word 'sanitation' also refers to the maintenance of hygienic conditions, through services such as garbage collection and wastewater disposal" (WHO, 2016)[2].

My working definition for sanitation in this thesis is in line with the WHO's first part of the definition, but I will add that sanitation is the safe collection, transportation and disposal of human urine and faeces through provision of facilities and services to make this possible. Sanitation is more than constructing toilets and laying a sewerage network to collect and dispose of human waste, but it is also about promotion of safe hygiene practices aimed at maximizing the benefits that goes with such facilities.

In summary, sanitation shall be referred to as the use of a flush toilet to dispose of human waste through the conveyance of a sewerage network. It shall also mean the practicing of good hygiene practices such as washing hands with soap after using the toilet. To enable this, every toilet is to have a hand washing facility. Sanitation encompasses facilities and services to hygienically dispose of human waste so that there is no contact with people at household level.

Improved sanitation: In line with this research, improved sanitation shall imply a flush toilet connected to the sewerage network and has a hand washing facility. A household will be considered as having improved sanitation upon having constructed a flush toilet and connecting it to the sewerage network.

Adequate sanitation: Adequate sanitation shall imply a flush toilet accessible by all ages and is within reach and secure especially for women and girls. Adequate sanitation is one that is gender responsive to the needs of men and women, boys and girls, and the physically challenged.

Sanitation ladder: Sanitation ladder is a hierarchy of sanitation facilities with the pit latrine at the bottom and flush toilet connected to the sewerage network at the very top (WHO, 2008). It is expected that households should be assisted to move from one sanitation level to another and should aspire to reach the ultimate stage of having flush toilets. The most basic sanitation level movement is from using open defecation to pit latrine.

Toilet: A flush toilet constructed and connected to the sewerage network and it has a hand washing facility. Where a toilet is not a flush toilet, it shall be referred to as a pit latrine.

Gender: Gender shall be defined as "socially constructed roles, behavior, activities and attributes that a particular society considers appropriate and ascribes to men and women" (WSP, 2010, p.9). In this research, gender has been restricted to apply to practical aspects that have the potential to enhance or inhibit access to improved sanitation products and services, such as participation,

[2] WHO definition for sanitation available on http://www.who.int/topics/sanitation/en/

decision making power, acknowledgment and recognition of the special needs for men and women when designing any sanitation facilities, among others. Gender as used in this research shall not be attributed to any feminist theories because access to improved sanitation is a right for every human being.

Gender mainstreaming: This is defined as "the process of assessing the implications for women and men of any planned actions so that women and men benefit equitably" (Commission on Social Determinants of Health – CSDH, 2008, p.148). Lusaka Water and Sewerage Company defines gender mainstreaming as "the process of identifying gender gaps and making women's, men's, girls' and boys' concerns and experiences integral to the design, implementation, monitoring and evaluation of policies and programmes in all spheres so that they benefit equally" (LWSC, 2015, p.6). Gender mainstreaming also means that both men and women have equal participation in decision making when it comes to matters of sanitation. Failure to do so has resulted in perpetuating gender inequalities and inhibit access to improved sanitation for both men and women (WHO, 2004).

Sewerage network: This shall mean a condominial sewerage network where sewer pipes are laid at a shallow depth of 1.5 to 2 meters using smaller pipes ranging from 6 to 12 inches. This lowers the cost of laying a sewerage network by almost 50% which is cost effective for peri-urban areas as it reduces the cost passed on to the customers, (Paterson et al, 2007).

Peri-Urban area: This is a legalized or illegal settlement characterized by limited to absence of municipal services such as water, sanitation, electricity, roads, drainage; and have haphazard layout of low cost housing units coupled with high population density. Most of the urban poor people stay in peri-urban areas (GRZ, 2015). These areas are also popularly known as slums or informal settlements.

Cluster: A group of plots or houses defined by one sewerage connection pipe where all of them are meant to be connected from. The size of clusters range from 10 to 21 houses. Phase one has a total of 15 clusters.

Household: Household shall refer to one or more families living together in one plot or housing unit. A family or household has an average of six members. Peri-urban areas are characterized by multiple households living on one plot usually sharing one toilet, posing a challenge to sanitation access. Shared sanitation facilities are common in Sub-Saharan Africa both in rural and urban areas confirms WHO and UNICEF (2015).

Plot/property: This shall imply a small piece of land with a house usually 10 by 20 meters with one or more households living there. As alluded to in the definition of a peri-urban, low-cost houses are built on these pieces of land housing multiple households resulting in high population density.

Health: The World Health Organization (WHO) states in its constitution that "health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity" (Healy & Link, 2012, p.214). A lack of sanitation does not only deprive people of their physical wellbeing but mental and social wellbeing especially for women. Improved sanitation facilities give people dignity, worth, privacy and safety (UNDP, 2006 and WHO, 2009). Improved

sanitation facilities coupled with good hygiene practices like washing hands with soap are known to break the transmission route of waterborne diseases like diarrhoea, cholera and typhoid which claim many lives especially children (George, 2009; Walraven, 2013; WHO, 2014).

Individual water connection: A water connection connected and registered with LWSC situated within the plot. Registration with LWSC means that the household receives a monthly water bill for consumption of water. The charge can be fixed (where the connection is not metered) or according to meter reading (water consumed per month). Registration of a connection means that the owner is a registered customer with LWSC. Customers with flush toilets connected to the sewerage network pay monthly service charges for sanitation which are charged as a percentage of water consumed.

Lusaka Water and Sewerage Company Limited (LWSC): Shall imply the Commercial Utility in charge of supplying water and sewerage services to urban and peri-urban areas of Lusaka Province. LWSC is a quasi-government institution or organization mandated to provide these services on behalf of the Ministry of Local Government and Housing (MLGH) through the Local Authority.

Hygiene: WHO refers to hygiene as "conditions and practices that help maintain health and spread of diseases" (WHO, 2016)[3]. Hygiene shall mean the practice of stopping feacal-oral transmission of diseases through the act of hand washing with soap after using the toilet. The failure to practice good hygiene may result in the contraction and spread of diseases even if someone has an improved sanitation facility.

Human rights: The United Nations defines human rights as those rights inherent in every human being which are fundamental for human development (Reichert, 2007, p.6). Human rights are entitlements every human being has for been a human being irrespective of sex, gender, nationality, race and any other differentiating factors one may put across. Furthermore human rights cannot be revoked or given up (UNDP, 2000). Sanitation as a human right implies that every human being should have access to improved sanitation facility without any discrimination.

Social problem: Using the definition from Loseke (2003, p.6-7), a social problem must be something that is considered as wrong, widespread, can be changed by humans and should be changed or fixed. Lack of appropriate sanitation as a social problem imply that majority of people do not have access to adequate sanitation facilities and this has led to many other social problems some of which will be highlighted in this paper. Inadequate sanitation can be changed or fixed by human beings and qualify for urgent change before many people continue to die.

Poverty: Poverty is a normative term meaning different things to different people. The American Heritage (2016)[4] online dictionary, defines poverty as "the state of being poor, lack of the means of providing material needs or comfort". The United Nations Development Programme (2006) gives four different ways one could interpret poverty. Poverty could be seen firstly as income

[3] WHO's reference to hygiene available on http://www.who.int/topics/hygiene/en/

[4] Definition of poverty available on https://ahdictionary.com/word/search.html?q=Poverty

poverty also referred to as consumption poverty. Secondly poverty can be seen as material lack or want. Thirdly poverty as picked from Sen's capability deprivation framework which sets limits on what one can and cannot do, can and cannot be. Fourthly, poverty can be multi-dimensional which sees material lack as just one of the dimensions of poverty (UNDP, 2006, p.3). Sen (2001) argues that lack of capabilities would hinder people from living or attaining the life they aspire to live. Additionally, he claims that lack of freedoms brings about various consequences for people which shall result into poverty. Poverty can thus be seen as absolute or relative poverty. Absolute poverty as lacking income and materials while relative poverty is lacking in some areas for example one could have shelter but lacks income to meet daily basic needs. Most of the residents in Kalingalinga could be described as living in relative poverty as can be identified from the respondents interviewed, majority of them owned their own houses but claimed to have lacked resources to construct their own flush toilets. They fit well into Sen's capability deprivation definition of poverty as they fail to live a life they aspire to live due to limited resources such as financial resources to invest in sanitation facilities.

1.2. My potential influence on the study

I have worked in the water and sanitation sector for the past 15 years particularly in the peri-urban department at Lusaka Water and Sewerage Company. The peri-urban department is in charge of supplying water and sanitation services to the peri-urban areas where majority of urban poor people reside. My current employment position is Head Sanitation. My main roles and responsibilities are to coordinate and support community development activities to enhance community participation and awareness for sustainable management of water supply and sanitation systems and implementation of projects. My appointment to this position in 2010 gave me an opportunity to get to know the sanitation challenges the people in peri-urban area were facing. The Kalingalinga sanitation project being implemented in Kalingalinga Compound of Lusaka which is my main area of focus in this study was designed to be an answer to the sanitation challenges faced by the urban poor. However, most households have not benefited from this project as anticipated. My choice to undertake this research was necessitated by my quest to explore the reasons behind households' reluctance to improve their sanitation facilities even with the sewerage network within their backyard. Therefore the choice to undertake this research was purely motivated by the quest to try and explore and understand households' behavior with the help of theories and models of behavior change. I agree with Bryman (2012) and Tracy (2013) that researchers are influenced by their values and have to take precaution that their biases do not affect their reflexivity of the research. All respondents were made aware that I work for Lusaka Water and Sewerage Company and this made them comfortable to share the information freely as they were assured of strict confidentiality.

I cannot deny the fact that my choice of research aims have been influenced by the fact that I work within the water and sanitation field and desire to see the people living in peri-urban areas enjoy the benefits that come with improved sanitation. However it should be noted that this research is in no way implying to be done for my employer or the Zambian Government but it is for academic

purposes in exploring the relationship between sanitation, social work and human rights in the eyes of social science theories and models.

1.3. Relevancy to social work and human rights

One would wonder what sanitation has got to do with social work and human rights. It should however be noted that without good sanitation, the violations of all other human rights is inevitable. Social work should be seen solving sanitation challenges the urban poor are faced with. Healy and Link state that:

> The social profession promotes social change, problem solving in human relationships and the empowerment and liberation of people to enhance well-being. Utilizing theories of human behavior and social systems, social work intervenes at the points where people interact with their environments. Principles of human rights and social justice are fundamental to social work (Healy and Link, 2012, p.276).

According to Clark "social work is a political and practical commitment to a certain minimum level of welfare and prevention or mitigation of specific acknowledged harm" (Clark, 2006, p.78). A lack of adequate sanitation services as reported by the United Nations Development Programme (UNDP) and the World Health Organization (WHO) is widespread among the vulnerable populations in the developing world (WHO/UNICEF, 2004, 2006, 2014; UNDP, 2015). As it will be highlighted under sanitation and poverty, the people who are affected most by lack of adequate sanitation are poor people most of whom reside in peri-urban areas or informal settlements and rural areas. Lack of proper sanitation facilities has led to the spread of diseases like cholera, dysentery, typhoid among others which has caused the death of many people especially children under five years. Since the social work profession seeks to intervene at the points where people interact with their environment, it is imperative that sanitation takes center stage. The Global Agenda of Social Work (2012) stresses the importance of promoting human dignity and worth; it is no doubt that access to improved sanitation facilities translate to dignity and worth of every human being irrespective of gender, status or class; and people in peri-urban areas are no exceptions.

Coming to the aspect of human rights, the Universal Declaration of Human Rights of 1948 article 25 (1) states that "everyone has the right to a standard of living adequate for the health and well-being of himself and of his family…" (UN, 1948). This right is echoed in the Covenant of Economic, Social and Cultural Rights (CESCR) of 1966 in article 12 (1) as "…the right of everyone to the enjoyment of the highest attainable standard of physical and mental health" (UN, 1966). Lack of sanitation is an infringement on peoples' rights to health because good sanitation facilities are a prerequisite to good health. Without adequate sanitation result in violations of most human rights like the right to life, health, education, privacy, to mention but a few. Therefore as a foundational human right, sanitation access for all is a matter of social justice and as Clark puts it is a mitigation measure of an acknowledged harm (Clark, 2006); not only to people but to the environment as well. The social work profession is utilized in realizing the human right to

sanitation especially for the vulnerable people in developing countries through advocacy, mediation and research skills.

The recognition of sanitation as a human right by the United Nations general assembly in December 2015 is a big step towards the realization of adequate sanitation for all by 2030. Zambia having ratified the Covenant of Economic, Social and Cultural (CESC) rights in 1984 has even a greater responsibility now to ensure that everyone has access to improved sanitation.

1.4. Background/Problem area

The provision of sanitation services to peri-urban areas was never an issue or talked about by Lusaka Water and Sewerage Company (LWSC) up until 2008. Households had to use their own initiative to dispose of human waste through whatever means they thought possible. Cholera outbreaks in peri-urban areas of Lusaka became a common phenomenon every rainy season (WHO, 2011). This prompted stakeholders to start doing much more than providing emergency services once there was a cholera outbreak to more prevention methods instead. Many interventions were employed in peri-urban areas to try and combat the cholera outbreaks starting with raising awareness on the need to construct toilets that reduced seepage of human waste underground. Toilets like VIP latrines and Urine Diversion toilets (UDT) were encouraged. But these type of toilets had inherent challenges especially when it came to emptying and monitoring of quality of construction works especially for VIP latrines. LWSC was also not directly involved in such initiatives. Hence with the declaration of 2008 as the International year of Sanitation by the United Nations, LWSC took a keen interest in finding ways and means of improving sanitation in peri-urban areas especially following the accelerated interest by the government and different international donors in wanting to improve and fund sanitation projects. Coupled with this, LWSC also had keen interest in protecting the ground water sources where 50% of water supplied to Lusaka comes from. Kalingalinga was chosen as an area to pilot the condominial system because it is situated near the boreholes where LWSC extracts nearly 20% of the water supplied to Lusaka city including Kalingalinga. Secondly Kalingalinga is already near the sewerage main pipe going to the treatment plant. The proposal to construct a condominial sewerage network was to collect and transport human waste from households' premises in a more cost effect way to the treatment plant for safe disposal to the environment. Therefore the Kalingalinga sanitation project has a twofold purpose; to protect ground water sources and above all to improve access to adequate sanitation to more than 5,000 households once the project is completed.

1.5. Why flush toilets

Studies reveal mixed reactions to flush toilets. Van Vliet et al (2010) and Castro (2008) argue that flush toilets are a technology imported from developed countries which cannot work looking at the nature of housing layout and high poverty levels in peri-urban areas. They further argue that the technology is expensive for the poor to afford the costs passed over to them and unsustainable due to water stresses experienced in peri-urban areas since the technology requires a lot of water to be operated. Conversely, they argue that the technology was not environmentally sustainable either. They propose the use of on-site technologies like VIP latrines among others for peri-urban areas which are not only affordable but environmentally sustainable as well.

Morales (2015) added the concepts of class and citizenship to flush toilets where she argues that sewerage connections have become a symbol of modernity, economic wealth and urban citizenship thereby excluding others who do not have access to sewerage systems. She further argues that sewerage networks have distanced people from their excreta and its odor leaving it to municipalities to transport and manage it.

