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SANITATION IN A POST-APARTHEID CAPITAL CITY: WINDHOEK IN THE AGE OF ACCELERATED GROWTH

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DICKSON MABANJA KASOTE

201114828

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Supervisor: Dr Volker Winterfeldt

Co-Supervisor: Dr Lucy Edwards-Jauch

Abstract

Sanitation is a social issue. Waterborne sanitation is associated with human dignity and alternative sanitation systems such as dry toilets are considered an option for poor black people hence they face high levels of resistance. Lack of basic sanitation among poor blacks in informal settlements is tantamount to lack of dignity. There is a strong link between sanitation, race (white versus black) and poverty. It is mainly black people who are poor and who live in informal settlements where access to basic sanitation is very limited. City of Windhoek does not have sanitation capacity to cope with accelerated growth. Taking these contrasting realities as a sociological starting point, this study sought to explore the feasibility of integrating the substantial number of serviced units into Windhoek's sanitation system in socially, economically and environmentally sustainable manner. The study employed qualitative research methodology. It used phenomenological and content analysis approaches in collecting data. Experts in sanitation and residents of Havana informal settlement were purposively selected for the study and interviewed in-depth. Windhoek exhibits a divided society. Two conflicting social worlds exist, the poor, mostly blacks in one social world and the rich in the other. Sanitation in post-apartheid Windhoek is discriminatory. The poor, predominantly blacks who migrate from communal areas and small towns to Windhoek are unable to pay for sanitation services, they use shared toilets or practice open defecation. There is also a gender dimension to sanitation. Women and girls are impacted the most by lack of basic sanitation. Water is intrinsic to sanitation. Waterborne sanitation means water, also water is needed to clean dry toilets. There are very important aquifers in the southern and northern parts of Windhoek that need to be protected from contamination that may result from unsustainable sanitation practices.

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Dedication

To my son, Michael J. T. Kasote

Declaration

I, Dickson Mabanja Kasote, declare hereby that this study is a true reflection of my own research, and that this work, or part thereof has not been submitted for a degree in any other institution of higher education.

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CHAPTER 1: INTRODUCTION

1.1 Orientation of the proposed study

Due to intense rural-to-urban migration, Windhoek, the capital city of Namibia, experiences accelerated growth. A number of factors contribute to the mobility of the population. The freedom of movement granted by the Constitution of 1990; the agglomeration of private and public sector enterprises offering employment opportunities; the conspicuous number of educational institutions; attraction by urban life and its consumerist culture, and - lately - the mass application for land by landless youth spearheaded by the Affirmative Repositioning (AR) movement – all these elements attract increasing numbers of migrants in particular from the communal areas of the country. Once settled in town, the newcomers all need housing and rely on municipal services. Sanitation is one of them, and of utmost importance, essential as it is for public health.

The government of Namibia is committed to providing affordable housing to all Namibians. The mass housing programme was proposed in order to remedy the acute shortage of affordable housing (GRN, 2013). The programme targets the construction of 185 000 housing units by the year 2030. This means formalisation, the remediation of the informal, a means to eliminate the spatial and social divide between the rich and the poor in the country's urban areas. In addition to that, the Affirmative Repositioning movement, in its Housing Charter 31 (AR 2015, p.28), proposes the provision and servicing of at least 200 000 plots across Namibia. Combining the number of erven projected by government's programme and the 200 000 units proposed by AR brings the total number of new serviced units to 385 000. The city of Windhoek, together with other major urban areas in the country will be at the centre of

these developments. Both policy documents tacitly imply that servicing comes with waterborne sanitation. However, they do not instruct local authorities to concomitantly conform sewerage infrastructure to the increased load factor.

Namibia's core policy document on sanitation, the National Sanitation Strategy 2010/11 - 2014/15 (GRN 2009, p.9) emphasises the "need for potable water and basic sanitation services in Namibia as one of the major basic essential needs". The document admits to significant shortcomings in sanitation coverage in rural as well as in urban areas since independence. It stresses that the delivery of water and sanitation services continues to be among the great questions of the day after 25 years of independence. To date, as a legacy of apartheid, sanitation standards remain a social issue. Marginalised black Namibians are forced to live in informal settlements and crowded formal locations while rich, predominantly white residents can afford living in the formal, affluent parts of the cities. Informal living and housing conditions largely lack safe, waterborne sanitation while municipal regulations of course enforce the integration of formal housing into the existing drainage system. Within the typical setup of a post-apartheid city, Windhoek's residents experience sanitation according to their social class. Gender also plays a role; women and girls are most affected by lack of basic sanitation and water. They bear the burden of poor health and security risks when forced to go out to defecate leaving the privacy and safety of their shanty homes (WaterAid, n.d.)

Waterborne sanitation in urban centres requires considerable amounts of water to transport human waste via sewerage systems for treatment or disposal in a manner that does not leave the public at the risk of contracting diseases, as the Water Supply and Sanitation Policy of

2008 spells out (WSASP, 2008, p.4). As a natural factor in the equation, however, Namibia's aridity possibly limits the scope of an expansion of urban water provision.

Picture 1: Communal toilets in Havana informal settlement

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1.2 Statement of the problem

A cursory scrutiny of the available data indicates that there is limited information on the current trends and the impact of accelerated urban growth on basic sanitation. Post-apartheid Windhoek is divided both socially and spatially on the basis of social class, economic status

and race. Taking these contrasts as its sociological starting point, this study seeks to explore the feasibility of integrating the substantial number of serviced units proposed by mass housing programme and AR into Windhoek's sanitation system without causing serious socio-environmental problems. It intends to establish whether Windhoek's sewerage infrastructure can sustain rapid extension, taking into consideration societal, economic and environmental factors.

1.3 Objectives of the study

The main objective of this study is to explore the different ways of providing sanitation services to the beneficiaries of mass housing programmes in Windhoek in a socially, racially, economic and environmentally sustainable way.

Specific objectives are:

- To identify the factors influencing sanitation in the context of accelerated urban growth
- To investigate the socio-cultural context and the economic, political and environmental impact of expanded sanitation services.

1.4 Significance of the study

Sanitation is fundamental to the individual's dignity and to sustainable socio-economic development of every society. Namibia's Vision 2030 emphasises the inclusion of every citizen in all areas of development. This study comes at a critical juncture when Windhoek is at the verge of accelerated expansion as a result of urban land application by landless youth within the context of affirmative repositioning and mass housing. Mass housing strategies should include plans for sustainable sanitation. In the framework of the Millennium

Development Goals (MDGs), access to basic sanitation is one of the most important milestones which were not achieved in Namibia. Goal number six of the post 2015 development agenda, the Sustainable Development Goals (SDGs), calls for access to water and sanitation for all. This study sought to generate knowledge pertaining to sanitation in the age of accelerated urbanisation in Windhoek in particular and the rest of Namibia.