However proponents of sewerage technologies for the peri-urban areas like George (2009) justified why flush toilets are important. He argues that flush toilet are known to have reduced human contact with human faeces which is number one carrier of diseases unlike using pit latrines where flies can continue to transmit diseases even after using the toilet. Paterson et al also argue that

> In Peri-urban areas, the ground conditions often make on-site sanitation infeasible, with poor drainage and risk of contaminating drinking water sources. High population densities result in high liquid load, and lacking space for pits, making sewerage the better option (Paterson et al, 2007, p.902).

Arguments for and against flush toilets in peri-urban areas need to be addressed in specific contexts upon analyzing the relevant information both on the technical, economic and social dimensions which are beyond the scope of this study.

1.6. Conceptualizing the problem area

The Kalingalinga phase one project involved a lot of community engagement and awareness using various methods like door-to-door, drama shows, radio and television shows, and workshops within and outside the area before, during and after the project was completed. The information disseminated included the roles and responsibilities of each stakeholder among them households as major stakeholders and beneficiaries. The households committed to constructing flush toilets and connecting them to the sewerage network once the project was completed. However since the completion of the project in 2012, only less than 50% of the targeted 156 households in phase one have constructed their flush toilets and connected to the sewerage network. It is to this effect that this research is aimed at exploring the reasons behind households' reluctance to construct flush toilets as committed before.

1.7. Research aims

Overall aim: To explore the households' views about constructing their own flush toilets and connecting them to the sewerage network in Kalingalinga phase one project area of Lusaka.

The sub-aims are:

1. To explore households' member's perceptions about flush toilet
2. To explore households' member's knowledge and perceptions about what they considered to be good sanitation and how it benefited their health.
3. To explore households' views about hindering factors to constructing their own flush toilets

1.8. Significance of the study

The study is aimed at assessing the community response to sanitation not only for Kalingalinga but for Zambia as well. Getting to know and understand the perceptions households have on flush toilets as a sanitation technology using condominial sewerage system for peri-urban areas is important in getting to incorporate them in policy and strategy formulation for future projects. As Zambia aims at providing sanitation for all by 2030, it should be noted that sanitation is not just about laying a sewerage network but the real work is taking the households with you as you move them up the sanitation ladder. Failure to do so can result in projects not yielding the intended benefits and becoming unsustainable in the long run. Related to this is the fact that for the condominial sewerage system to function effectively, it required more than 80% households to connect to it so that when they all flush, there will be enough water to push the human waste out of the compound to the treatment plant.

Coupled with the above aim is the contribution to knowledge on sanitation. Most of the studies, undertaken on sanitation are combined with water and this makes it difficult to see critically what is at stake in sanitation service provision. Examples of studies combining water and sanitation are Montgomery and Elimelechi (2007); and Gutierrez (2005), who having taken on both water and sanitation; (though their contribution is significant), makes it difficult to draw a line between the two services and focus on specific needs. It is high time social science and social work in particular began to create a specialized knowledge base on sanitation especially now that it has been acknowledged as a human right. Poor sanitation has brought about a lot of other social problems and hinders the attainment of all other human rights like the right to health and the right to life.

Above all, understanding the social dimensions of sanitation will assist in developing information and strategies that would assist households make informed decisions and choices to invest in improved sanitation facilities.

1.9. Structure of the thesis

Right after this introduction, a literature review will be presented where I will highlights the important literature and studies undertaken in the area of sanitation. This component will give the reader the opportunity to get to know more about the sanitation challenge at global, Sub-Saharan Africa and Zambia levels. I will also give various relationships between sanitation and other variables like health, poverty, gender and social problems.

The literature review will be followed by the theoretical and analytical framework in which I will give an overview of the identified theories and models as they are applied in this research. I make reference to the Psychological theories namely: the social cognitive theory, proposed by Albert Bandura; theory of reasoned action proposed by Martin Fishbein and Icek Ajzen; and theory of planned behavior proposed by Icek Ajzen. All the three theories point to the fact that a human being is a rational being who is capable of changing his or her behavior upon evaluating abilities and capabilities; benefits and consequences before engaging in any behavior in question (Fishbein and Ajzen, 1975; Bandura, 1986; Ajzen 1991).

Thereafter will be the methodology component of the research which shall give details on the research design, study area, sample details, data collection, data management and analysis methods used in this research. This component will also cover the ethical considerations; validity, reliability and generalization employed in this research. Last in this section will be presentation of limitations and challenges I faced in undertaking the research.

The presentation of findings and analysis follows the methodology section. This segment will cover the presentation of research finding using the thematic analysis method. The presentation of findings and analysis will follow each other according to research aims.

Finally I will present a summary of findings and the conclusion. I end this report with my recommendations to policy makers in the field of sanitation; and proposed areas for future studies based on the research findings.

2. Literature review

The focus of this literature review is to review books and scientific studies published on sanitation service provision to peri-urban areas with special focus on Sub-Saharan Africa. Literature reviews are aimed at assisting the researcher discover the various concepts and their interconnections and see how they can be utilized in his or her research. Literature reviews also help the researcher to discover theories used by other researchers so as to build on them (Bruce, 2009; Bryman 2012). The literature consulted will be presented under various categories as they relate to sanitation in this research. Under methodology, there is a section covering types of secondary data used in this research and literature review and how it was searched and accounted for. However, it is suffice to note that the literature review covered broad cross-sectional data sources ranging from scientific books, journals, articles; documents from international organizations like WHO, UNICEF, among others; and Government of the Republic of Zambia policy documents and Acts of Parliament (law). Special attention was paid to literature that covered aspects of sanitation in peri-urban areas.

It should however be noted that this literature review is aimed at bringing to light how access or lack of access to sanitation can present itself in various forms that could have an impact on peoples' lives. Improving sanitation could sort out a lot of other inhibiting factors which are capable of perpetuating poverty and inequalities in any society. Therefore, in line with the aim of this research which is to explore the households' views about constructing their own flush toilets and connecting them to the sewerage network, could be anchored in any of these aspects to be presented below.

2.1. Understanding the sanitation challenge

The United Nations Development Programme (UNDP) reports that 2.4 billion people worldwide have no access to improved sanitation facilities, while close to a billion defecate in the open; of whom majority people are in Sub-Saharan Africa and Asia (UNDP, 2015). This means that the targeted half of the population having access to improved sanitation by 2015 was not met. Most of the people without access to improved sanitation reside in rural and peri-urban areas. The World Bank development indicator report for 2010 states that a third of the world's urban dwellers live in slums and as confirmed by other researchers, slums lack basic municipal services like water, sanitation, roads and electricity (Paterson et al. 2007; World Bank, 2010; Isunju et al. 2011). The United Nations Habitat estimates that the number of slum dwellers will double by 2030 due to rural-to-urban migrations (UN-Habitat, 2003).

The deplorable conditions in slums or peri-urban areas pose a sanitation challenge. Studies carried out by WSP, WHO, UNICEF and UNDP all agree that the sanitation challenge globally is enormous requiring global attention (WHO/UNICEF, 2004; WHO/UNICEF, 2006; WSP, 2009; WHO/UNICEF, 2014; WHO/UNICEF, 2015; UNDP, 2015). The major challenge caused by a lack of adequate sanitation is the increased disease burden which has resulted in high number of deaths especially among children under five years old due to waterborne induced diseases (WHO, 2004). Thus the sanitation challenge is widespread among the poor populations across the globe especially those living in peri-urban areas. The impact is felt much more by women and children

whose capabilities are limited in terms of income and decision making powers to influence change at household level (Sen 2001).

Below is the sanitation challenge to be presented in its various forms in order to highlight just how a lack of adequate sanitation could impact on almost every aspect of peoples' lives.

2.2.1. Sanitation and gender

Gender is said to have a correlation with sanitation. Gender has been a defining factor between men and women from time in memorial. When a boy and girl is born, society has a way each of them will be expected to behave, take up certain roles and responsibilities; and failure to comply with those expectations has been a source of discrimination and inequality (WHO, 2009). Women and children suffer more from a lack of sanitation in terms of their dignity and vulnerability to sexual violence when accessing toilets. Studies done by WHO prove that women usually walk long distances to go and access toilets mostly in urban areas exposing them to sexual violence and other negative consequences (Ibid. 2009). WHO (2009) and UNDP (2006) reveal that improved access to sanitation meant security, dignity, privacy especially for women and girls whom by gender expectations from society cannot defecate anyhow. Murthy and Smith confirm that

> Social mores in some customs deem that defecation by females must be done in private. This further complicates sanitation and the situation for girls and women. If no facilities are provided, they can go only after dark (Murthy and Smith, 2010, p.443)

Lack of sanitation facilities at home therefore, exposes girls and women to the risk of sexual harassment and violence.

Studies have also confirmed poor school attendance among pubescent girls when no appropriate sanitation facilities are provided in schools (WHO, 2004; UNICEF, 2015). Empirical studies conducted by Adukia (2014); and Jewitt and Ryley (2014) confirm that poor sanitation in schools affect girls' school attendance. Adukia (2014) confirm that the construction of school latrines for girls only in India contributed to increased enrollment among pubescent girls. Jewitt and Ryley (2014) also echo similar arguments in the study conducted in Kenya to investigate the dilemmas pubescent girls go through ranging from social, cultural and practical barriers just to access education if sanitation facilities are not provided at home and at school. For example, the study revealed that where sanitation facilities lacked privacy coupled with lack of water near the latrines, attributed to pubescent girls not attending classes when having their menstruation and eventually resulted in them dropping out of school. Therefore to guarantee girls' right to education and a chance to have a better future, schools must provide appropriate sanitation facilities and services to meet especially the needs of pubescent girls.

Gender also defines how much access to and decisions women and men have regarding sanitation. Sanitation if not handled properly can perpetuate inequalities and marginalization of women and girls because they lack the power to make decisions in society and at home (WHO, 2009). Skolnik further argues that "enhancing sanitation produces important social gains for women, as well, because in the absence of improved sanitation, they face major discomforts, inconveniences, and sometimes illness" (Skolnik, 2012, p.142). A study conducted in Kampala slums of Uganda also

reveal a gender dimension to sanitation in terms of choice, cleanliness and location (Kwiringira el al. 2014).

Gender mainstreaming in sanitation service provision take into account the needs of men and women, boys and girls, the elderly and handicapped so that sanitation facilities are user friendly to them and are within reach; incorporating their voices in decision making (WSP, 2010). Plan International Australia emphasizes gender inclusiveness in every water, sanitation, and hygiene (WASH) intervention especially allowing women to work besides men in designing and implementing projects (Plan International Australia, 2011). Gender responsive sanitation services will meet the needs of both men and women.

2.2.2. Sanitation and poverty

Urbanization has attracted a lot of poor people moving from rural areas to urban areas in search of a better life and jobs. These people have contributed to the growth of informal settlements or slums with limited to no municipality services. As confirmed by the World Bank and UN-Habitat, a third of world's population reside in slums and the number of slums could double by 2030 (World Bank, 2010; UN-Habitat, 2003). The slums are characterized by poor sanitation and drainage, water shortages, irregular electricity supply, unplanned construction and poor urban governance (Paterson et al. 2007; World Bank, 2010; Isunju et al. 2011).

Additionally, countries who have failed to meet the MDG on sanitation are from developing countries especially in Asia and Sub-Saharan Africa. These countries do not only lack resources to invest in sanitation service provision for the citizens but citizens themselves face various socio-economic challenges to invest in sanitation facilities. Peri-urban areas are the most affected with most households using unimproved sanitation facilities that are poorly constructed with others still practicing open defecation. Studies prove that poverty is synonymous with unimproved sanitation (Banerjee & Marella, 2011; UNDP, 2015). It is the poor people that fail to construct proper sanitation facilities mainly due to affordability issues. Poor people also lack the necessary education on the importance of having good sanitation facilities and practice of good hygiene which makes them susceptible to diarrehoeal diseases (Skolnik, 2012).

2.2.3. Sanitation and health

Studies prove that inadequate sanitation has a direct bearing on peoples' health and wellbeing. Lack of access to improved sanitation facilities is said to account for "two million deaths per year, and of those vast majority are children under five years old, almost all in poor countries" (Walraven, 2013, p.209). This is also echoed by Skolnik (2012), George (2009) and Sen (2001); who confirm that adequate sanitation prevents diseases and reduces premature deaths. Furthermore, Mara et al (2010) argue that the growth of children who suffer from frequent diarrhea is affected as they often end up becoming malnourished which may result in their physical and mental capabilities inhibited.

Additionally, going by WHO's definition of health (refer to definition of health under definition of terminologies), the parents and siblings to the children who die after suffering from diarrhea, suffer psychological and emotional traumas which affect their mental capacities to lead productive lives (Bartram et al, 2005). Studies confirm that majority of people suffering from mental health

problems had experienced traumatic situations or circumstances in their lives, like death of a loved one (Astbury 1999, UK Department of Health, 2003; WHO, 2004; Healy & Link, 2012). Improved access to sanitation services would contribute to improved mental health especially for women who do not have to experience the trauma of seeing their children die from diseases which could have been prevented. Fuchs (2004) argues that improved investment in sanitation leads to better health and high survival rates among infants and children thereby raising the Gross Domestic Product (DGP) per capita.

Conversely, many developing countries like Zambia spend a lot of money in trying to provide curative health care to people. The Water and Sanitation Program (WSP) of the World Bank has confirmed that

> Poor sanitation costs Zambia US$194 million every year, equivalent to US$16.4 per person or 1.3% of the national GDP. Approximately 8,700 Zambians, including 6,600 children under 5 die each year from diarrhea – nearly 90% of instances are directly attributed to poor water, sanitation and hygiene (WASH) conditions which result in an estimated US$167 million lost each year due to premature death (WSP, 2012, p.1).

Therefore, improved sanitation access breaks the oral-fecal transmission route of waterborne diseases and reduces cases of diarrhea both in adults and children and can save lives of millions of people especially among children under five years of age (Murthy and Smith, 2010; Skolnik 2012). Effective management of human excreta can stop the spread of diseases that come as a result of contact with human excreta. Studies conducted in Ghana confirmed a reduction in diarrhea diseases following improved water supply and installation of flush toilets in houses by 70% (Murthy and Smith, 2012). The Joint Monitoring Program (JMP) as quoted by the World Bank argues that access to adequate sanitation "produces direct health gains by preventing diseases and delivering economic and social benefits" (World Bank, 2011, p.1). Peoples' lives and health automatically improve with adequate sanitation service provision.

2.2.4. Sanitation as a social problem

A lack of access to adequate sanitation services is not only a social problem in itself but it is the root cause of many other social problems. The challenges of disease burden, reduced daily adjusted life years (DALYs) coupled with perpetuated gender inequality especially for women and girls are social problems that could have been avoided just by improved sanitation (George 2009; WHO, 2009; Murthy and Smith 2010).

Improved access to adequate sanitation has direct benefits not only for health, but trigger non-health benefits like a good life, dignity, privacy to mention but a few (UNDP, 2006; Morales, 2015). For example with improved sanitation, peoples' health improve thereby giving them an opportunity to save income they could have spent to treat diarrhea diseases and use it for something else. Furthermore, children's school attendance increases especially for girls if sanitation is improved both at home and at school (UNICEF, 2015). Thus more girls' right to education is upheld which would change their lives for the better in future. Improved sanitation also improves adults' workability in that they do not suffer from diarrhea diseases anymore and also do not have to spend their time nursing their sick children especially for women and can spend their time on other productive things for the betterment of themselves and their families. Additionally, mental

and physical well-being of people improves since they do not have to experience the trauma of losing loved ones out of diarrheal diseases. In the long run, communities develop and when communities develop, cities and nations develop.

3. Theoretical/analytical framework

Theories are important in social science in general and social work profession in particular in trying to explain and understand human behavior and how the social environment impacts on people. Greene in quoting Wodarski & Thyer (2004) argues in making reference to the historical use of theories in social work that:

> Theories helped social workers explain why people behave as they do, to better understand how environment affects behavior, to guide their interventions, and to predict what is likely to be the result of a particular social work intervention (Greene, 2008, p.5).

Theories can assist provide a deeper understanding and insight into resolving the social problems people are confronted with. Understanding human behavior is critical to devising mechanisms that would influence positive behavior change. It is argued that every behavior has a motive or intention behind it (Ajzen, 1991). Behavior is motivated by perceived consequences whether good or bad (Stone, 2000). Behavior is exhibited after carefully calculated moves to minimize negative effects. It is argued that access to appropriate information assist people to make informed decisions that would minimize the risks of undertaking certain actions or engaging in certain behavior (Rothschild, 1999).

In this paper I make reference to psychological theories of social cognitive theory, theory of reasoned action and theory of planned behavior. However the main theories to be utilized in analyzing the findings will be the combined model of theory of reasoned action and theory of planned behavior. The next texts highlight the main concepts for each theory so as to give the reader the main components of the theories as applied in this research. In this thesis, these theoretical models will be used to explain and understand the respondents' behavior.

3.1. Social cognitive theory

The social cognitive theory was proposed by the Canadian psychologist Albert Bandura in the early 1960s. It was developed to assist in predicting human behavior based on the fact that human beings were rational and could use foresight to take conscious steps to enhance or avoid consequences of behavior (Bandura, 1986; Bandura, 1998). Bandura proposed this theory in defiant of the then prominent behaviorist theories who believed that human beings' behavior was shaped by their environments and was "driven unconsciously by impulses and complexes" (Bandura, 2005. p.20). Bandura argues that people were able to set goals and could predict the likely outcome of their actions (Bandura, 2005). The social cognitive theory is strong in social work and psychology in assisting to understand and explain human behavior.

At the core of the social cognitive theory is the fact that a person's behavior is shaped by the behavior, environment and personal factors referred to as the *triad determinants*, which influence each other thereby determining how a person would behave (Bandura, 1989).

Bandura as quoted by Stone argues that a person's "expectations, beliefs, self-perceptions, goals and intentions give shape and direction to behavior" (Stone, 2000, p.3). These aspects are all shaped by the behavior, environmental and personal factors a person is exposed to thereby

affecting how he or she behaves. For example the social environment which depicts how a person is socialized either as male or female, will have an impact on the behavior displayed. The social environments has expectations of how a man or woman should behave as Bandura (1989) argues in Stone (2000) that "women are usually cast in subordinate roles, either tending the household or performing lower status jobs, and otherwise acting in dependent, unambitious, emotional ways" (Stone, 2000, p.35). Therefore "people are products and producers of their environment" (Ibid. p.4). This implies that peoples' behavior impacts on their environments just as the environment impacts on their behavior.

With regard to behavior, people enhance on positive outcomes of their behavior and take measures to minimize on negative consequences for future actions (Ibid. p.40). Bandura (2005) argues that people also tend to learn from their own experiences and experiences of others in order to maximize on benefits on their side. He adds on to highlight that people are able to perceive the future consequences of their actions and could take steps to avoid or minimize adverse consequences (Ibid).

The personal factors in the model depicts the strengths or weaknesses a person perceive himself or herself as having in achieving certain anticipated outcomes. A person's cognitive and biological factors could have an influence on a person's behavior (Bandura 1989). Bandura argues that how well a person judges their capability to achieve set goals will determine how successful they execute the behavior. Bandura introduced a concept of self-efficacy which he refers to as "one's capabilities to organize and execute the course of action required to produce given levels of attainments" (Bandura 1989 as reported by Stone 2000, p.624). This self-judgement provides the motivation required to undertake certain actions.

The social cognitive theory has been applied in studies to predict human behavior in fields of "educational development, health promotion, regulation, athletic performance, organizational functioning, and social change" (Bandura, 2005 in Smith and Hitt. p.21).

3.2. Theory of reasoned action

The theory of reasoned action is a psychological theory proposed by psychologists Icek Ajzen and Martin Fishbein in 1975. The theory is aimed at predicting human behavior and outcomes (Levine and Pauls, 1996). Fishbein and Ajzen proposed that there is a relationship between attitudes and intentions coupled with subjective norms that influence peoples' behavior (Ajzen and Fishbein, 1980). They further "assumed that individuals are usually quite rational and make systematic use of information available to them" (Levine and Pauls, 1996, p.2). Fishbein and Ajzen argue that the theory of reasoned action applies to those behaviors that an individual has control over (Ajzen and Madden, 1986; Sheppard, Hartwick and Warshaw, 1988; Ajzen 1991; Conner and Sparks, 2005). The following text will describe the model in detail.

3.2.1. Attitude about the behavior

Attitude according to Fishbein and Ajzen refers to belief about behavior and an evaluation of the perceived benefits to be accrued as a result of practicing the behavior (Fishbein and Ajzen, 1980). The stronger the attitude, the more likelihood that a strong intention will be formed which shall determine whether or not to engage in any behavior. Individuals acquire certain beliefs about the

behavior and make judgement based on available information to perform a behavior or not (Ajzen and Madden, 1986; Levine and Pauls, 1996, Ajzen, 1991; Ajzen, 2012). Ajzen argues that "once beliefs are formed and is accessible in memory, it provides the cognitive foundation from which attitudes are assumed to follow automatically in a reasonable and consistent fashion" (Ajzen, 2012, p.12).

3.2.1. Subjective norm

Fishbein and Ajzen refers to subjective norm as the social pressure from significant others to perform or not to perform a particular behavior (Fishbein and Ajzen, 1980, Ajzen and Madden, 1986).This is where an individual would perceive pressure that others would want him or her to perform or not to perform a certain behavior. These pressures could be at different levels; that is at family, community, organizational and national level (Fishbein and Ajzen, 1980). Subjective norms could be informal like values and norms or formal like laws and thus acting accordingly or contrary could result into positive or negative consequences.

3.2.1. Intention

The combination of attitude and subjective norms result into intention. Ajzen argues that "the more strongly people believe that a certain response will lead to a certain outcome and the more positively they value that outcome, the stronger their intention to produce the response in question" (Ajzen, 2012, p.14). Conner and Sparks in making reference to the theory of reasoned action state that "attitudes towards a specific behavior impacts on performance of the behaviour via intentions" (Conner and Sparks, 2005, p.171). Fishbein and Ajzen argue that it is intention that determine behavior and not attitudes (Fishbein and Ajzen, 1980). Ajzen in making reference to theory of reasoned action states that;

> Intentions are assumed to capture the motivational factors that influence a behavior; they are indications of how hard people are willing to try, of how much of an effort they are planning to exert, in order to perform the behavior. As a general rule, the stronger the intention to engage in a behavior, the more likely should be its performance (Ajzen, 1991. p.181)

3.2.1. Behavior

Behavior is the manifestation of intention. It is what we see on the outside after an individual has made internal calculated rationed decision to engage or not to engage in a particular action. However the theory of reasoned action does not imply that the behavior engaged in is good or bad and it has been criticized for not providing an aspect of individual perceived behavior control to whether or not to engage in a behavior (Ajzen, 1991). Behavior according to Fishbein and Ajzen is a voluntary decision an individual makes to perform or not to perform a certain action (Fishbein and Ajzen, 1990; Ajzen, 1991; Ajzen, 2012). Ajzen further argues that "we learn to favor behaviors we believe have largely desirable consequences and we form unfavorable attitudes towards behaviors we associate with mostly undesirable consequences" (Ajzen, 1991, p.191).

However the limitations exhibited in the theory of reasoned action in its predictive power for actions individual would control or take measures to mitigate the consequences were identified. Some of the limitations identified were that many factors internally and externally could interfere

with the intentions to perform behavior (Ajzen and Madden, 1986). This defeated the notion that intention automatically led to performance of the behavior. This prompted Ajzen to extend the theory of reasoned action to include aspects of control belief and perceived behavior control as will be highlighted under 3.3.

3.3. Theory of planned behavior

Theory of planned behavior was proposed by psychologist Icek Ajzen as a buildup from theory of reasoned action developed earlier by Ajzen and Fishbein in 1975 and 1980. The theory of planned behavior was proposed in 1985. Ajzen added concepts of control beliefs and perceived behavioral control for behaviors that were non-volitional (did not involve choice and willingness on the part of an individual) (Ajzen, 1991). Ajzen argues that people perceive realistic expectations about themselves to perform or not to perform the behavior intent in reference to their capabilities and control on possible outcomes or consequences of the behavior (Ajzen, 2002; 2011). Please refer to model below showing the theory of planned behavior incorporating the theory of reasoned action.

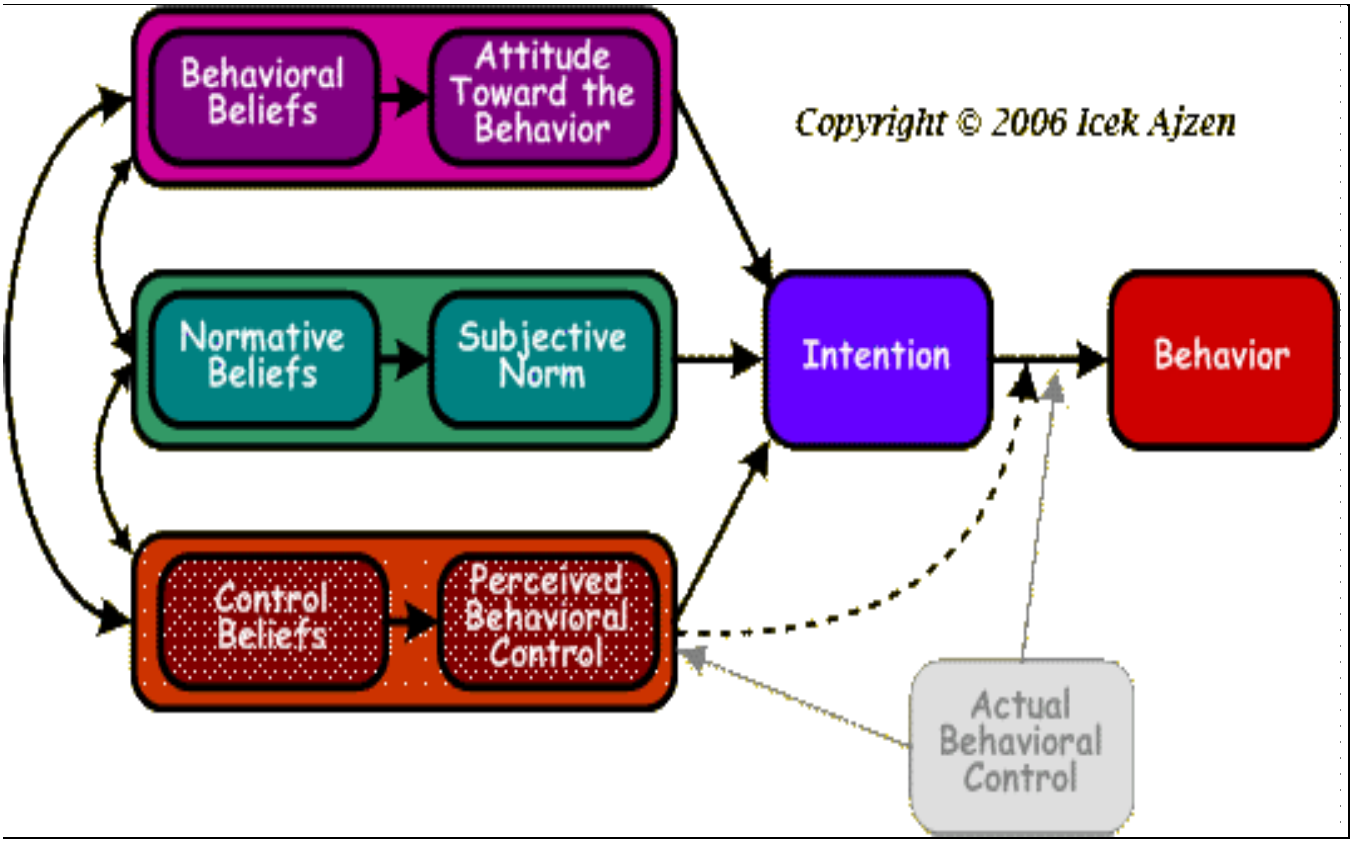

Figure 1: Combined model for theory of reasoned action and theory of planned behaviour -Source: http://people.umass.edu/aizen/tpb.diag.html

3.3.1. Control beliefs and perceived behavioral control

Ajzen proposed that "the resources and opportunities available to a person must to some extent dictate the likelihood of behavioral achievement" (Ajzen, 1991, p.183). He argues that peoples' beliefs in their capabilities to succeed in desired behavior depended on how much resources and opportunities they have. Ajzen incorporates the component of self-efficacy from Bandura's social cognitive model (Bandura, 1989 as reported by Stone, 2000) - please refer to 3.1 above. Ajzen argues that "the more resources and opportunities individuals believe they possess, and the fewer obstacles or impediments they articulate, the greater should be that perceived control over the behavior" (Ajzen, 1991, p.196). Therefore a person is likely to perform the behavior once opportunity arises if he or she knows or has the belief (control belief) that the behavior's consequences will be under control (Ajzen and Madden, 1986; Levine and Pauls, 1996; Ajzen, 2012).

The theory of planned behavior should be looked at in its totality by incorporating the theory of reasoned action so that it covers both volitional and non-volitional human behavior. This is to mean that for those actions an individual has control and choice on, the theory of reasoned action could be applied to understand human behavior. While as for those actions that are depended on individual capabilities and external resources and opportunities, the theory of planned behavior could be utilized instead.