1.5 Limitations of the study

Given the qualitative phenomenological orientation of the research design which was supplemented by desk-based content analysis, this study was limited to the capital city Windhoek, as well as in its size and statistical scope, therefore generalisation of its findings was limited. Interviewees were Windhoek-based experts and shack dwellers in Havana informal settlement alone. Provision of water and sanitation services in other informal settlements of Windhoek, in other formal districts of the city as well as other urban areas and rural areas in Namibia was not investigated.

CHAPTER 2: LITERATURE REVIEW AND THEORETICAL FRAMEWORK

2.1 Sanitation from a global perspective

Sanitation refers to the provision of facilities and services for the safe disposal of human urine and faeces (WHO, 2015). Throughout history, people have intuitively known that improper disposal of sewage leads to unhealthy living conditions (Maine CDC, 2013). Today, societies in both developed and developing countries strive to maintain safe waste disposal systems. It is argued that "the oldest written account of sewage disposal seems to be from the Old Testament of the Bible, for armed scouts 'Thou shalt have a place also without the camp, whither thou shalt go forth abroad. And thou shalt have a paddle upon thy weapon; and it shall be, when thou wilt ease thyself abroad, thou shalt dig therewith, and shalt turn back and cover that which cometh from thee.' Deuteronomy 23:12-13" (Maine CDC, 2013, p. 3).

Human excreta just like any other waste have to be disposed of in a manner that does not compromise public health and individual dignity. Tratschin argues that "the lack of access to sanitation and the means of good hygiene is an assault against human dignity. Lack of a toilet in the home means millions of people have to spend time walking to unhealthy and sometimes unsafe locations to defecate" (Tratschin, n.d.). The argument by Tratschin is relevant to the context of Windhoek as a post-apartheid capital city characterised by the separation of classes based on race and economic status. Poor black people have limited or no access to basic sanitation while the rich, mainly whites and middle to high income black families can afford waterborne sanitation. Basic sanitation or lack of it represent social structure and the existence of different social classes which are defined by Wright (2003) as social categories sharing subjectively-salient attributes used by people to rank those

categories within a system of economic stratification. Wright (2003) further says that class is defined in terms of material standards of living, usually indexed by income or, possibly, wealth. Following the Weberian and Marxist tradition of social theory, Wright argues that "class is contrasted to the many other determinants of a person's life chances – for example, geographical location, forms of discrimination anchored in ascriptive characteristics like race or gender, or genetic endowments…." (Wright, 2003, p. 2). It can therefore be argued that one's social class, in this case, in a post-apartheid setting determines whether the individual can have access to basic sanitation.

UNESCO World Water Development Report as cited in Krekeler (2008) stated that in 2008, "1.1 billion people lacked access to improved water supply and 2.6 billion to improved sanitation. In the vicious poverty/ill-health circle, inadequate water supply and sanitation are both underlying cause and outcome: invariably, those who lack adequate and affordable water supplies are the poorest in society" Krekeler (2008,p.1).

"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" (WHO, 2015, p.1). The Maine CDC, Division of Environmental Health says that in the 1800s Europe and Americas, dumping waste in the streets and rivers led to unsanitary conditions and many epidemics. Cholera and typhoid fever were among the more common and deadly diseases spread by improper waste disposal. In the 21st century, unsafe sanitation practices are still responsible for such diseases as cholera, especially in the global south. Poor sanitation has detrimental effects on society; the effects are crosscutting as they have economic, social, political and cultural dimensions.

Globally, the problem of inadequate sanitation is becoming more and more an urban problem, notably due to rural to urban mobility as populations migrate to urban areas hoping to find jobs and better living conditions. Inadequate sanitation entails the lack of basic sanitation infrastructure. The growth of capitalism and market economies, coupled with erratic rainfall patterns as a result of climate change have left rural populations who once relied on crop production and animal husbandry with no choice but to migrate to urban areas. These rural-urban migrants end up living in informal settlements that have little to no access to basic sanitation infrastructure. Black and Fawcett as cited in McFarlane, Desai and Graham assert that "the global sanitation crisis is urbanizing. At least 23 percent of the 2.6 billion people lacking adequate sanitation live in urban environments, usually in informal settlements" (McFarlane, Desai and Graham, 2014, p.1). This is evident in developing countries in Africa and South America where sanitation in informal settlements is not given enough attention. McFarlane, Desai and Graham (2014) argue that sanitation is both one of the most important and one of the most neglected areas of human development.

Lane (as cited in McFarlane Desai and Graham 2014) says that in 1990, 2.5 billion people, out of a global total of 5.3 billion, lacked access to adequate sanitation. By 2008, the proportion had reduced but the total had grown to 2.6 billion of 6.7 billion. Also, Mara (as cited in McFarlane Desai and Graham 2014) argues that one fifth of the world's population regularly defecates in the open. This is supported by the United Nations' report on the Millennium Development Goals which states that in 2015, one in three people (2.4 billion) still use unimproved sanitation facilities, including 946 million people who still practise open defecation. Today over 880 million people are estimated to be living in slum-like conditions in the developing world's cities. (United Nations, 2015, p. 8)

This is a serious social problem as it leads to outbreaks of disease and jeopardizes public health. The human cost of open defecation and other unsafe sanitation practices is “as staggering and tragic as it is unnecessary: Diarrhoea, usually the result of food or water contaminated with faecal matter, kills a child every fifteen seconds…” (McFarlane Desai and Graham 2014, p.3) this is supported by the United Nations’ Inter-Agency Task Force on Gender and Water which argues that the lack of sanitation facilities and poor hygiene cause water-borne diseases, such as diarrhoea, cholera, typhoid and several parasitic infections. Moreover, the incidence of these diseases and others linked to poor sanitation – e.g., roundworm, whipworm, guinea worm, and schistosomiasis – is highest among the poor, especially school-aged children (GWTF, 2015, p. 5).

In India urban informality and unsafe sanitation practices are causing great concern. Kounteya Sinha, in his article titled *Toilets of the future will be field tested in India, says Bill and Melinda Gates Foundation*, states that unsafe methods to capture and treat human waste result in serious health problems and death - food and water tainted with pathogens from faecal matter results in the deaths of roughly 700,000 children each year (Sinha, 2015). The government of India, however has made sanitation a matter of priority. The Bill and Melinda Gates Foundation through its ‘Reinvent the Toilet Challenge’ initiative intends to build the world's most innovative toilet in India.

Some of the world's most unique toilets - one that will use ultra-sound to reduce water use or one that will cultivate black soldier fly larvae using human faeces which will then be processed into valuable products or a model which will have microbial fuel cells to power cell phones with urine, will soon be tested in India (Sinha, 2015, para.1). This system might

be an answer to sanitation woes in most developing countries such as Namibia that are facing rapid, unsustainable urban development.

The GWTF (2015) argues that each year, more than 2.2 million people in developing countries die from preventable diseases associated with lack of access to safe drinking water, inadequate sanitation and poor hygiene. “The social and environmental health costs of ignoring the need to address sanitation (including hygiene and wastewater collection and treatment) are far too great” (GWTF, 2015, p. 5).

2.2 Regional discourse on sanitation

In South Africa, a society that shares the same history of discrimination as Namibia, a history of apartheid, waterborne sanitation is perceived as the only type of sanitation that can restore dignity to the previously discriminated indigenous people (Eales, n.d.). Society is reluctant to accept other sanitation options. Eales (n.d) states that “Flush toilets are a powerful symbol of dignity and aspiration to a better life, and anything other than a flush toilet is regarded as second best, discriminatory, and at best an interim option until ‘a proper toilet’ can be installed” (p.3).

The South African society is heavily divided. The gap between the rich, predominately white Afrikaners and poor blacks is quite alarming. The socio-economic inequality which is a legacy of apartheid is reflected in urban sanitation. In her paper titled ‘Rethinking sanitation improvement for poor households in urban South Africa, Kathy Eales says that: In South Africa, flush toilets have historically been associated with white privilege, and dry toilets with racial discrimination. The sector slogan ‘Sanitation is Dignity’ has deep resonance, and

in urban areas, anything other than a flush toilet is regarded as inferior and at best an interim option. The emphasis on dignity, rights and aspirations has led to a focus on toilet technologies, rather than on integrated sanitation improvement. But rapid extension of reticulated water and sanitation infrastructure is creating significant bulk infrastructure bottlenecks; the focus on meeting coverage and bucket eradication targets far bolder than the MDGs is compromising sound operation and maintenance, and there is widespread evidence of wastewater treatment failures which have severe consequences for human health and the natural resource base…. (Eales, 2008, p. 1)

The history of racial discrimination and separate development seem to be a crucial factor when it comes to dialogue regarding sanitation in South African cities and towns. It can be argued that providing waterborne sanitation to all households is proving unsustainable but poor black South Africans make it difficult, perhaps justifiably so, for local authorities to introduce alternative sanitation systems that have proven to be safe and reliable. Decentralised sanitation, which is defined as sanitation systems that are not connected to the main sanitation grid would ease the pressure on service providers and make the lives of the poor majority pleasant as it is generally “the poorest and most vulnerable who wait the longest for service improvements, and who are most at risk when services fail” (Eales, 2008, p. 1). There are compelling reasons to pursue other approaches to sanitation improvement, but a comprehensive shift in approach is unlikely soon in South Africa (Eales, 2008).

2.3 Sanitation in Namibia

The Namibia Sanitation Situational Analysis Report defines sanitation as interventions that improve the management of human excreta and "grey water" or sullage (GRN, 2009). The

report says “a wide range of sanitation systems exist to properly and safely manage excreta. All these systems are more or less complex but they all obey to the human excreta management cycle which generally includes the following steps: disposal (user interface and storage), collection, treatment (on site or off site), transfer and re-use (sludge or treated effluent)” (GRN, 2009, p.12). This cycle covertly posits that sanitation is waterborne. It does not leave room for decentralised dry sanitation systems.

Options for a decentralised sanitation system have not been explored in detail in Namibia despite the fact that some models such as the Otji toilet and VIP toilets have been implemented to varying degrees of success.

The Water Supply and Sanitation Policy (WSASP) states that its operative strategy would be to “Guarantee safe and affordable sanitation, encouraging decentralised sanitation systems where appropriate. The strategy should also promote recycling through safe and hygienic recovery and use of nutrients, organics, trace elements, water and energy or the safe disposal of all human and other wastes, including sewage and industrial effluent, in an environmentally sustainable fashion” (GRN, 2008, p.4).

The policy provides a framework for decentralisation of sanitation services, which could be used as the basis for implementing systems that are sustainable given the arid conditions and water scarcity. However, it seems that decentralised systems such as dry toilets are not readily welcome by the vast majority of previously disadvantaged black Namibians, just as is the case in post-apartheid South Africa (Eales, 2008).

In principle, previously disadvantaged citizens are given the opportunity to choose the types of sanitation which is acceptable for them. The WSASP says that communities should have the right, with due regard for environmental needs and the resources and information available, to determine which water and sanitation solutions and service levels are acceptable to them within the boundaries of the national guidelines. Beneficiaries should contribute towards the cost of the water and sanitation services they desire at increasing rates for standards of living exceeding the levels required for providing basic needs. (GRN, 2008, p.3)

Namibia is a divided society, in other words two different societies exist due to socio-economic inequality and other legacies of apartheid. These societies are best demonstrated by the structure of urban areas, which usually comprise of the rich in formal parts and the poor in informal districts of the city. The societies have two different types of sanitation technologies, waterborne and other alternatives. One is left to wonder whether the poor, mainly migrants who cannot afford waterborne sanitation have to call for a welfare state so that they can have access to waterborne sanitation and gain their dignity back, since sanitation is a social issue. The situation is exacerbated by the fact that Namibia is an arid country and water is a scarce resource as Smit (2015) argues.

2.4 Windhoek, a post-apartheid capital city

Post-apartheid refers to a state of being that came with the abolition of racial segregation as well as social, political and economic discrimination against black people and coloureds in Namibia starting with the repeal of apartheid laws at the end of the 1970s and systematically pursued after the country got independent from South African rule. Capital city is defined by Oxford Advanced Learners Dictionary (2005) as the most important town or city of a

country, usually where the central government operates from. This is where political power is centred. Windhoek is the administrative and economic capital of Namibia. People from different cultures converge in Windhoek as they come to the city searching for jobs and to be close to power.

Windhoek continues to grow. Before independence, in other words, apartheid Windhoek had a population of 192 200 inhabitants in 1980 (Simon, 1983). The 2011 Namibia Housing and Population Census shows that Windhoek's population increased from 233 529 to 325 858 inhabitants between 2001 and 2011. This means 92 329 people were added to the city in 10 years, representing 39.5% increase in growth. Migrants come in from the different regions of Namibia and outside Namibia's borders. During apartheid or the colonial era, black Namibians were not allowed to move from one place to the other freely, they were confined to rural areas. Due to the contract labour system, blacks only moved to urban areas and other places for employment. After independence, black people are free to move to urban areas and settle in cities such as Windhoek. In the cities, these poor migrants are segregated as an effect of their disadvantaged economic status, they do not own houses and they do not have in-house toilets (2011 Namibia Population and Housing Census, 2013). Inadequately serviced informal settlements absorb the majority of the newcomers and sanitation woes are rife in these informal areas. Since independence, Windhoek has increased significantly in size and number of inhabitants and rural-urban migration has been pointed out as the major contributing factor.