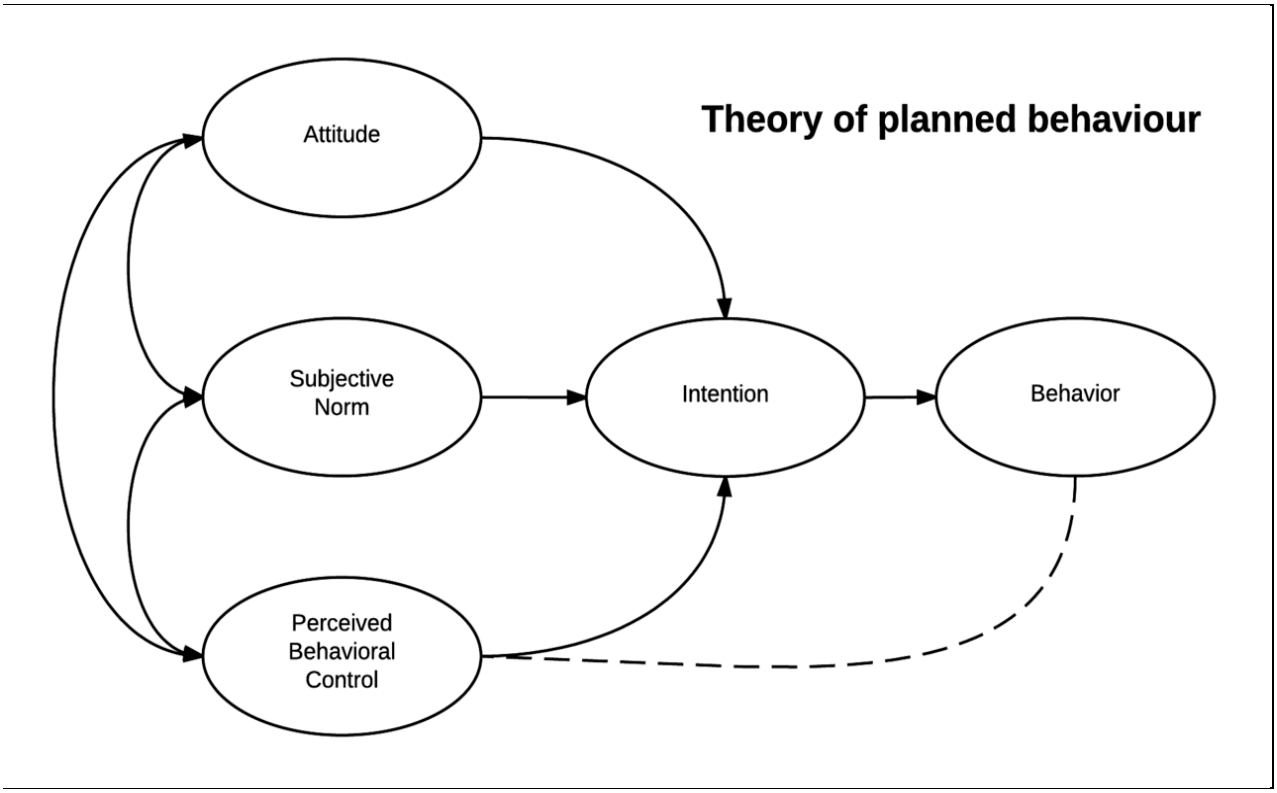

Figure 2: Flow chart for behavior in theory of reasoned action and theory of planned behavior: source - Ajzen (1991.182)

The theory of reasoned action and theory of planned behavior have been used independently or together in the field of social psychology to explain and understand human behavior in the areas of health, employment job satisfaction, staff turnover, water conservation, exercises, pollution reduction, to mention but a few and assisted to plan interventions to bring about change in human behavior (Giles et al, 2004; Down and Hausenblas, 2005; Fishbein and Ajzen, 2010; Frieze and Cordano, 2016)

However, the theory of planned behavior has been criticized for assuming that human beings are rational and decisions follow a certain pattern (Levine and Pauls, 1996). Levine and Pauls also argue that the theory of planned behavior fails to account for the time interval between behavior intent and actual behavior performance; the time factor between the two will determine whether an individual will perform the behavior or not (Ibid). Ajzen also acknowledges that:

> Perceived behavioral control may not be particularly realistic when a person has relatively little information about the behavior, when requirements or available resources changed, or when new and unfamiliar elements have entered into the situation (Ajzen, 1991, p.184).

Therefore it is imperative to note that theories used to explain and understand human behavior are just constructs. Thus depending on an individual and circumstances surrounding him or her, coupled with resources at his or her disposal and own capabilities, will dictate how that individual behaves at any particular time and will determine whether or not the behavior will achieve the intended outcomes.

To sum up on theoretical and analytical framework, the combined model of theory of reasoned action and theory of planned behavior and some aspects of the social cognitive theory will be utilized in this thesis to explain and understand the respondents' behavior with regard to constructing their flush toilets at household level.

4. Methodology

Bruce argues that "method impose certain perspectives on reality" (Bruce, 2009, p.5). It was thus imperative that an appropriate research method be selected in order to actualize the reality sought after. The choice of research method determines whether one would achieve the intended results or not. The type of information or research aims dictate the type of research method one would choose including the data collection methods to be employed (Bryman 2012). In this research, I chose the qualitative research method. The qualitative study research design gave me a better understanding of respondents' perceptions on flush toilets, good sanitation and views on hindering factors to toilet construction (Bruce 2009, Bryman 2012). According to Bryman (2012), qualitative studies seek to generate a deeper understanding of a phenomenon. Consequently the data collection methods were qualitative in nature. The study involved the conducting of semi-structured interviews and focus group discussions with respondents who had not constructed their flush toilet and connected to the sewerage network.

4.1. Research design

The research design involved collection of primary and secondary data. The secondary data was aimed at assisting in interpreting the findings from the respondents in the eyes of previous studies. Secondary data involved literature review before and after primary data was collected. The primary data was collected from semi-structured interviews and focus group discussions.

4.1.1. Primary data

Semi-structured interviews were chosen to enable me to explore and probe respondents' ideas in an individual/private setting so that they could freely express themselves. This setting also gave me an opportunity to observe the toilets used by respondents coupled with any observations that would be useful in answering the research aims.

Focus group discussions were guided by me as the moderator (Bruce 2009, Bryman 2012). The focus group discussions were aimed at balancing up the individual interview findings and see if there were any group dynamics in relation to construction of flush toilets. The focus group discussions also gave me an opportunity to explore gender dynamics in the focus group discussions with regard to sanitation and flush toilet construction. The combined male and female focus group discussion explored similarities and differences in opinions between male and female respondents attached to flush toilet construction and matters of good sanitation as it related to health. The focus group discussions also gave me an opportunity to interview more people at the same time and served as a method of triangulation (Bruce, 2009) thereby giving another perspective of peoples' views of flush toilet construction.

4.1.2. Secondary data

The literature search was conducted between January and March 2016. This process involved search in the Gothenburg University library and databases of web of science and ProQuest for books, articles and journals referring to sanitation, flush toilet, waterborne toilet, water closet, gender, health, human rights, peri-urban, informal settlement and slums. A lot of articles came up but attention was paid to those that were related to the research aims. The main focus was on

studies done from the year 2008 to 2015 and only included older articles if they were really relevant to the research at hand. 2008 was chosen because it was the year the United Nations declared as the International Year for Sanitation after acknowledging the global sanitation challenge especially in the Global South. This could give the reader what efforts have been done since 2008 in addressing sanitation issues.

I also reviewed scientific articles and books in the field of social sciences, social work and human rights which were of importance to this research. Literature from public health and psychology was also reviewed due to the fact that sanitation is a public health and behavior issue.

Some documents reviewed were from international organizational websites who have undertaken a lot of studies on sanitation service provision and funded some of them in peri-urban areas in Sub-Saharan Africa in general and Zambia in particular. Some of the key international organizations are Water and Sanitation Program (WSP) of the World Bank, United Nations Development Programme (UNDP), World Health Organization (WHO) and United Nations Children's Emergency Fund (UNICEF). The documents for these organizations were available on their official websites for free access, while others could be accessed via the Gothenburg University library database.

Special reference was also made to the Government of the Republic of Zambia (GRZ) policy documents that were of relevancy to this research such as the Revised Sixth National Development Plan; Vision 2030; National Water and Sanitation Programme 2015-2030; and National Urban and Peri-Urban Sanitation Strategy 2015-2030. I also consulted relevant legislation like the Water and Sanitation Act of 1997 and Health Act of 1978. The policy documents provided policy direction to the sanitation challenge in Zambia.

However it should be noted that literature review continued throughout the period this thesis was being written so as to ensure that the knowledge generated built on and fitted into previous research and theories (Bryman, 2012).

4.2. Area of study

The research was conducted in Kalingalinga peri-urban settlement in Lusaka, Zambia. Kalingalinga is known to have been in existence before Zambia got her independence in 1964. It was an illegal settlement until 1991 after Zambia introduced the multi-party system of Government.

The focus of the research was in phase one project area where the condominial sewerage network was laid in 2012 to enable 156 households construct their flush toilets and connect to it. Phase one is divided into 15 clusters, with each cluster comprising of 10 to 21 houses.

4.3. Study population and description of respondents

Kalingalinga according to the 2010 population and housing census, had a population of 39, 139 of which 18,945 were male and 20,194 were female (Central statistics office, 2012). From the baseline survey conducted in 2012, Kalingalinga had approximately 5,339 households out of

which 1,352 were landlords and 3,897 were tenants (Ministry of Local Government and Housing - MLGH, 2012).

Out of the 156 households in phase one, a total of 32 respondents participated in the study. This comprised of 13 respondents for the semi-structured interviews and 19 respondents for the focus group discussions.

4.4. Selection procedures and characteristics of respondents

A purposive sampling technique (Bruce, 2009; Bryman, 2012) or the one referred to as convenience/opportunistic sampling technique (Tracy, 2013) was used in choosing only respondents from households who had individual water connections but had not constructed their own flush toilets with prior knowledge from LWSC. The respondents were randomly picked from the LWSC Kalingalinga phase one database at the office with no prior preference of who they were at face value to avoid bias in choice of respondents. The respondents for the semi-structured individual interviews did not qualify to be selected for the focus group discussion and vice versa. The reason for doing so was to avoid a situation where those who participated in either of them would influence or bias the discussions especially of the focus group discussions.

Initially 15 respondents were selected for the semi-structured interviews, one respondent from each cluster; out of which 13 were finally interviewed. 24 respondents were selected to participate in the focus group discussions out of which 19 finally participated.

After respondents were selected from the database, physical door to door contacts were made before interviews were conducted not only to make appointments for the individual and focus group discussion interviews but to also establish that all respondents picked came from the study area and had met the selection criteria. Appointments were then made with heads of households or their spouses upon having gotten their preliminary consent to participate in the study. Before they could give consent, the research aims were explained in order to make them understand the purpose of the research and their voluntary participation in the research.

On the day of the interview or focus group discussion, the research aims and respondent' voluntary participation was explained again. As a sign of their consent to participate in the study, the respondents were requested to sign the consent form which I also signed. The interviews or focus group discussions only commenced after respondents and I signed the consent forms. For semi-structured interviews, the respondents signed the consent form on their own behalf; while the selected group leader for the focus group discussion signed on behalf of everyone after getting individual members' consent. The respondents were also advised on their free choice to withdraw from the research even after interviews or focus group discussions were conducted before findings were finalized and submitted. Please refer to appendix 10.1 and 10.2 on consent form for semi-structured interviews and focus group discussions respectively for details.

It is suffice to mention that out of the 13 respondents for semi-structured interviews, 10 were women and only three were men. This could be due to the fact that the men went out for work at the time of the interview; also three of the women respondents were widows. The ages of respondents for semi-structured interviews ranged between 25 and 70 years. Those who came for

focus group discussion, their age ranged between 20 and 70 years. Table 1 refer to detailed description of respondents.

Table 1: Description of respondents.

Interviewee	SEX	HOUSEHOLD STATUS	Remarks
R01	M	Landlord with no tenants	Retired
R02	F	Multiple households staying with landlord on same plot	Widow
R03	F	Multiple households staying with landlord on same plot	Single
R04	F	Multiple households staying with landlord on same plot	Housewife
R05	M	Landlord with no tenants	Employed
R06	F	Multiple households staying with landlord on same plot	Widow
R07	F	Multiple households staying with landlord on same plot	Widow
R08	F	Multiple households staying with landlord on same plot	Housewife
R09	F	Multiple households staying with landlord on same plot	Housewife
R10	F	Multiple households staying with landlord on same plot	Single
R11	F	Multiple households staying with landlord on same plot	Housewife
R12	M	Landlord with no tenants	Businessman
R13	F	Multiple households staying with landlord on same plot	Housewife
FGD W	4 women	1 tenant and 3 landlords	Tenant with absentee landlord
FGD M	7 men	All landlords	1 child headed after death of parents
FGD CWM	5 women and 3 men	All landlords	

4.5. Data collection

Data collection methods used were semi-structured interviews and focus group discussions. Brinkmann and Kvale argue that "if you want to know how people understand their world and their lives, why not talk to them?" (Brinkmann and Kvale, 1999, p.1). They further argue that from time in memorial, people have been convening meaning through conversing with one another (Ibid). Therefore the semi-structured interviews and focus group discussions were a media of extracting respondents' perceptions to answer the research questions.

4.5.1. Semi-structured interviews

According to Brinkmann and Kvale, "qualitative research interview attempts to understand the world from the subjects' points of view, to unfold the meaning of their experiences, to uncover their lived world prior to scientific explanations" (Brinkmann and Kvale, 1999, p.3). Since the research design was qualitative in nature, semi-structured interviews gave me an opportunity to ask open ended and probing questions in order to explore and understand respondents' perceptions and get to find out the underlying factors behind the respondent's action. I had four main guiding questions which were expanded on as the interview progressed, (see interview guide in appendix 10.3). The semi-structured interviews took an average of 30 minutes each.

4.5.2. Focus group discussions

Focus group discussions are used to interview many people at once and gives an opportunity to the researcher to understand and get more detailed information about a certain phenomenon (Bruce, 2009; Bryman 2012). Morgan (1997) further highlights that focus group discussions are useful in gathering primary data that require a deeper level of understanding of group interactions to enhance research results. He also says that focus group discussions can serve as a self-contained method to collect primary data or they can be used to collect supplementary data to individual interviews or participant observation methods (Ibid). Ritchie and Lewis (2003, p.171) highlight that focus group discussions enable participants not only to listen but to also reflect, comment and ask questions on what is said among each other. This makes it possible to create an atmosphere where participants bring out a deeper understanding of their social phenomena where shared meaning is constructed (Ibid).

In this research, focus group discussions have been used as supplementary method to semi-structured interviews in order to provide further insight to toilet construction. However it was necessary to watch out for their disadvantages like dominant group member, moving away from intended discussion topic and failure to get required numbers (Bruce, 2009; Tracy, 2013; Bryman, 2012). The same interview guide used for semi-structured interviews was used to guide the focus group discussions.

There were three focus group discussions conducted at different locations within the clusters. The three clusters chosen to host focus group discussions were selected on the basis that majority of the households had not constructed their flush toilets. To protect the anonymity of focus group discussion participants, the actual cluster numbers in question would not be revealed. The first focus group discussion was for women only and out of the planned eight participants, only four turned up. The second focus group discussion was for men only and out of the expected eight participants, seven turned up. The third and final focus group discussion was a combination of men and women, all the intended eight participants turned up comprising of five women and three men. The focus group discussions took an average of 40 minutes each.

4.6. Data management

Both semi-structured interviews and focus group discussions were recorded using a voice recorder in order to assist in capturing the information as said by the respondents and also assist in data analysis (Bryman 2012). The recorded data was transferred on the computer and backup files

opened so that the information was secured. Some notes were also taken by the author (BC) during the interviews that were relevant to answering the research aims such as respondent non-verbal communication which could not be captured on voice recorder.

The data was then transcribed onto Microsoft word document using selective transcription method in which only information relevant to answering the research aims was transcribed. I only transcribed respondents' answers to research questions as direct quotations following the research aims. All the transcriptions were done according to the respondent allocated numbers for both individual interviews and focus group discussions for easy identification of who said what. For details refer to table 1 on respondents' characteristics under 4.4.

4.7. Data analysis

The thematic data analysis method was utilized in the analysis of the data after transcription. Clarke and Braun (2013, p.4-5) provide for six steps or phases to thematic data analysis. These phases are:

a) *Familiarisation with the data* – This process involved listening to recorded interviews and reading and rereading of transcriptions so as to get familiar with the data.
b) *Coding* - This part involved identifying and generating labels relevant to research aims.
c) *Searching for themes* - This process involved the identification of similarities and differences in the data-set by observing the coherent and meaningful patterns in the data.
d) *Reviewing themes* – This part involved verifying the themes extracted and reconstructing them where possible in order to ensure that each theme tells the story as told by the respondents. This process also involved grouping similar themes, creating new ones and discarding those found not to be necessary in answering the research aims.
e) *Defining and naming themes* – This part involved writing in detail the analysis of themes depicting what story is told by each theme and pick out quotations from the respondents' interviews responses for each theme.
f) *Writing up* – This process involved the combining of analytical and extracts from the data-set so as to tell the reader a realistic presentation of the data-set while making reference to existing literature.