Cultures of water play a huge part in discussions surrounding sanitation. Historically, water was considered a natural resource accessed free by anyone at any given time. As Greywater Action argues, the "right to water is the most basic human right. Water is the lifeblood of the

planet, and the fight for water is a social justice struggle at the intersection of political power plays and environmental science" (Greywater Action, n.d., para.1). In the traditional life-worlds of Namibian communities, water is considered as a gift of nature freely accessible to every member of that community. Christian culture adds the element of shame, deeming it an abomination for a woman to defecate in the open or in riverbeds. Environmental health is also at stake when a city's sanitation management is malfunctioning. Hasheela (2009) argues that:

> At the national level, the environment is threatened by unsafe waste disposal, which is detrimental to the environmental integrity and posing health hazards. Waste management is important aspect of environmental management in Namibia, due to the fact that waste is a threat to the integrity of the environment (p.10).

The increasing frequency of water shortages of the past years intensifies pressure on the municipal sanitation sector. The City of Windhoek (CoW) is forced to play the devil's advocate by rationing water supplied to households as the state-owned water utility, the Namibia Water Corporation (NamWater), will not be able to sustain the provision of the required amount of water. "The City of Windhoek, on the verge of water crisis because of the highly depleted state of its main supply dams, may soon resort to rationing water supply to households if the crisis persists and worsens" ("Water rationing a last resort for Windhoek" 2015, p.1). The situation in early 2016 required household and industrial users to reduce their water consumption by more than 25 percent.

Existing knowledge shows an imbalance in municipal services between the formal and informal districts of Windhoek. This imbalance has resulted in the call for mass housing, a

programme that will require the servicing of all residential plots. The mass housing concept does not question waterborne sanitation and sees it as the only acceptable option. Windhoek as the capital city of Namibia is expected to experience accelerated growth as a result of the mass housing initiative started in 2013 by the government and the Affirmative Repositioning (AR) movement which calls for the distribution of affordable urban land and housing to the poor, especially those in informal settlement (AR Housing Charter, 2015). If CoW already now has problems supplying water to the current number of houses, the situation will be even more cumbersome when the mass housing construction resumes and provision of urban land takes off. This entails a sharp increase in the number of erven to be connected to the centralised water supply and sewerage systems. There is need for proper planning and conceptualisation of a sustainability strategy for the provision of sanitation services.

Sustainable development entails development that takes into account social, economic and environmental factors. This is reflected in the WSASP, which says in the national development context, the Water Supply and Sanitation sector, responsible for water and sanitation as public goods affecting all, will be expected to contribute towards social development and to provide the necessary environmentally sound infrastructure for economic development (MAWF, 2008). The National Sanitation Strategy also says its mission is "to provide, with minimal impact on the environment, acceptable, affordable and sustainable sanitation services for Namibian households." (MAWF, 2009, p.9)

Namibia is an arid country. Population growth makes water a progressively scarce resource which needs to be managed carefully. Sanitation problems in Windhoek reflect the aridity of the region as a whole. In addition, Windhoek has a rocky topography that makes servicing land extremely costly. There are gaps in knowledge that need to be filled; the capacity of

Windhoek's sewerage system and wastewater treatment plants has to be explored. "There is a small but growing literature on urban informal sanitation, but we lack an understanding of how residents get access to, maintain, experience, and politicize sanitation on a day-to-day basis" (McFarlane, Desai &Graham, 2014, p.1). Also, there is need for information pertaining to human and financial resources required for the sustainable maintenance of Windhoek's sanitation infrastructure.

Windhoek has very important underground water reservoirs. The aquifer in the southern part of the city is of good quality and deemed sufficient to supply the city for years. Poor sanitation may lead to the pollution of these aquifers; therefore, it is imperative that the municipality puts measures in place to protect the aquifer from industrial and household waste. Polluted or contaminated aquifers and water sources jeopardise public health.

Sanitation of households, schools and communities not only impacts on education and economic productivity, it is an essential condition to enable communities to live in dignity and to realise their full potential. Human rights of equity and justice demand this issue to be addressed with highest priority (Tratschin, n.d.). Rural-to-urban migrants who settle on the peripheries of Windhoek are targeted as the major beneficiaries of mass housing initiatives, and they demand for waterborne sanitation.

Decentralized Wastewater Treatment Systems (DEWATS) approaches discussed for South Africa would suggest alternatives to waterborne sanitation in Windhoek and Namibia in general. The use of dry toilets made available to shack dwellers by the Municipality that require little to no water can increase access to basic sanitation for poor black households. However, like in South Africa, flush toilets have historically been associated with white

privilege, and dry toilets with discrimination (Eales, n.d.). Dry toilets are associated with the stigmata of poverty, social marginalisation of black communities in the post-apartheid social setting. Similarly, the Maine Centre for Disease Control, in its presentation on the history of sewage disposal demonstrates the link between sanitation and social structure or class.

"Around AD 100, direct connections of homes to sewers began, and the Romans completed most of the sewer system infrastructure. Sewers were laid throughout the city, serving public and some private latrines. It was mostly the wealthy whose homes were connected to the sewers, through outlets that ran under an extension of the latrine" (Maine CDC, 2013, p. 9).

Supporting the view that poverty is associated with inadequate and unsafe sanitation practices, Davis (2006) and Neuwirth (2006) (as cited in McFarlane, Desai and Graham, 2014) argue that informal settlements are poor, underserviced, and urbanizing faster than cities more generally.

In Namibia, the WSASP says its operative strategy would be to guarantee safe and affordable sanitation, encouraging decentralised sanitation systems where appropriate. The strategy should also promote recycling through "safe and hygienic recovery and use of nutrients, organics, trace elements, water and energy or the safe disposal of all human and other wastes, including sewage and industrial effluent, in an environmentally sustainable fashion" (GRN, 2008, p.7). This, however, contrasts with the socio-cultural factors mentioned earlier. Negative perceptions and attitudes towards decentralised sanitation systems and drinking reclaimed water are an area of concern.

As a post-apartheid city, Windhoek endures the legacies of apartheid. Formal and informal districts of the city display contrasting realities when it comes to sanitation and socio-

economic conditions in which the inhabitants live. Sanitation is a matter of serious concern affecting shack dwellers. The question remains, does the city have the capacity to absorb the ever increasing pressure as the population continues to grow?

The AR Housing Charter (2015) says that town councils have limited capacities to provide urban serviced land for residential purposes. The major problem highlighted in the document is the lack of financial and human resources needed to service land and the overreliance on expensive consultants. These factors may lead to the resurgence of apartheid in the post-apartheid setting; a situation where poor black urban residents are exposed to a number of socio-environmental problems based on their socio-economic status and spatial location.

The Water and Sanitation Policy says essential water supply and sanitation services should become available to all Namibians, and should be acceptable and accessible at a cost which is affordable to the country as a whole (MAWF, 2008). This means every Namibian, including those in informal settlements of Windhoek and the beneficiaries of the proposed mass housing scheme are entitled to affordable water and sanitation services. It is assumed or taken for granted that CoW will extend the current sanitation grid to the informal settlements and new residential suburbs. The question of capacity and sustainability arises immediately.