4.8. Study procedure

The research was undertaken in Zambia from the 01st to19th of February 2016. I being familiar with the research area and upon obtaining information on names, house numbers and current status on all households in the area of study, the respondents were randomly selected and necessary contacts were made. The door to door contacts with respondents was made before interviews or focus group discussions were conducted not only to make appointments but to get their preliminary consent to participate in the study.

On the day of semi-structured interviews and focus group discussions, research aims were explained and respondents upon accepting to participate in the study signed the consent forms. The semi-structured interviews and focus group discussions were recorded using the voice recorder to assist in data analysis. Semi-structured interviews were conducted in presence of one sanitary

worker who is an employee of LWSC. While focus group discussions were conducted in the presence of one water committee member from the area besides the sanitary worker. Both the sanitary worker and water committee member assisted in capturing any non-verbal communication that I would have missed out and we discussed and compared observations.

The semi-structured interviews and focus group discussions were transcribed using the selective description method to capture only those responses that were answering the research aims. The thematic analysis method was utilized in data analysis. After data analysis was completed, a report was written and submitted for examination.

4.9. Ethical considerations

Ethical considerations are always critical to any research dealing with human subjects (Bruce 2009; Tracy 2013; Bryman 2012). A letter of consent for both individual interviews and focus group discussion was submitted to the supervisor for approval before leaving Sweden. This letter provided guarantees to respondents by me as the researcher to protect their privacy, confidentiality, informed consent, and voluntary participation. The consent letter also contained an explanation of the purpose of the research and contact details of both the supervisor and I. I read and explained the letter of consent to all the respondents who also signed, as a sign of acceptance to be interviewed. The consent form was also appended with my name and signature. Respondents for semi-structures interviews signed the consent form in their own capacities. For focus group discussions, the group leader chosen by the group signed on behalf of all group members after they gave individual verbal consent to participate in the focus group discussion which was captured on the voice recorder for reference (Krueger and Casey, 2009). Therefore, in reference to Kruger and Casey (2009), the verbal consent was enough, but I still went ahead to have a group leader sign the consent form on behalf of all participants so that there was a written record as well. Please note that each focus group discussion chose a leader who signed the consent form. It should however be noted that the conduction of focus group discussions in Kalingalinga and other areas are a common practice by Lusaka Water and Sewerage Company and thus it was not a new thing to the participants.

To guarantee informed consent and voluntary participation, I made sure that the research aims were explained to all before the interview or focus group discussion commenced. Respondents were informed of their right to withdraw from the research even after the interview or focus group discussion was over before the results were published. It should be noted that the focus group participants consented verbally as individuals to participate in the study and thus they were also free to withdraw in their own capacities despite group leader having signed consent form on their behalf.

The privacy, confidentiality and anonymity of respondents was guaranteed in the way data was stored and transcribed in that no names or house numbers of respondents was reflected. I was the only one who had access to the original recorded interviews and focus group discussions. The transcription only reflected the data collected with respondents' assigned numbers and not names (refer to table 1 showing description of respondents).

I was also alive to the fact that the research topic of sanitation is considered private and sensitive by most people. This presented a potential consequence and risk of research according to CODEX (2016)[5], in that there was a likelihood that respondents would disclose privileged information considered private and sensitive. It was thus important for me as a researcher to take precautionary measures to ensure that respondents' right to privacy and confidentiality is protected. Respondents also disclosed information to me that was beyond my scope of study, mostly administrative which I requested of them that I pass it over to relevant officers at Lusaka Water and Sewerage Company who would be able to attend to them.

Additionally, I was also aware of the potential areas of conflict and dilemma especially that I undertook the research in familiar ground. One of the potential areas of conflict and dilemma was in cases where my biases and opinions differed with that of the respondents'. However strict adherence to professional and ethical conduct in research enabled me to maintain my reflexivity during data collection, analysis and report writing of findings (Bryman, 2012; Tracy, 2013). To enable respondents' talk freely, I created rapport with them so as to create a conducive atmosphere for fruitful discussions (Iphofen, 2005).

Consequently, I was alive to the fact that the interview and focus group discussions were with vulnerable respondents (Bryman, 2012), who may want to expect more from the research. I therefore, took time to explain that the purpose of the research was an academic requirement as an integral to completing my studies; although there was a possibility for the findings to be utilized in future to contribute to policy and strategy formulation in how sanitation services are delivered to peri-urban areas.

Finally, to ensure anonymity and confidentiality of respondents, all recorded and transcribed materials will be destroyed at the final approval of the thesis.

4.10. Validity, reliability and generalization

The concepts of validity, reliability and generalization as explained in quantitative research method are problematic to attain in qualitative research such as this one. Validity as defined by Bryman (2012) and Tracy (2013), is whether the unit of measure really measures that concept it claims to measure. This implies that if someone is measuring distance for example, the researcher should use kilometers or miles and not kilograms. Reliability is similar to validity but it is in the sense that no matter who is undertaking the research, they should all arrive at similar findings using the same unit of measure. This consistency in the unit of measure makes generalization of results possible from a representative sample. Bryman and Stacy state that results should be predictable due to the consistency in the unit of measure (Bryman, 2012 and Tracy, 2013).

However in qualitative research, validity, reliability and generalization though critical concepts to any research are achieved using certain criteria. Bryman (2012) brings in the concept of trust worthiness which covers issues of credibility, transferability, dependability, confirmability and authenticity which is similar to quantitative measures. Tracy (2013, p.230) proposes eight guidelines how the three concepts could be attained in qualitative research which I endeavor to

[5] Informed consent available on http://www.codex.vr.se/en/manniska2.shtml

explain in relation to this research. These criteria are worthy topic, rich rigour, sincerity, credibility, resonance, significant contribution, ethical and meaningful coherence.

Worthy topic- the choice of the topic of sanitation is critical to attainment of all human rights that are advocated for. Despite its importance, the social aspects of sanitation have not been fully exploited and was the major cause of not attaining the MDG on halving proportion of people not having access to improved sanitation. Millions of people continue to die from lack of sanitation diseases especially children under five years which could have been prevented. With 2.4 billion people without access to improved sanitation, a billion practicing open defecation and countless numbers of people dying daily as reported by WHO / UNICEF (2015) – please refer to sanitation challenge under problem statement for details, the time to act is now.

Rich rigour – there is unlimited data highlighting the sanitation challenge where I drew insight to undertake this research. However there is another challenge to this as most of the time, studies on sanitation have been combined with water contributing to the overshadowing the importance sanitation is supposed to get. I endeavored to bring cross sectional studies on sanitation under literature review to highlight the sanitation challenge in different perspectives so as to create common understanding of the research at hand. The approach employed in this research from start to finish – in choice of concepts, conceptualizing and formulation of research aims, theoretical constructs, literature review, methodology (sample and data collection) and presentation of findings – displays adherence to entire research process.

Sincerity- I was very much alive to the fact that the research was conducted in familiar environment where I worked from. Therefore, precautionary measures were taken so as not to impose my opinions and biases on the respondents. This was achieved through the strict adherence to research guidelines and ethics to ensure that respondents expressed themselves freely. It was realized that I definitely had some level of power as an employee of Lusaka Water Sewerage Company over the respondents. But the clear explanation of research aims and significance of the study coupled with my ability to empathize with their sanitation challenges before conducting semi-structured interviews and focus group discussions, inspired confidence in respondents to share even personal hindering factors to flush toilet construction. However there were times when respondents shared with me information that was beyond the scope of this research. I made it clear to them that if they allowed me to, I would pass over that information to relevant officers instead who were in a position to resolve or attend to their concerns.

Credibility – I ensured that the interviews and focus group discussion findings that were relevant to the research aims were fully transcribed so as to pick all the key findings as said by respondents themselves. One of the purpose for adding focus group discussion to the research was to assist in validating the individual interview findings. I also made triangulation (Bryman 2012) of the findings with similar studies conducted by international organizations like WHO, UNDP, UNICEF, WSP and also consulted a lot of journal articles and official GRZ documents so as to bring out cross-sectional understanding to the research at hand. This brought a balanced approach to the sanitation challenge especially as it relates to flush toilet as an option for per-urban areas.

Resonance – At the core values of social work is the promotion of human worth and dignity (IASSW, ICSW & IFSW -The Global Agenda, 2012, p.1). Improved sanitation for all is not only about saving lives but it brings about dignity, worth, safety, privacy especially for women and girls as confirmed by WHO and UNDP alluded to under sanitation as a social problem. Without improved sanitation, attainment of all other human rights hangs in a balance. For example, without access to sanitation, countless number of people mostly children's right to life will be violated; also lack of access to sanitation, means that the right to education for girls will not be attained, to mention but a few.

The global sanitation challenge especially in the global south calls for immediate action before many lives are lost. Sanitation though considered private has incredible benefits or severe consequences to every society or community. For example when there is an outbreak cholera, even people who have adequate sanitation facilities are affected. Conversely when people have access to adequate sanitation, their health and productivity automatically improves, resulting in the development of communities and nations. This study is aimed at contributing to reversing the unsanitary practices through behavior change with the goal of improving peoples' health and productivity; with special focus on Kalingalinga and Zambia.

Finally, the presentation of findings with actual quotation from respondents gives the reader an opportunity to experience what really transpired during data collection. The report has been presented in such a way as not only to generate knowledge about sanitation, but to make the reader identify with the sanitation challenge in Kalingalinga; thereby creating the need to want to do something about it. Couple with this is the fact that the behavior theories presented in this research provides an opportunity to the reader to identify with them and make individual assessment whether they are applicable or not in his or her personal life.

Significant contribution – Access to improved sanitation is a matter of morality. I cannot afford to see lives lost from diseases that could have been prevented had facilities been constructed that reduced or eradicated human contact with human waste. The findings from this research provides a contribution to understanding what was preventing households from constructing flush toilets and connect to the sewerage network right in their backyard. The findings also are likely to offer a critical input to the development and enhancement of information and messages that could empower households make informed decisions to switch from pit latrines to waterborne toilets.

Ethical – The respect for respondents' privacy, confidentiality, informed consent and voluntary participation were upheld in this research. Before any interview or focus group discussion began, I ensured that the respondents understood the research aims and ethical considerations. The respondents upon giving consent to participate in the research signed the consent form. The respondents for the semi-structured interviews signed on their own capacity. However, the participants for the focus discussion chose a group leader who signed on their behalf after having given individual verbal consent which was captured on the voice recorder. I opted to have the focus group leader sign beside verbal consent as a written confirmation that participants consented to participate on the study. However despite the group leader having signed on behalf of all participants, they were all advised of their right to withdraw from the research as individuals. They were assured that their participation on the study was as individuals and will be treated accordingly.

I also assured the respondents that they were free even after the interview or focus group discussion to withdraw their participation as long the report was not submitted.

Privacy and confidentiality was upheld in the manner data was transcribed, analyzed and reported in that all information was anonymized to ensure that nothing could be traced to the respondents.

Respondents' voluntary participation was upheld in that all respondent were informed of their right to participate or not to participate in the study and also to withdraw their participation even after the interview or focus group discussion was over. Respondents were also advised of their right to answer or not to answer any question posed to them; and even withdraw their answer later on after they had said so.

Meaningful coherence – I endeavored to ensure that there was coherence in the way the research was conducted from problem identification to report writing. The choice of qualitative research as a method was chosen in an effort to bring out real life experiences as spoken by respondents themselves. Hence the choice of semi-structured interviews and focus group discussion as methods for data collection. The literature review was undertaken before data collection to guide me in the choice of research topic and in framing the research aims. The second literature review was undertaken after the data collection to assist in coming up with concepts that could have been missed during the initial literature review so that the literature supported the research findings from data collection. Data processing and analysis was carefully handled; first of all, the data was transcribed for easy analysis. Secondly, the themes were created that answered the research aims. The theoretical framework comprising of social cognitive theory, theory of reasoned action and theory of planned behavior, coupled with references to previous studies, guided the data analysis and conclusion. Finally based on identified gaps in the research and findings, the recommendations to policy makers and areas for future studies were proposed. Finally, the report writing followed the university guidelines on report writing with correct font and referencing system.

4.11. Challenges and limitation of the research

4.11.1. Challenges

I faced the challenges of first of all going back to my home country Zambia using own means which was a sacrifice. But it should be noted that I was happy to have achieved this as the study was not only in the field of interest but the findings could contribute to providing sanitation for all by 2030 especially to the urban poor in Lusaka, Zambia and beyond.

The second challenge was to get all participants for focus group discussion for the women. I was disappointed with low turn up of women especially since sanitation affected more women than men. However it should be noted that despite the small number of women who turned up for the focus group discussion, the discussions were fruitful.

The third challenge was to get more men to participate on the research. Since the interviews and focus group discussions were conducted during week days (Monday to Friday) and working hours (between 08:00 and 17:00 hours), most of the men were not available. However due to tight schedule, it was not possible to arrange alternative time to interview them separately after speaking to their spouses already.

4.11.2. Possible limitations

The first limitation was that the research was conducted in familiar environment in which careful attention was paid to ensure that my biases and opinions did not have a bearing on the research especially when interviewing respondents. However, this also presented a strength in itself in that I was able to quickly adapt to the environment and got to do the research knowing that I had limited time in which to collect the data.

Secondly, I being an employee for LWSC gave me professional and institutional power advantage over the respondents (Beckett and Maynard, 2005). However strict adherence to research guidelines ensured transparency in conducting this research. Though it is difficult to completely diffuse the power dynamics at play during data collection, I ensured that the significance of the study and its aims were clearly explained to the respondents before interviews and focus group discussion commenced. My ability to empathize with the respondents' sanitation situation coupled with their understanding of research aims, gave respondents the confidence needed to freely discuss issues knowing that the information gathered will be put to good use.

5. Findings and analysis

This chapter consist of a presentation of findings structured on themes and sub-themes. The presentation of themes and sub-themes will include quotations from respondents so as to give the reader further insight into what came out from the semi-structured interviews and focus group discussions. The analysis of findings will also incorporate other studies; and make reference to the theories alluded to in this research under theoretical/analytical framework namely social cognitive theory, theory of reasoned action and theory of planned behavior. This will give the reader a better understanding of the findings in relation to previous studies and social science/social psychology theories of human behavior.

5.1. Findings and analysis

The findings and analysis below are based on research aims. The research aims are: to explore respondents' perceptions about flush toilets; to explore respondents' knowledge and perceptions about what they considered to be good sanitation and how it benefited their health; and to explore respondents' views about hindering factors to constructing their own flush toilets. Please refer to appendix table 10.4 for summarized categories, themes and sub-themes from findings.

5.2. Sub aim 1: To explore respondents' perceptions about flush toilets

The respondents were well informed about flush toilets and were able to articulate their benefits if they were to have them. From their responses, four broad themes were identified.

5.2.1. Flush toilets were user friendly

The respondents described flush toilets as user friendly. They compared the flush toilet to a pit latrine in terms of its convenience and user friendliness. They narrated that with a flush toilet, there was no squatting like on pit latrines; convenient to use for all age groups; and had no smells and flies. They further said that with flush toilets, children will no longer have to defecate in the open. Additionally, they said that with a flush toilet, one does not have to worry about the human waste anymore because when you flush, the waste goes.