2.5 A gender dimension of sanitation

There is also a gender facet to sanitation. Women are affected the most by poor sanitation services due to several factors; they have to find ways of disposing waste, including faecal matter in a way that does not bring shame and put them at the risk of sexual abuse. Sanitation is a key dimension of urban poverty and it is “profoundly differentiated by relations such as

gender, age, ethnicity, income, and ability" (McFarlane, Desai and Graham, 2014, p.2). Gender relations must be central to any sanitation analysis and intervention. The Inter-Agency Task Force on Gender and Water argues that "efforts geared towards improving the management of the world's finite water resources and extending access to safe drinking water and adequate sanitation, often overlook the central role of women in water management" (GWTF, 2015). It is fundamentally important to take into account women and girls when designing and installing sanitation infrastructure. Providing physically accessible clean water is essential for enabling women and girls to devote more time to the pursuit of education, income generation and even the construction and management of water and sanitation facilities (GWTF, 2015).

A focus on gender differences is of particular importance with regard to sanitation initiatives, and gender-balanced approaches should be encouraged in plans and structures for implementation (GWTF, 2015). The GTWF recommends all governments to facilitate access to grants or credit on concessionary terms for women's groups for installation and maintenance of adequate drinking water supply and sanitation facilities.

2.6 Culture and sanitation

Culture also plays a role in sanitation practices. Black and Fawcett (as cited in McFarlane, Desai and Graham, 2014) argue that there is a challenge of raising awareness about an often-taboo subject. In Namibia like many African societies, it is almost impossible to discuss the subject of open defecation or the disposal of human waste with indigenous people without attracting criticism, it is taboo in many societies.

It is imperative to assess the sustainability of urbanisation in a context where various factors are pushing the city towards water stress. According to Smit (2015), the central regions of Namibia, including Windhoek, would experience a dire water shortage when the supply dams run dry by August 2016. The objective of the sanitation sector as outlined in the WSASP is to "improve the provision of sanitation services in order to contribute towards improved health and quality of life, ensure an hygienic environment, protect water sources from pollution, promote conservation of water and Stimulate economic development" (MAWF 2008,p. 7). Inasmuch as the sector policy's overall objectives clearly state what ought to be achieved, sustainability of the provision of sanitation to all residents, of different racial and socio-economic groups should be given adequate attention.

2.7 Theoretical framework

This study intended to connect environmental sustainability, economic costs, current managerial capacities in the sanitation sector and social justice within the context of urban growth and sanitation. These four form a field of power where contradictory trajectories clash. In its efforts to remedy the shortage of affordable housing, formalise the informal, and ensure dignity for all residents, CoW might end up creating environmental and social costs. Reasoning from a Social Conflict viewpoint, the study demonstrates that mass housing and sanitation in Windhoek can create a social system of social entities that are not equal, and therefore consistently generate conflict and change (Goodfriend, n.d.). This study argues that Windhoek is a divided and unequal society. The researcher strove to demonstrate the magnitude of the sanitation situation in Windhoek using qualitative research methodology and employed content analysis and phenomenological research.

CHAPTER 3: METHODOLOGY

3.1 Research design

This study employed qualitative research methodology, which can be described as an approach rather than a particular design or set of techniques (Welman, Kruger & Mitchell, 2005). The study made use of two qualitative research methods namely content analysis and phenomenology. Seeking information on current and future sanitation in Windhoek, a large part of the study was content analysis which is documentary, desk-based research. The content analysis component was complemented by phenomenological research, which entails the qualitative exploration of the field involving experts and users of sanitation facilities, as well as by systematic observation of the existing sanitary infrastructure in selected informal areas of Windhoek.

3.1.1 Content analysis

Elo &Kyngas (2007) define content analysis as a method of analysing written, verbal or visual communication messages. Further to this, (Berelson, 1952; GAO, 1996; Krippen-dorff, 1980; and Weber, 1990) as quoted in Stemler (2001) say that content analysis has been defined as a systematic, replicable technique for compressing many words of text into fewer content categories based on explicit rules of coding. It is also defined as "any technique for making inferences by objectively and systematically identifying specified characteristics of messages" (Stemler 2001, p. 1).

In the framework of content analysis methodology, Namibian policy and strategy documents, newspaper articles reflecting public perception of sanitation issues, and the southern African academic debate on alternatives to centralised waterborne sanitation were scrutinised as part of data collection. The researcher delved deep into existing literature on sanitation from government departments and academic researchers and analysed the different debates and assumptions around the subject.

3.1.2 Phenomenological research

The term phenomenology, "first expressed by Immanuel Kant in 1764, is derived from the Greek phainein, meaning 'to appear'" (Priest, 2016, p.50). It is further stated by Priest (2016) that "the aim of phenomenology, then, is to produce a description of a phenomenon of every-day experience, in order to understand its essential structure. Specifically, eidetic phenomenology aims to determine the form and nature of reality as mediated through an individual's experience of it" (Priest, 2016,p.51). In this study, the researcher employed the phenomenological method in order to understand the sanitation situation in Windhoek from the experiences of the experts and the recipients of the perceived discriminatory sanitation services.

The qualitative exploration of the field, phenomenological in character, engaged experts in sanitation, engineers, city planners, shack dwellers and other key stakeholders. Based on in-depth interviews, the phenomenological component of study attempted to understand perceptions, perspectives, and understandings of a particular situation (Leedy &Ormrod, 2010). In phenomenology, human experience cannot be separated from the person who is experiencing it (Welman et al., 2005).

The data generated by both the documentary and qualitative research efforts was subjected to the data analysis method content analysis, that is the identification of “patterns, themes and biases” and their “detailed and systematic examination” (Leedy and Ormrod, 2010).

3.2 Population

Welman et al., (2005) define research population as the study object which can be individuals, groups, organisations, human products and events. The population encompasses the total collection of all units of analysis about which the researcher wishes to make conclusions (Welman et al., 2005, p.52).

The research population was concentrated on two groups of Windhoek-based individuals: experts in sanitation namely engineers, city planners and policymakers and secondly, shack dwellers in Havana informal settlement. While the former command scientific, technical, administrative and political knowledge, the latter were asked to share their practical experience of discriminatory sanitation.

3.3 Sample

The sample was selected using purposive sampling, the non-probability sampling technique that allows the researcher to select the elements of the population that suit the needs of the research. Ten experts in sanitation and ten shack dwellers from different households were identified for in-depth interviews. The experts were selected purposively based on their experience and expertise in the field of sanitation in Windhoek. Bearing in mind that informal

sanitation infrastructure also discriminates in terms of gender and given the cultural norms regulating defecation and disposal, the shack dweller respondents were equally represented by gender. The sample had a total of twenty respondents. The documents that were scrutinised in content analysis were also selected using purposive sampling. The research took time to study the different documents that address the issue of sanitation in Namibia and Windhoek in particular and selected those that explicitly discuss the historical back-ground, the current situation and the foreseeable future of sanitation, clearly demonstrating whether the sector is socially, economically and environmentally sustainable.