> Flush toilets are clean, even children can easily sit and use, things go direct *(R06)*

5.2.2. Disease prevention

All the respondents echoed that flush toilets prevented diseases. They expressed dissatisfaction with pit latrines and how diseases are transmitted especially when toilets are not lined and full. Respondents were aware that flush toilets are connected to the sewerage system which removes the waste from their premises.

> Hygiene-wise, flush toilets are good, you know some of us have worked where there are flush toilets, they are good! (R01)

5.2.3. Durability and long lasting nature of flush toilets

Findings review that respondents were well informed that flush toilets are built once and for all. They did not have to worry about leaving spaces for future pit latrines anymore.

> Flush toilets stops you from digging here and there once pit latrine is full which in the end you run out of space or land where to dig pits anymore (R07).

Respondents echoed that they are always preoccupied with the thoughts of the time the pit latrine would be full; and had to abandon it and dig another one. They are worried that someday, they would run out of space where to dig pits. The Kalingalinga baseline survey conducted in 2012 revealed that each landlord has built his or her pit latrine at least twice (MLGH, 2012), which implies that by now, they no longer have new free spaces for any more latrines. There is a risk of digging pit latrines on once abandoned ones exposing them further to diseases.

5.2.4. Saves space for something else

Related to flush toilet durability and long lasting above, flush toilets would assist them in using up the remaining land to extend the house unlike leaving spaces for pit latrines. A respondent from the FGDM said,

> I can use the remaining space to extend my house without worrying about leaving a space for a pit latrine (FGDM participant)

The respondents also revealed that the structures build on once abandoned pit latrines do not have a firm foundation and risk collapsing if the soil was not compacted well at the time of covering the pit.

> The land is destroyed if you do not compact the soil well after abandoning the pit latrine; and when you build on that land, the foundation is affected and can cause the house to collapse (FGDM participant).

However households also had concerns about the negative aspects of flush toilets.

> Flush toilets are good but when the system starts to block, there will be spillages and smells all over the compound; and it will expose us to diseases, and we will not be happy with this system. There are things we need to follow for the system to operate properly (R11).

The respondent were very much aware of what caused the blockages such as throwing things not meant for the system like solid waste. They proposed that LWSC should conduct a lot of awareness meetings to educate the users on how the sewerage network operated and maintained both at household and community level. They said that this could assist in the reduction and prevention of blockages in the system.

5.2.5. Analysis

Van Vliet, Spaargaren and Oasterveer (2010) agree in their study on social perspectives on the sanitation challenge that:

> …water flush toilets effectively keep places clean and hygienic and facilitate their users the tremendously appealing habit to ‘flush-and-forget’, leaving water works, municipalities

> and sewer treatment corporations with the nasty business of transporting and cleaning up human waste (Van Vliet et al, 2010, p.12)

Similar sentiments have been echoed by the World Bank Group (2016)[6] that the benefits of the flush toilet are in keeping places clean, keeps away flies and remove human waste from household premises. In reference to sanitation and health; and sanitation and gender under literature review, benefits of improved sanitation, in this case having flush toilets not only improve peoples' health but also assist in bringing about dignity, privacy and security especially for women and children (UNDP, 2006; WHO, 2008).

Respondents are correct in their understanding of flush toilets but much needed to be done on their implications once flush toilets are constructed. Leng et al (2001) as reported in Van Vliet et al (2010) raises concerns about the tremendous cost incurred in installation, operation and maintenance of a sewerage network which should not be underestimated. Therefore sustainability aspects of such systems should be incorporated besides laying the actual network. This is where social work skills come in handy in raising awareness among users on the social aspects of sanitation. Sanitation service provision is more a social aspect than technical and it requires a lot of sensitization to raise awareness among users to enable the system to yield the desired benefits and make it sustainable for many years to come. The respondents concern on blockages amidst poor solid waste management at household level should be addressed by relevant stakeholders.

Findings also revealed that men and women preferred different aspects of flush toilets; in that the men were most interested in the use of the remaining land after constructing the flush toilet while women were more concerned about the health, convenience and hygiene aspects of flush toilets. Therefore developing information that appealed to these specific needs would motivate construction of flush toilets. Studies have proven that sanitation has gender aspects to it which should not be ignored if sanitation coverage was to be increased. As alluded to earlier under sanitation and gender, studies done by WHO (2009), UNDP (2006), Plan International Australia (2014), Murthy and Smith (2010) and Kwiringira (2014) among others, reveal that adequate or improved sanitation for women meant more than just where to answer the call of nature; but it meant dignity, security, privacy and equality. Therefore a balance has to be struck in order to meet both the preferences for men and women. Continuous denying the women and children improved sanitation facilities as can be deduced from the findings, would impact them negatively.

Nevertheless, none of the respondents referred to an increased cost on the utility bill as a result of constructing a flush toilet. Their main concern was on blockages and health/hygiene aspects of the flush toilet. Some respondents enquired how they will be expected to pay for the services but it was never a factor on hindering factors to be discussed later.

In making reference to the three theories in this study, perceptions and beliefs on flush toilets highlighted by respondents in this study form a major integral part in shaping their attitudes and intentions towards flush toilets. Respondents' perceptions with regard to flush toilets whether good or bad are the starting point to behavioral attitudes and beliefs in relation to the social cognitive

[6] Benefits of flush toilets available on http://water.worldbank.org/shw-resource-guide/infrastructure/menu-technical-options/water-flush-and-pour-flush-toilets

theory and theory of reasoned action. According to Bandura as reported by Stone, without beliefs and attitudes, there would be no direction to behavior (Stone, 2000). The perceptions respondents have on flush toilets are a starting point to creating strong intentions to act on improving their sanitation status. The respondents' behavioral beliefs and attitudes they have acquired on flush toilets assist shape their intentions which according to Fishbein and Ajzen (1980) in the theory of reasoned action are a prerequisite to behavior.

Respondents also were able to recount from memory what they perceived to be benefits of flush toilets despite having not constructed them. The social cognitive theory and theory of reasoned action confirm that people store up information to memory which they acquire from their social environment through whichever media, which they later process in the formulation of attitudes and beliefs (Fishbein and Ajzen 1980; Bandura 1998). For example, the social environment for women made them to be more aware of the negative aspects of flush toilet in relation to blockages and the spread of diseases unlike men who were more concerned with land use in their respective focus group discussion.

However as it could be deduced from the findings, that having positive attitudes towards flush toilets never translated into action to construct them. There has to be some other compelling factors that would motivate decision to construct flush toilets. The respondents have become used to using pit latrines whether properly or poorly constructed. Therefore having gotten used to such a social environment around them, it was not a factor to switch to newer facilities despite the positive attitudes and beliefs towards them. This will be explored later under respondents' views on hindering factors to flush toilet construction.

5.3. Sub aim 2: To explore respondents' knowledge and perceptions about what they considered to be good sanitation and how it benefited their health

Three themes were identified regarding respondents' knowledge and perceptions on what they considered to be good sanitation and how it benefited their health. What stood out was that the respondents were aware of what good sanitation was and its benefit to their health. This was contrary to what I had in mind before data collection. My perception was that the reason the households were not constructing their flush toilets was that they were ignorant about what good sanitation was in relation to their health. It turned out to the contrary in that the households were well informed regarding this matter, which could have been attributed to the numerous awareness campaigns undertaken before, during and after project implementation in the area. Good sanitation here is referred to having flush toilets and practicing good hygiene like hand washing with soap after using the toilet. Though the views are similar to benefits of having a flush toilet in sub-aim 1, here the respondents brought out the aspects of what it meant to them when they had a flush toilet in terms of health.

> Prevents diseases like cholera …diarrhea diseases. Especially that others take long to dig another pit when it's full and things come up especially in the rainy season (R10).

5.3.1. Safety of family members

With construction of a flush toilet, comes benefits of safety for the family.

> I know my family will be safe hygiene-wise, my family will be on a safer side with improved sanitation (R01).

> You know, with pit latrines especially these we have, there is a risk of it collapsing on you or a child falling into it (R02)

These responses were echoed by other respondents attributing good sanitation with a good toilet structure which was not at risk of collapsing on them and was easy for children to use. The respondents raised concerns of the safety of children with regard to them using pit latrines and often times resulted in them to defecate in the open. This is confirmed by Isunju et al (2011, p.370) that "access for children for pit latrines is risky and questionable – most of the time, children especially under 5 even 10 defecate in the open".

5.3.2. No digging pit latrines anymore

This was the second attribute they gave to good sanitation and how it benefited their health.

> Our plots are dotted with pit latrines and when it is rainy season, things come up after mixing with rain exposing us to diseases! (FGDCWM participant)

To the respondents, good sanitation meant that they do not have to dig pit latrines anymore and this could benefit them in terms of health and preserving the remaining land space for something else. With flush toilets, they did not have to worry about them getting filled up.

5.3.3. Reduced diseases

Respondents attributed good sanitation to reduced diseases. A respondent from the FGDCWM said

> Flush toilets come with their own system and therefore things go out of the compound. When you flush, things go (FGDCWM participant)

Good sanitation meant no human waste in the compound to attract flies which spread diseases as a result of contact with human waste. George summarizes this by saying that "when there's no good containment – a toilet, or a pit latrine will do – faecal particles will be tramped on by people's feet and carried on their fingers into their food and water, with horrible consequences" (George, 2009, p.21). Therefore improved sanitation automatically translates into healthier surrounding for everyone.

5.3.4. Analysis

It was interesting to hear how respondents constructed good sanitation and its relationship to health. For them good sanitation went beyond the toilet structure to incorporate aspects of safety and disease prevention. Improved sanitation had spillover effects going beyond the households to the entire community and nation. Skolnik (2012) confirmed that improved sanitation brought social gains especially for women and children; and stopped the transmission of diseases. Diarrhoea is said to be number one killer of people worldwide especially children under five years

old (Walraven, 2013). George argues that "sanitation is the most effective disease prevention tool we have" (George, 2009, p.21). He further argues that the cost of improving sanitation was lower than treatment of diseases that came as a result of poor sanitation (Ibid). Improved sanitation could directly save millions of children. Zambia as confirmed by WSP (2012), spends 1.3% of the national GDP on treatment of diseases that as a result of poor WASH- refer to sanitation and health.

The findings also reveal a gap on enforcing the toilet standards and compliance to quality toilet structures at household level. The respondents expressed concern on the pit latrines they had which risked collapsing on them or children falling into them. A lack of following toilet standards is echoed by Rothschild (1999) as quoted in Jenkins and Scott (2007) who stresses "the strategic use of marketing along two other primary tools for behavior change – education and law – to achieve public social or health goals" (Jenkins and Scott (2007, p.2428). The powers to enforce the Health Act of 1978 at household level is the mandate of the local authority. For example according to the Health Act of 1978, every house is supposed to have a toilet (GRZ, 1978). However, this law is not enforced fully in peri-urban areas as evidenced by the respondents concerns on toilet standards. The local authority lacks the capacity to enforce the health act at household level which has resulted in households constructing substandard toilets (GRZ, 2015). Skolnik argues that it is not about the type of sanitation facility whether flush toilet or pit latrine because as reports from the studies carried out in the 1980s, revealed that pit latrines were just as hygienic as flush toilets though less convenient (Skolnik, 2012). Rothschild in Jenkins and Scott (2007) advises that households who fail to respond to education or awareness could be compelled to do so by law enforcement. In case of Kalingalinga, the local authority could assist households by providing clear toilet standards coupled with frequent inspections to ensure compliance. Formal law forms part of subjective norms that compel individuals to engage or not to engage in certain behaviors as depicted in the theory of reasoned action. However, I argue that education strategies aimed at enabling the households to invest in flush toilet construction still remains the most effective tool to employ against combating the substandard toilets. Substandard pit latrines could be attributed to lack of skills and knowledge on toilet standards at household level which could be no fault of the household.

According to the social cognitive theory and theory of reasoned action, the respondents' knowledge and perceptions about good sanitation and its benefit to health have been shaped by the environment around them based on the information they have accessed. However the respondents have not put the learned knowledge about good sanitation into practice by constructing flush toilets due to weak intentions these benefits had created in them. Jenkins and Scott (2007) in their simplified sanitation theory derived from the theory of reasoned action and theory of planned behavior called preference-intention-choice took note of this. They stress that for households to move from preference to intention stage, would require a lot of awareness and motivation. Therefore knowledge alone on what good sanitation was, was not enough to enable respondents to decide to invest in flush toilet facilities. The respondents' perceived good sanitation beliefs are also an important component on the creation of normative beliefs that assist in creating subjective norms in the theory of reasoned action (Fishbein and Ajzen, 1980). However the findings reveal a lack of strong subjective norms to put pressure on respondents to construct flush toilets.

Bandura (1999) argues that the environment in which people live shape their decisions. The respondents seem to lack strong self-efficacy perceptions to enable them to process the knowledge they have into actions that would benefit them; as in this case construct flush toilets. Thus the

respondents' behavior, environmental and personal cognitive factors (Pajares, 2002) need to be targeted in assisting them to make informed decisions to change their current sanitation facilities.

5.4. Sub-aim 3: To explore respondents' views about hindering factors to constructing their own toilets

However despite the respondents being aware of the benefits of having flush toilets and their benefit to their health, it did not translate into constructing their own flush toilets. The findings on hindering factors conform with Jenkins and Scott (2007) conclusions from the study conducted in Ghana where they argue that the choice to install a toilet were less likely to be motivated by good health and comfort.

From the findings seven themes were identified to be hindering factors to toilet construction. As it was expected, top of the list of hindering factors was lack of resources especially money to invest in construction of flush toilets. However other interesting and key findings came out from the respondents which are worth taking note of.

5.4.1. Passivity to flush toilet construction

The findings confirm that most of the respondents were comfortable with their current sanitation facilities and thus were not ready to change. This had resulted in them having a passive attitude towards construction of flush toilets. Only two of the respondents openly confessed that their pit latrines were full and needed desperately to construct flush toilets. I took note of some non-verbal communication like funny facial expressions, deep sighs, and prolonged period of silence in the way some respondents answered questions. This when I probed further to give an indication when they thought they could construct their flush toilets; even in cases that now there are loans that could assist them construct in the shortest possible time. They gave answers like:

> {Prolonged silence followed by a deep sigh}, I haven't even considered constructing the toilet (R07).

This is confirmed by the study conducted in Botswana by Bolaane (2011) that when households were satisfied with their current sanitation system, they found it difficult to switch to another system. Like in the case of Botswana rural households, the households were satisfied with using pit-latrines and did not want to switch to waterborne toilets

5.4.2. Lack or limited information on subsidy modalities

From the findings, almost all the respondents had no to limited information on how they could access the subsidies/loan to assist them construct flush toilets. Extreme among the cases was R12 who revealed that he was told that he needed a bank account in order to qualify for the loan; while others had not even heard about loans. Those who had some knowledge feared from afar not knowing what would happen in case they failed to repay the loan.

> I was misinformed on the modalities of getting the loan for toilet construction. I was told I needed a bank account where the money will be transferred. Since I don't have a bank

account, I couldn't apply for the loan. Had I known I didn't need a bank account to access the loan, by this time, I would have constructed already (R12).

We just heard that there are loans, but we do not know any other details (R02).