3.4 Research instruments

During fieldwork, the researcher used an unstructured interview guide to interview the experts and a focus group discussion (FGD) interview guide was used during the focus group discussion with shack dwellers in Havana informal settlement. The interview questions were carefully designed and presented so as to generate meaningful data.

The researcher used the relational analysis model in content analysis. Wilkinson and Birmingham (2003) say that relational analysis begins by identifying themes or issues to explore. However, unlike the majority of other analyses, this approach attempts to explore and identify relationships between the themes or issues. Systematic observation complemented the range of research instruments, taking photographic evidence of the impressions gained and/or documenting it by taking notes.

3.5 Procedure

Data were collected from a body of material or documents that included books, research reports, policy documents, newspapers and many other with information related to sanitation in Namibia. The researcher scrutinised the documents and arranged pieces of information that are related and grouped them into themes and categories. Under the phenomenological design, individuals were selected as part of the research sample for interviews based on their expertise in the sanitation sector. Ten individual interviews were conducted with experts in sanitation and officials from the City of Windhoek. The experts provided insights on the current sanitation situation and predicted the future of sanitation in Windhoek considering the current trajectory of urbanisation. Officials from the City of Windhoek provided information on the status of sanitation in both formal and informal districts of Windhoek, the capacity of the sewage and wastewater treatment infrastructure as well as the threats and opportunities in sanitation in the context of accelerated urban growth. A group of ten shack dwellers from the Havana informal settlements were also interviewed in a focus group discussion. These shared their experiences with alternative sanitation and their perceptions on the provision of sanitation services or the lack of it to shack dwellers by the municipality The researcher suspended all preconceived notions or "personal experiences that may unduly influence what the researchers hears the participants saying" (Leedy &Ormrod 2010, p.141). Most of the interviews were recorded on a digital voice record with the consent of the informants while handwritten notes were taken in order to supplement the recordings and to keep the researcher engaged.

3.6 Data analysis

Content analysis allowed the researcher to analyse data throughout the course of data collection. Keywords and themes generated through the documentary research were grouped and categorised in order to determine their frequency in the different documents. The researcher then interpreted the coded and grouped data, and confronted them with the interview data. Interviews were transcribed and translated together with data obtained from the desk-based content analysis into a narrative in relation to the research objectives. The researcher transcribed audio recordings. Handwritten notes were converted into write-ups, which were further analysed. Codes are defined by Welman et al. (2005) as tags or labels that attach meaning to raw data or notes collected during field work. The researcher employed the pro-cess of data reduction through coding and categorisation since qualitative methods produce large amounts of data as argued Sekaran and Bougie (2013). The process allowed the researcher to clearly visualise how the data would be presented and to draw some conclusions. The data from the field together with those obtained from desk based content analysis were commented on and analysed so as to present a new narrative based on what came from the research. The researcher also sought to identify and document themes during data analysis. Ryan and Bernard as quoted in Welman et al. (2005) argue that theme identification is one of the most fundamental tasks in qualitative research. “Themes can be described as umbrella constructs which are usually identified by the researcher before, after and during the data collection” (Welman et al. 2005, p. 211). The researcher was able to identify themes in the discussions around the provision of sanitation services in Windhoek. The themes allowed the researcher to present and discuss the findings in a manner responsive to the research objectives.

3.7 Research ethics

The researcher strived to be ethical throughout the research process. Participants were treated humanely, and with dignity and their rights were protected; their participation was strictly voluntary (Bless, Higson-Smith &Sithole, 2013). The researcher made sure that the participants have their rights to privacy and protection from psychological harm. The researcher did not use any surreptitious means to collect information from an uninformed individual. Sources of information were anonimised. All material and information attained from other scholars was acknowledged and attributed to them, thus avoiding plagiarism. During data analysis and reporting of findings, the researcher did not change or modify the data in order to suit the set objectives of the study. The researcher recognises that the "fabrication of or falsification of data is a very serious ethical transgression" (Bless et al., 2013, p.35). The researcher strived to avoid "scientific misconduct" which occurs when a researcher falsifies or distorts the data or the methods of data collection or plagiarizes the work of others (Neuman, 2014, p.146). Considering the fact that discussions on sanitation venture into individual privacy and other socially debated avenues, the researcher made sure not to include names or other forms of identity that could result in humiliation or degrading the informants.

To ensure anonymity, confidentiality and privacy, the researcher did not mention the participants' names in the report; instead labels were given to each informant whenever necessary.

CHAPTER 4: DATA PRESENTATION, ANALYSIS AND INTERPRETATION

4.1 Introduction

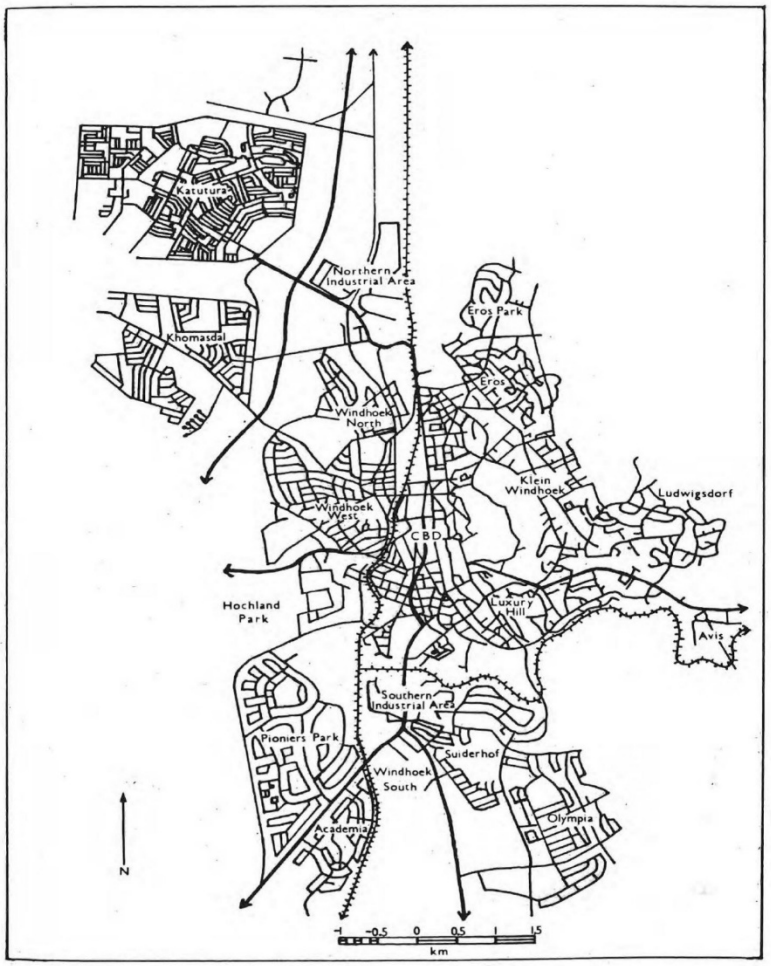
This chapter presents, discusses and analyses data collected from primary and secondary sources. Primary sources are the experts in sanitation and the shack dwellers in Havana informal settlement. The experts, mainly engineers at CoW gave some insights on alternative sanitation systems that were piloted in Okahandja Park informal settlement, which was not the main focus of the study. Secondary sources are the documents that were subjected to content analysis. Findings from phenomenological field research are integrated with findings from the desk-based content analysis. The findings indicate the opportunities and challenges in the provision of water and sanitation in a post-apartheid society where segregation and socio-spatial marginalisation is not entirely on racial basis anymore, but based primarily on social status, richness versus poorness (affluence versus poverty? alternatively). The findings provide information on the social cultural, economic, political and environmental impact of expanded city population vis-à-vis sanitation services. The sociological analysis of the capital city's sanitation services takes the implications of accelerated urbanisation into special consideration, scrutinizing initiatives such as the state's mass housing programme started in 2013 and Affirmative Repositioning's demand for urban land. For understanding post-apartheid sanitation in Windhoek, an overview of sanitation provision prior to independence is presented and discussed.

4.2 Sanitation in apartheid and post-apartheid Windhoek

A marked difference separated sanitation during apartheid and post-apartheid Windhoek. Prior to independence, Windhoek had three cities in one (Interviewee 5). By implication the City of Windhoek had three categories of residential areas – for whites, coloureds and blacks. In this racially divided society, service provision was discriminatory, and extremely so. Different levels of service were provided according to residential areas, for example, interviewees two and four cited the provision of hostels with communal toilets and bathrooms for black people in Katutura, who were largely migrant workers employed in Windhoek in the framework of the contract labour system. Niikondo (2008) confirms the above respondents' account of communal ablutions in the Single Quarters residential area. Interestingly, some of these features can still be seen today, testifying to the enduring legacies of apartheid. According to interviewee five, communal sanitation survived collapse because their servicing by cleaners employed by the City of Windhoek (CoW). The situation was unlike today where communal toilets are left to clean to the residents using them.

The apartheid regime implemented measures that limited movement of people into Windhoek. Interviewees four and five indicated that during apartheid there was strict influx control and informal settlements did not exist because squatting was illegal. This means provision of discriminatory sanitation services was easy for the municipality because until the end of the 1970s Africans were not allowed to own residential plots and therefore could avail only of rental accommodation provided by the CoW. Municipal accommodation was serviced before any structures were erected.

If there was any squatting, incomers were accommodated within the residential places of their relatives or they became tenants as backyard squatters and used the same services of the main house (Interviewee five).



Picture 2: Map showing Windhoek's segregation suburbs

Source: (Simon, 1983)

"Squatting" was not as rampant as it is today because backyard squatting was just like an extension of the main house. According to interviewees two, four and eight the stringent control of migration by the apartheid government limited pressure on CoW in the domain of

service provision as the municipality could carry on proper planning and ensure that people did not settle where there were no services.

Conversely, post-apartheid Windhoek experiences a contrasting phenomenon, the accelerated influx of rural migrants mainly from the Namibian communal areas. Political freedom came with the freedom of movement and settlement guaranteed by the Constitution. Everyone, black or white, rich or poor has the right to move freely and settle wherever they want as long as they can afford to – as dictated by the stiff laws of the market economy. Capitalism and market economy do not make life easy for the poor who migrate to Windhoek. Most of the interviewees shared the view that freedom of movement, employment pull factors, better educational facilities and removal of all apartheid restrictive policies resulted in influx of people from the rural areas and other small towns to Windhoek. These are the individuals who are "swarming and invading" municipal land populating informal settlements without any provision for sanitation and other services. Studies by Niikondo (2008) and Olivier (2015) confirm the massive flow of people to Windhoek and the sudden rise in population, as well as social and health problems related to lack of services and uncoordinated occupancy. The Namibian Statistics Agency (2011) confirms evidence of the influx of immigrants, reporting an increase of 39.5% of the population of Windhoek between 2001 and 2011.

The sudden influx of immigrants to Windhoek puts pressure on the demand for services such as sanitation. The municipality has limited resources, both human and financial, limitations that bring the situation in the informal fringes of the capital city to the brink of a catastrophe. Interviewee five indicated that at first the CoW created a temporary reception area where migrants arriving to Windhoek were placed in order to buy the City time to service land to allocate to them.

Incoming immigrants were placed in Okuryangava as a reception area where they were registered waiting to be relocated to serviced land. This was done to ensure that the City of Windhoek has statistics of incoming immigrants and to ensure that no person settles on areas without services. The strategy also helped the City of Windhoek to settle people in an orderly planned way (Interviewee six).

The strategy has failed due to the continuous influx of migrants who began to settle inn areas, which had no water and sanitation services. This uncontrolled settling brought into existence informal areas like Havana.

The settling of people on unserviced land marked the genesis of the housing and sanitation woes, which continue to bedevil urban society and local authority. Interviewees six and ten acknowledge that the political and administrative conflict interplay in removing people who settled on unserviced land. Politicians, as indicated by interviewee six, justify their arguments by making reference to the constitution of Namibia which allows freedom of movement and non-discrimination. Such political pronouncements that are against creating orderly settlement make it difficult for the municipal council to remove people illegally settling on unserviced land. Interviewee four cited the case of the bulldozing of residential structures, which went viral in the media after the City of Windhoek was accused of destroying shacks of illegal settlers during a cold day. This is a classic example of social conflict that arises when power comes face to face with a disadvantaged citizenry demanding living space.

The politicians blew the case out of proportion and the City of Windhoek received blame right and left for being insensitive. Politicians seek to push their agenda thus jeopardising the

efforts of the municipality while forgetting that they do not subsidise the City's operations adequately (Interviewee four).

Picture 3: Residents of Havana fetching water from a communal tap in close proximity to toilets

© *The Namibian*

It was argued by one of the experts that due to the exertion of populist political influence the CoW is not able to do things the right way, that is servicing the land first before people can settle in an area. Instead the municipality has to provide services when people have already built their shelter. Noted by interviewee five and supported by interviewee ten, political expediency for the sake of winning votes thwarts proper planning by the CoW. Reiterating

similar observations, interviewee nine accused politicians for usurping plans and programmes of the city planners resulting in challenges faced by the CoW in the provision of services. The CoW's problem is not only the untimely occupation of unserviced land but – in particular – the fact that shack dwellers cannot, or choose not to, pay for land allocated, whether bought or rented.

The scrutiny of documents indicates that the City of Windhoek is aware that people needed to be allocated serviced land. However, the City could not match the increase in population and the resulting need for housing, sanitation and - as noted by all the respondents –for infrastructural development. Eventually, migrants occupied areas which were not serviced. Since then, the circumstances forced CoW to consider various alternative sanitation models. Currently, about 70% of Windhoek's households are individually connected to the conventional sewerage system. The rest are either using septic tanks, communal facilities or forced to indulge in open defecation. The 30% that is not connected to the sewage system or sanitation grid is mainly found in the informal fringes of town.