5.4.3. Multiple households

This concern came out from landlords with multiple tenants. As was identified from the respondents' characteristics, majority of them are landlords staying with multiple tenants. They raised concerns of how they would manage flush toilets in the midst of multiple households.

> Flush toilets are good but not with us with some dirty tenants, they will cause the toilet to block and then they will start troubling me that landlord toilet, landlord toilet. If I was to build, I will build mine alone and the tenants will remain using the pit latrine. With a pit latrine, I don't have to worry about it getting blocked or incur any maintenance costs. All I do is to dig another one or hire someone to empty it (R10).

> Me, I am afraid those fittings in the flush toilet like the one used for flushing would easily break down making me incur other costs of repairing or buying new ones; and in the end, we will just be pouring in water. My solution is to build two toilets, one mine and the other one for tenants and when things break down, it's their own business (R13).

Findings revealed different perceptions and coping strategies on how to deal with the tenant issue. Landlord lacked trust in tenants to operate and manage flush toilets at household level. Findings showed that their relationship revolved around paying rentals for the shelter and anything outside that arrangement was not the landlord business. As confirmed by UN-Habitat on the challenge of urban slums, tenants in urban slums usually lack written rent contracts and lack rights (UN-Habitat, 2003).

5.4.4. Have other commitments

Some households confessed to having other commitments and thus they could not construct flush toilets now. This was common among respondents who had acquired electricity loans from the electricity company; while others would cite paying for other things like school fees and hospital bills.

> I am still paying for ZESCO electricity loan, and I fear if I get another loan {toilet loan} I may fail to pay, I need more time to prepare myself since I am not working at the moment, I just do business. I am the only one who meets the needs of the family (R03)

Respondents revealed that many households had acquired electricity installations and connections on loan basis and have been paying back the cost each time they purchased electricity units from the electricity company. They disclosed that they could not afford accessing another loan for flush toilet construction with similar repayment plan.

5.4.5. Dependency on husbands and children to fund construction of flush toilets

The findings reveal that most of the women (since they were the majority interviewed) were waiting for their husbands to decide when to construct the flush toilet, how much would be spent and what choice of toilet design. Most of these women interviewed had no stable income of their

own, while others engaged in small scale businesses whose income fluctuates. Therefore, they lacked the capacity to make decisions on flush toilet construction despite the urgent need to construct one. It was observed that their husbands were not at home as evidenced by large percentage of women respondents not by design but they were the ones I found at home at the time of the interviews. I came to the conclusion that the husbands felt little or no impact on the need to construct the flush toilets because most of the time, they were not at home and used alternative means to answer the call of nature. The women and children who remained at home are the ones who suffered most; but lacked the voice to influence the decision to construct. The husbands had other commitments and the toilet was not on top of the priority list.

> My husband says that he wants to build on his own and then call on LWSC later. And he says he doesn't have money now. He says he knows he is going to build (R09)

To compound the problem, some of the respondents lacked knowledge about the project saying that it was their husbands who went for meetings. Among the respondents were widows who had no clue to scanty knowledge about the project stating that it was their husbands who used to attend the meeting and now that they have passed away, they did not even know where to start from. Another woman stated that she does not know anything about the project since it was her husband who attends meetings.

> It was my husband who used to go for the meetings and he never shared with me, telling me that the things of toilets are for men. So after he died in {…}, things got confused up, I don't know even where to start from (R06)

> There is nothing I know about the project, my husband goes for the meetings and he does not share with me at all. I only remember him telling me once that there are now giving out loans for constructing toilets (R09).

Some other form of dependency was the one where the respondents depended on children who work to fund the toilet construction. However the percentage of those depending on children was very minimal.

> You know I don't work, my children are the ones supporting me, and at the moment they are saying that they have no money. I cannot force them, I just have to wait when they are ready (R11).

5.4.6. Lack of resources

Resources here has been used to encompass all financial, manpower and material resources required to construct a flush toilet. Findings reveal that the extent of need and what was needed varied from respondent to respondent. Some respondents cited lacking all the three type of resources, while others lacked one or two. The socio-economic status of the respondents varied hence the differences in their needs requirements. Examples of varied responses:

> I need everything to be covered since I do not have any money with me (R1)

> I only need labour- someone to come and build for me. I have all the other materials. (FGDCWM participant)

> I only need blocks and labour, I already have sand (R11)

According to respondents, lack of funds to invest in flush toilet construction was the main reason why they were not constructing flush toilets. However, the findings revealed variations in what each respondent was lacking as can be derived from their responses above. Thus the lack of resources should be defined in order to bring out what each household really lacked. From my observation, others just required information on which to base their decisions on.

5.4.7. Lack of trust in the operationalization of the new sewerage network system

This concern was mostly raised by women respondents from semi-structured interviews and in the focus group discussion for women. Their worry was that the system would get blocked due to people throwing in what is not supposed to be thrown in it. This they are afraid would cause spillages and smells in the compound putting them and their children at risk of contracting diseases. They also expressed lack of trust in the capacity of LWSC to frequently unblock the system each time there are blockages.

> Flush toilets are good but they have to be used in a certain way, if you don't follow, there will be blockages and smells everywhere and we will not be happy with it (R11)

> When we tell you things are blocked here, you should promptly come to unblock (FGDW participant)

> I have seen people throw solid waste in pit latrines with my own eyes; and if they do the same with this new system, there will be blockages everywhere (R10).

Respondents doubted how the system would effectively operate in such circumstances and this though not explicitly said has discouraged them to construct flush toilets. This confirms the concerns respondents alluded to under the negative aspects of flush toilets in the midst of poor solid waste management system explained earlier under 5.2.4.

5.4.6. Analysis

Jenkins and Scott argue that "for a household without adequate sanitation in a developing country, deciding to improve sanitation by installing a toilet for the first time, changing to a new toilet system or connecting to a sewer, can be a complicated and lengthy process" (Jenkins and Scott, 2007, p.2429). The hindrances the respondents gave ranged from administrative, social to economic ones. These hindrances require an integrated approach to tackling them because they were linked to each other in one way or another. For example lack of resources to construct flush toilets could be linked to gender disparities in decision making power at household level alluded to under dependency on husbands to fund flush toilet construction. Seeing the final product of a flush toilet built meant households had gone through a lot of negotiations internally long before the product was seen. Van Vliet et al (2010) when quoting Egweg (2005) argues that the social, cultural and management issues of sanitation were much more important than technical designs and failure to consider these aspects could lead to failure of any project.

To begin with, findings reveal that internal household decision processes enhanced or impended the speed at which the households could construct sanitation facilities. The dominant voice or who

has more decision power, most of the time dictated the course of actions to be taken. In this case, husbands were at an advantage to dictate when the flush toilet would be constructed because of their economic power. Women respondents being in weaker financial positions affected how much power they had to change or speed up construction of flush toilets (WHO, 2008; WHO, 2009; Murthy and Smith, 2010; Plan International Australia, 2014). WHO (2008) confirms that sanitation being a major social determinant of health requires involvement of both men and women if any meaningful improvements were to be made; especially for the benefit of women and children. Santos et al (2011) advises that, understanding the internal household decision processes on what model to adopt was critical to improved sanitation coverage. Households go through a lot of negotiations within before agreeing to adopt any sanitation model.

Secondly, the findings reveal lack of adequate information on loans to enable respondents to make informed decisions. The importance of accurate information in assisting households make informed decisions to move up the sanitation ladder has been confirmed by WSP in the Vientiane Lao Peoples' Democratic Republic study (WSP, 2001). I would further argue in addition to that, not only should the information be accurate but that information should be timely and passed on through appropriate channels in order to reach the intended targets. The information passed on should also be consistent and any changes made to it should be communicated effectively. Most respondents due to lack of adequate information could not take the necessary steps to access the loans. Accurate information on sanitation products and services avoids misconceptions among beneficiaries.

Thirdly, the findings reveal the lack of resources to invest in flush toilet construction as the biggest issue among respondents. The variations in what each respondent required presented an important feature to take note of. This exposed the need for disaggregated data for all households in all their attributes like gender, socio-economic status, what they required to build flush toilets among others so that interventions are individualized. The variation in households' needs are echoed by Santos et al (2011) in the study conducted in Brazil which highlights that household should be understood according to their "cultural and historical contexts, needs and perceptions and preferences" (Santos et al. 2011, p.1325). Bolaane (2011) echoes similar findings from the study done in Botswana where affordability was the main reason that prevented households from investing in toilet infrastructure in order to switch to the sewerage network in rural areas. This points to the fact that households require individualized intervention strategies to speed up toilet construction because their needs vary. Jenkins (1999, 2004) as reported by Jenkins and Scott (2007, p.2431) in the study conducted in Benin also review that "perceived inabilities, inadequate resources and lack of opportunities" hindered households from constructing toilets. Households in Kalingalinga needed to be motivated to bypass perceived or realistic constraints in order to make choices to construct flush toilets.

With reference to theories, the findings could be understood as follows:

According to the social cognitive theory, respondents' behavior has been shaped by their environment and personal factors. For example, most of the women due to how they have been socialized, looked up to their husbands to sort out the toilet construction issues (Stone, 2000). They lacked the self-efficacy (capabilities) to construct flush toilets on their own due to lack of finances

despite the felt need (Bandura, 1986). The other aspect to the social cognitive theory in relation to the findings was the calculated moves by respondents not to overwhelm themselves with other commitments by only holding on to what was within their control. Bandura (2005) confirms this by referring to the fact that people perceived the future consequences of their actions and took measures to avoid adverse consequences which in this case failure to pay back the toilet loan. The respondents who had acquired electricity loans did not want to overwhelm themselves with another loan for fear of failing to manage the consequences in case of failure to pay back.

According to the theory of planned behavior, hindering factors to flush toilet construction is a critical component of perceived behavioral control factors. They are crucial in motivating and sustaining strong intentions which led to actual behavior performance (Ajzen, 1991). Respondents could only decide to construct flush toilets once they were sure they were in control of any positive or negative consequences that would arise (Ajzen, 1991). The beliefs and attitudes respondents have developed whether true or false has shaped their reactions to flush toilet construction and formed a critical component of control beliefs (Fishbein and Ajzen, 1980; Ajzen and Madden, 1986; Bandura, 1989; Ajzen, 2012). Good intention about flush toilets and their benefit to health alone minus perceived behavioral control has affected respondents' choice to construct flush toilets.

The theory of planned behavior also confirms that the respondents evaluated their capabilities to construct flush toilets and developed perceived control beliefs which resulted in doubting their capacity to construct flush toilets (Ajzen, 1991). The respondents had to take stock of their resources and opportunities and chose not to construct flush toilets once they saw that they could not manage. Thus the less perceived behavior control beliefs respondents thought they possessed affected their creation of strong intentions to construct flush toilets despite the information they had on benefits of flush toilets (Ajzen and Madden, 1986; Levine and Pauls, 1996; Ajzen, 2012). For example, respondents who had other commitments like payment of electricity installation loan, perceived themselves as having no capacity to repay another loan until they completed paying back the other one.

The final stage in reference to the theory of reason action and theory of planned behavior, was the households making choices to adopt the new sanitation system. The construction of the flush toilet was the final stage of the decision process which could be termed as behavior in the model. As it could be seen from the hindering factors to constructing flush toilets, the respondents required to make serious considerations on what benefits the flush toilet would bring to them compared to the pit latrines. They had to consider what was at stake at household level if they did not make the switch (Ajzen, 1991; Fishbein and Ajzen, 1980). Preferences or attitude to behavior and intentions alone are not enough, as Ajzen (1985) quoted by Jenkins and Scott stated that "a successful adoption process involves the individual's actual ability to use and control opportunities to carry out their intention to adopt" new sanitation system (Jenkins and Scott, 2007, p.2430). Since behavior was predictable (Ajzen and Fishbein 1975; Fishbein and Ajzen 1980; Ajzen 1991), what was needed in the case of Kalingalinga was to develop relevant information tailored at changing undesirable behavior that was causing households not to construct their flush toilets. Therefore, behavior can be guided by providing information that would create new behavior beliefs and

attitudes; subjective beliefs and norms coupled with putting in the necessary behavioral control factors that would lead to creation of new strong intentions to perform the behavior (Fishbein and Ajzen, 2010). Fishbein and Ajzen ague that any behavior change intervention should be targeted at influencing behavioral intentions because intentions are a prerequisite to behavior performance (Ibid).

6. Summary of findings and conclusion

6.1. Summary

My summary is inspired by two young girls I met in Kalingalinga during my data collection. They were in their teenage years. One had her baby on her back; while the other one was expecting whose pregnancy was around seven month from my observation. After analyzing the findings from the research, I was drawn to those two teenage girls and could not help see how the findings and theories fit into their current and future situations.

To start with, these girls were already at a disadvantaged position in that obviously they had dropped out of school due to teenage pregnancy. A lack of education would lead to a number of other social problems for them as they will not be able to go into meaningful employment due to limited knowledge and skills. Consequently, they will have to depend on other people like parents, spouses, relatives, to meet their needs. If they will not go back to school, they will add up to the World's illiterate women statistics and will have limited access to resources such as land, wealth and property (Commission on social determinants of health – CSDH, 2008). Without proper education, their freedom and capabilities (Sen, 2001) will be limited. How much power and voice they will be able to exercise at household level will also be limited or none at all.

Secondly their children are at risk of contracting diseases and dying before the age of five years due to diarrhea which could be out of ignorance on health and hygiene. CSDH reports that studies have confirmed that "survival and development of children, boys and girls, are strongly related to the position of women in society" (Ibid. p.145). The sanitation decisions these girls will ever make will be limited to their acquired knowledge (Ibid. p.29). This could also affect their life expectancy since the "conditions in which people are born, grow, live, work, and age" (Ibid. p.26) affects their health.

6.1.1. Revisiting the research aims

The findings successfully answered sub-aim1of the research; in that the respondents' perceptions about flush toilets were captured. Their perceptions about flush toilets were predominantly positive. The respondents articulated the benefits of flush toilets very well despite not having constructed them. Some of the benefits highlighted were that flush toilets were user friendly, prevented diseases and are durable. This shows that the project has been welcomed despite the challenges they are experiencing in constructing flush toilet. Correspondingly, the respondents' disclosure of the negative side of flush toilets and sewerage systems with regard to blockages and what causes them makes a significant contribution to this study. Therefore it can be concluded that the respondents' perceptions about flush toilets displayed sufficient knowledge base to enable them respond favorably to constructing their own flush toilets.

Furthermore, the findings were able to disclose the respondents' knowledge and perceptions about what they considered to be good sanitation and its benefit to their health which is research sub-aim 2. It was interesting to get to know how the respondents' constructed good sanitation. They attributed good sanitation and health to safety of family members; and no digging pit latrines anymore which contributed to their surroundings being infested with abandoned pit latrines that

were considered to be breeding grounds for diseases and source of contamination to the environment.

However this positive knowledge about flush toilets and good sanitation and its benefit to their health, never translated to them constructing flush toilets. Jenkins and Scott (2007) confirm that knowledge about health and comfort of sanitation facilities never translated into making decisions to adopt those facilities. Therefore, the focus of interventions should shift from only addressing the health benefits of flush toilets; to addressing more of socioeconomic barriers instead.

For this reason, the sub-aim 3 addressed the respondents' views about hindering factors to constructing their own flush toilets. The findings revealed fundamental information that is worth taking note of. The findings reveal hindrances that are interrelated in one way or another and thus points to the need for an integrated interventional approach to addressing them. From the findings, hindering factors could be summed up into three main results. The first one is that the respondents' lacked sufficient knowledge on the loan modalities; and operationalization and maintenance of the condominial sewerage network. The second one is that respondents lacked the resources especially financial resources to invest in flush toilet construction. The third and final one was the lack of decision making power among women to influence decisions to construct flush toilets due to their weak financial position. This could partly provide us with the answer to lack of mostly financial resources to invest in flush toilet construction. Therefore addressing these barriers require a multifaceted and strategic approach targeted at various levels from macro, meso and micro levels.

The use of the three theories namely; social cognitive theory, theory of reasoned action and theory of planned behavior provided further insight into understanding and explaining the behavior of the respondents. Furthermore, the anchoring of the findings into previous studies assisted in validating the research findings.

It should be noted that this study makes a lot of references to gender because one cannot talk about sanitation and ignore the gender dynamics at play if people were to access improved sanitation products and services. Gender and sanitation are inseparable if access to improved sanitation for all would be attained by 2030 (GRZ, 2015). As can deduced from the findings and literature review, gender plays a key role in whether people will access or benefit from any sanitation intervention. However, it should be made clear that the use of gender in this study has no inclinations to feminist theories. The use of gender has been restricted so as not to confuse access to sanitation to feminism movement. Though it is acknowledged that the gender construct could be explained using various feminist theories, it is beyond the scope of this study to go into those details. Therefore, one of the recommendations for future studies is to cover the extent to which gender has impacted on the successful implementation of the project.

In summing up this section, it is evident that based on the findings, this study has answered the research aims (questions) it started out to explore which were perceptions, knowledge and hindering factors in relation to construction of flush toilets. The findings are important since they can help improve the lives of poor people in peri-urban areas in Lusaka, Zambia and beyond.

6.2. Conclusion

From the findings, it can be concluded that without applying effective strategies aimed at household behavior change to adopt new and improved sanitation facilities, millions will continue to die from shit related diseases everyone could have prevented had they acted on time. Zambia's vision of becoming a prosperous middle income country by 2030 would remain a pipe dream if sanitation access for all by 2030 was not realized according to the National Urban and Peri-urban Water and Sanitation Programme and echoed in the Urban and Peri-Urban Sanitation Strategy documents. Achieving Sustainable Development Goal number six (6) on sanitation by 2030 for Zambia required a paradigm shift in current approaches by addressing sanitation behavior changes at household level. Fishbein and Ajzen state that "the behaviors people perform in their daily lives can have profound effects on their own health and well-being, on the health and well-being of other individuals, groups, and organizations to which they belong, and on society at large" (Fishbein and Ajzen, 2010, p.1). When sanitation is improved at household level, neighborhoods and communities develop automatically because people especially women spend their time and money on productive things unlike nursing sick family members. The girls also can attend school if sanitation facilities are provided at school thus guaranteeing them the possibility of a brighter future.

I argue that access to improved sanitation was far more than laying sewerage networks or constructing toilets for people. But as could be deduced from the findings, it is more about addressing the social barriers to enable the change of mindset of households to begin to appreciate, value and invest in improved sanitation facilities. Investing in building an appropriate sanitation facility was the evidence of a changed mindset and that had little to do with whether a household had resources or not. Resources come with a changed thought! Improved access to sanitation all hinges on household decisions and choices to adopt improved sanitation facilities. Thus all efforts should be directed towards approaches that propel households to invest in construction of improved sanitation facilities in spite of hindering factors. Furthermore, assisting such girls alluded to under summary improve their status for themselves and for their children required integrated approach to addressing the root cause of their predicament. The integrated approach would cover such issues as education, health, empowerment, gender, among others so as to improve their capabilities (Sen, 2001). Improvement of women's capabilities as primary health care givers automatically benefit the entire household and can save lives of countless number of people especially children.

Additionally, adequate sanitation is an integral part of social development of any community or society. Midgley (1995) and Midgley and Conley (2010) highlight the importance of social development which they termed as a process of harmonizing social and economic objectives in an effort to enhance peoples capabilities to live fulfilled lives. Midgley (1995) states that social development emphasizes intervention at community level coupled with the beneficiaries' participation in resolving their social problems. Therefore, participation of the households in an effort to improve their sanitation status has the potential to change and improve their social, economic and physical well-being.

Finally, social work as the profession aimed at improving peoples' lives by bringing about social change among individuals and their environments as stated by Healy and Link (2012), can utilize the findings in this research and work out various interventions aimed at bringing about that social change in sanitation. The urban poor need to be assisted to not only construct the sanitation social problem in its various forms but to increase awareness around what their rights and obligations were. Realizing the human right to sanitation becomes complicated if households who are the main beneficiaries do not understand and appreciate their obligations; which is this case to construct improved sanitation facilities at household level. The government and other stakeholders could do whatever was within their power to bring improved access to sanitation even behind peoples' backyard as in the case of Kalingalinga, but if beneficiaries do not make choices to benefit from such facilities by playing their part, improved sanitation for all will remain but a pipe dream.

Thus the role of social workers to continuously raise awareness to that effect through utilization of their skills in advocacy, research and mediator role; coupled with behavior change theories, would eventually lead to adoption of improved sanitation behaviors among the urban poor.

7. Recommendations to policy makers

Based on the findings, the hindering factors can be tackled at either macro, meso or micro levels depending on their nature. I make the following recommendations to the Ministry of Local Government and Housing (MLGH) at macro level as the ministry in charge of sanitation policy formulation; to Lusaka City Council (LCC) at meso level as the local authority in charge of implementing sanitation policies; and to LWSC at micro level as actual implementing agency of sanitation policies at community and household level.

7.1. Recommendations to the MLGH

Firstly, the MLGH needs to develop and enhance policies that would incorporate the third sector like Non-governmental organizations (NGOs) to get involved in sanitation service provision in peri-urban areas where the sewerage network has been laid or planned for. NGOs currently are involved in on-site sanitation like constructing pit latrines in rural and peri-urban areas in Zambia especially under the Community-Led Total Sanitation - CLTS (Mukherjee et al, 2009; Morris-Iveson and Siantumbu, 2011). However since Kalingalinga is the first peri-urban areas to benefit from the condominial sewerage network, it calls for even more greater involvement and participation of NGOs to assist vulnerable households construct flush toilets and also raise awareness for improved sanitation services. In order to motivate these NGOs or indeed any other third sector like the private sector, deliberate policies need to be developed by the ministry. This will lead to creation of strong partnerships aimed at abetting the sanitation challenges the urban poor are facing.

Secondly, there is also need for policy direction on phasing out pit latrines in peri-urban areas where sewerage networks have been laid so that households are given a timeframe in which to ensure they construct flush toilets. There seem to be mixed feelings among respondents whether to maintain both the pit latrine and the flush toilet. Landlords with multiple households expressed the need to maintain the pit latrine to be used by tenants while they use a flush toilet once they construct.

Thirdly, the MLGH can also assist in mass media campaigns to raise awareness on the sanitation challenge and its impact on people and the nation. Since this required colossal sums of money, budgeting for mass media campaigns at national level would relieve the financial burden on the local authority and water and sanitation utilities like LWSC.

7.2. Recommendations to Lusaka City Council – Local authority

The findings suggest weak enforcement on the part of the local authority in enforcing the public health act to compel households construct and maintain appropriate sanitation facilities at household level. The pit latrines that were observed during this study looked to be of substandard. This was confirmed from the findings by some respondents who expressed fear or the risk of these toilets collapsing on them or children falling into them. Therefore my recommendation to the local authority is to ensure that the public health act is enforced at household level so as to compel

households to build and maintain their sanitation facilities in order to prevent the spread of diseases.

There is also need for the local authority to enforce the law on solid waste management at household level. Poor waste management at household level is already a concern among households as the findings reveal respondents' fear that the sewerage system would be blocked if issues of solid waste was not managed properly.

7.3. Recommendations to Lusaka Water and Sewerage Company

The findings reveal first of all the need for disaggregated data on households in Kalingalinga to cover much more than house number, name, account number and current status on toilet construction. The information should cover much more aspects such as the socioeconomic status of heads of households and their gender and what assistance they require to enable them to construct their flush toilets. The data to include also information on how many households are represented at each plot. This data if collected will assist in developing individualized approaches and messages for these households so as to speed up the flush toilet construction. The current approach of 'one-size-fits-all' has contributed to the slow pace at which households are constructing their flush toilets.

The second recommendation is that the findings reveal the need for LWSC to consider in engaging massive awareness campaigns targeted at the community and households to educate and sensitize them on all aspects that related to the operation and maintenance of the condominial sewerage system. There is need for messages to be consistent and passed through appropriate channels of communication to enable target audience access correct and timely information to assist in decision making. The findings reveal mixed feelings among respondents on the functionality of the condominial system in light of multiple households and poor solid waste management; which could be attributed to lack of adequate information on how the system is operated and maintained.

The third and final recommendation is the need for capacity building for LWSC peri-urban staff in human behavior change models. The findings reveal a knowledge and skills gap in incorporating behavior change to enable households to adopt the new sanitation system and behaviors. There was concentration on raising awareness on the health benefits of sanitation which is evidenced by the respondents' positive perceptions of flush toilets and good sanitation at the expense of behavior change to adopt new system. As Jenkins and Scott (2007) argue, good health and comfort for improved sanitation facilities never motivated adoption of new sanitation systems. Thus knowledge and skills in behavior change for sanitation improvement implementers need to be enhanced because adoption of improved sanitation by households is more a behavior change issue than anything else.

8. Recommendation for future studies

The following gaps were identified and would require further research:

1) To carry out a comprehensive research on the whole Kalingalinga peri-urban area starting with phase one using the three proposed theories of human behavior. The study should propose possible areas of intervention to bring about desired sanitation behaviors among households. This could be done in separate studies per model or combined.
2) To carry out a similar study but now focusing on households that have constructed their flush toilets in order to explore and understand their behavior. Consider a comparative study with findings from this research to understand how those who constructed flush toilets went passed the constraints they faced.
3) Explore further the extent to which gender has impacted the successful implementation of the sanitation project.
4) Carry out a detailed study that would segment households according to their levels of needs so that intervention strategies are developed and disseminated to intended targets. From the research, households presented different need levels, hence grouping them all as one has affected effective implementation of the project. Specific needs have been left out.
5) Investigate and develop the Human Rights Based Approach modalities for Zambia as it applies to the right to sanitation.
6) Explore further the issue of solid waste management and its impact on the new sewerage network operation and maintenance. This study should also contain proposed measures to effectively manage solid waste in a condominial sewerage system with special reference to Kalingalinga.
7) Explore the strategies that could be developed and their methods of implementation at macro, meso and micro levels with regard to the major hindrances to flush toilet construction as identified in this research.

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10. Appendices

10.1. Consent letter for semi-structured interview

Consent to be interviewed in the study "Perceptions of sanitation structures among poor populations in Lusaka, Zambia: A qualitative study"

Name: _____

Date: _____

This letter is an invitation to participate in the interview for my Master Thesis research under the International Masters Programme in Social Work and Human Rights at the University of Gothenburg in Sweden. My course supervisor is Associate Professor Lena Andersson.

The aim

The aim of the project will be to explore people's perceptions about constructing their own toilets and connecting to the sewerage network in Kalingalinga phase 1 project area of Lusaka.

The interview

You have been asked to participate in this study. Your participation is voluntary and you can withdraw from the interview at any time if you so want to.

Confidentiality

Whatever information you share will be kept confidential and we will ensure anonymity, so no name or other personal information will be used that can identify you in the final report. Only the research team will have access to the information. We will be using a voice recorder only to help us capture everything that is shared during the interview.

In case of any other vital communication regarding the study please contact the persons below.

Beatrice Chiwala on + 260 978 282328 or bcchibwe2001@yahoo.com

Associate Professor Lena Andersson on +46 31 786 5775 or lena.andersson@sockwork.gu.se or

Before we start our interview, do you have any questions regarding the information above?

Respondent Name: _____ Signature: _____ Date: _____

Student Name: _____Signature: _____Date: _____

10.2. Letter of consent for focus group discussions

Consent Form for Focus Group Discussion in the project "Perceptions of sanitation structures among poor populations in Lusaka, Zambia: A qualitative study"

This letter is an invitation to participate in a focus group discussion for my Master Thesis research under the International Masters Programme in Social Work and Human Rights at the University of Gothenburg in Sweden. My course supervisor is Associate Professor Lena Andersson. A focus group discussion is a group discussion where approximately 8 people meet and discuss a topic. The discussion is led by the researcher.

The aim

The aim of the project will be to explore people's perceptions about constructing their own toilets and connecting to the sewerage network in Kalingalinga phase 1 project area of Lusaka.

Focus Group Discussion

You have been asked to participate in this focus group discussion. You are kindly requested to freely share your views and experiences with honesty. Please note that there are no wrong or right answers, everyone's views count and important.

Voluntary participation

Your participation is voluntary and you can withdraw from the interview at any time if you so want.

Confidentiality

Whatever information you share in the group will be asked to remain in the group and in the final report no name or other personal information will be used that can identify you or other members in the group. Only the research team will have access to the information. We will be using a voice recorder during the discussion only to help us capture everything that is discussed.

In case of any other vital communication regarding the study please contact the persons below.

Beatrice Chiwala on + 260 978 282328 or bcchibwe2001@yahoo.com

Associate Professor Lena Andersson on +46 31 786 5775 or lena.andersson@sockwork.gu.se or

Before we start our Focus Group Discussion, do you have any questions regarding the information above?

Do you agree to participate in this FGD?

Name and Signature of FGD leader: _____

Name and Signature of Student: _____

Date and Place: _____

10.3. Interview guide – for semi-structured interviews and focus group discussions

1. Ask generally how households perceived having a flush toilet.
2. How do households perceive good sanitation was and how it would benefit their health? How do they relate having a flush toilet to good sanitation and health?
3. What do they think are hindering factors to constructing their own toilets? What major factors they think are hindering them from constructing their own flush toilets?
4. How do they perceive the new sewerage system?

10.4. Summary table of findings

10.4.1. Summary of categories, themes and sub-themes

Category	Theme	Sub-theme
Perception on flush toilet	User friendly	No squatting
		Convenient for all age groups including children
		No smells and flies
	Prevent diseases	Has its own system
		Removes human waste from premises
	Durable and long lasting	Permanent structures
	Saves space	Does not have to reserve land/space for pit latrines
Knowledge and perceptions on good sanitation	Safety of family members	No collapsing on users
		No risk falling in them
	No digging pit latrines	Spaces not infested with abandoned pit latrines
	Reduced diseases	No contamination of environment with smells
		No risk of contact with human waste from pit latrines
Perceptions on hindering factors to flush toilet construction	Passivity	Not made decision yet
		Comfortable with current status
	Lack or limited of information on subsidy modalities	Misinformation
		Have not heard about subsidy
		Afraid of consequences for failure to pay back loan
	Multiple households	Challenges on how to keep toilet clean
		Challenges of operation and maintenance of toilet components
	Have other commitments	School fees
		Hospital bills
		Electricity bills
	Dependency on husbands and children to fund toilet construction	Dependency on husband to fund construction of toilet
		Dependency on children
	Lack of resources	Affordability of actual cost of construction
		No money to pay connection fees
		Lack either of the resources; manpower to build, building materials (cement, sand, etc),
	Lack of trust in the operationalization of new system	Blockages
		Solid waste management
		Maintenance of system by LWSC