4.3 Sanitation is dignity

Sanitation is a social issue. Every person desires to have a decent place to go to when nature calls. The lack of basic sanitation among poor blacks in informal settlements fuels feelings of dejection and a sense of not belonging. The unavailability of toilets, flush toilets to be specific, is widely viewed as an attack on human dignity and as the epitome of low social status or class. In Havana, social actors are not particularly intrigued with the perceived assault on their dignity. They are not happy with shared toilets, which are usually in disquieting condition and are shared by too many residents.

Sharing toilets is not comfortable; you cannot sit and read a book in the toilet because other people want to use it also. You must poop very fast and go. We cannot relax in shared toilet. Sometimes people quarrel and insult each other when they want to use the toilet and someone is in there. Toilets must be hygienic but other people have bad manners, they do not know how to use the toilet and we have small kids who end up getting bacteria. It is because we are poor that is why we suffer like this. Rich Boers and those who get government tenders are living in luxury and the government does not care about us (Shack dweller from Havana).

The above direct quotation has deep meaning. It also reverberates among many shack dwellers in Havana. Lack of individual household toilets forces the people of Havana to use shared toilets that have so many negatives. It is perceived that to be able to use a toilet and read a book is part of the fabric of society, it is dignified. But shared toilets, the better option for the poor, who have to use the bush or riverbeds when the toilet is overbooked do not leave room for their dignified practices. “Rich Boers” here makes reference to rich white people, being used derogatively as a way of proving that Windhoekers still have a ‘them versus us’ mentality.

The CoW argues that currently there is not much that can be done about shared toilets in informal settlements. One key informant said “of course they are not as effective as the individual toilets, but that is how far we can go in the informal settlements, to provide sanitation facilities that are connected to the conventional sewer network” (Interviewee six). Another shack dweller pointed to poor hygiene and threat to public health and linked these shortcomings with their effect on human dignity. In his view, hygiene is a major concern in Havana. Public health is also a big concern. Sometimes people go behind the house and help

themselves. You find faeces behind the house and there is always a bad smell, which gets worse when it rains. “There is no respect and dignity for us who stay in shacks”.

We want flushing toilets. The ones with drums may be a problem when they get full. But we will accept it if they give us our own houses with own toilets. Sharing is the problem. Flush toilets bring dignity; it means you are the best citizen. You have good status. We want better living conditions. Harambee must be for all Namibians, the president proposed it himself (Shack dweller from Havana).

There is no doubt shack dwellers associate waterborne sanitation with dignity and superiority. Alternatives systems such as VIP toilets, the Otji toilet or pit latrines are viewed as interim solutions or second choice. Some shack dwellers categorically rejected them while others said they can accept them, given that they do not require sharing with neighbours.

The WSASP provides the policy platform for inhabitants of Windhoek, including those in informal settlements, to choose the type of sanitation they want. Communities should have the right, with due regard for environmental needs and the resources and information available, to determine which water and sanitation solutions and service levels are acceptable to them within the boundaries of the national guidelines. Beneficiaries should contribute towards the cost of the water and sanitation services they desire at increasing rates for standards of living exceeding the levels required for providing basic needs. (GRN, 2008, p.3)
The Namibia National Sanitation Strategy 2010-2014 supports the argument that sanitation has social implications and the lack of it is tantamount to lack of dignity. The strategy document says that “improving safe excreta disposal and safe hygiene practices has a great health impact. But sanitation and hygiene is also more than health and environmental

protection. Sanitation brings additional benefits such as: Social benefits;: dignity; convenience; privacy; social prestige; security for women (women get assaulted when they go to the bush); increased school enrolment for girls…" (MAWF, 2009, p.12).

4.4 Sanitation, race and poverty

There is a link between sanitation, race (white versus black) and poverty. One of the experts interviewed said that sanitation is a social issue and therefore there are racial implications to it. Unfortunately, that was the case in Windhoek of apartheid times, and it is the case today even after independence. Some residents, predominantly blacks, are poor, they do not have resources to pay for water, cannot afford better living places. Those who have money reside in areas where services are provided. It is a serious issue – poor people use riverbeds as toilets and waste is washed into Goreangab Dam. In the 1960s during apartheid, blacks were pushed from the Main Location in Hochland Park where sanitation was discriminatory, to Katutura where sanitation still is discriminatory.

Our situation here is due to low income. Most people in Havana are domestic workers and some are unemployed so they have no choice but to stay in bad conditions. We are not safe, our health is in danger. Sometimes we get diarrhoea because of flies that come in the house from the dirty toilets. People with big income must donate to the city of Windhoek every month so they can help the poor. Mass housing will just help a few who have family in SWAPO and the government. It is unfair. We all need houses with proper toilets (Shack dweller from Havana).

Lack of basic sanitation is attributed to poverty. It is interesting to note that the poor also feel deprived by the rich and that they demand they should share what they have, no matter how they got it.

Another expert pointed out that the Shack Dwellers Federation is opposed to mass housing. People do not want houses that will keep them in debt for long, poor people are concerned with their honour. Debt is considered dishonourable. National Hosing Action Group partners with the Federation in addressing housing challenges for shack dwellers. They propose cheap houses that can be built with the participation of the community, from planning to servicing and to building. This would allow disadvantaged residents to build houses with basic sanitation that they own for as low as N$ 60 000 without being in debt for 20 years.

4.5 The capacity of Windhoek's sewage infrastructure

Wastewater treatment facility	Function
Gammams Water Care Works	Treating wastewater from central, eastern and southern parts of the city
Otjomuise Water Treatment Plant	Processing wastewater from Otjomuise and surrounding suburbs
Ujams Water Treatment Plant	Processing of industrial effluent
Elisenheim Water Treatment Plant	Processing wastewater from Elisenheim, this is a private facility
Goreangab Water Reclamation plant	Processing wastewater into portable water for the City of Windhoek, the facility privately operated

Figure 1: Wastewater treatment facilities in Windhoek and their functions

To the above waste water treatment plants listed by interviewee nine who is an engineer at CoW, interviewee ten, also an engineer added Havana ponds and other small privately operated sewage systems. Regarding the capacity of sewage treatment infrastructure of Windhoek interviewee ten felt that one cannot talk about sewage without talking about water

since sanitation is driven by water. According to him, Windhoek's repeated experience of water scarcity proves that the City's has inadequate capacity. Interviewee nine felt that all other sewage treatment plants except Gammams have the capacity to cope with sewage infrastructure. This indicates a serious problem because Gammams is the main wastewater treatment plant which feeds into the Goreangab water reclamation plant.

We cannot compromise the quality of wastewater that is sent to Goreangab for reclamation. But with the current number of erven connected to the sewage systems, Gammams is operating way above its limit. The plant is processing about 36 million cubic metres of wastewater per day, instead of its capacity of 28 million cubic metres per day. This poses serious risks on public health, the city may end up supplying unclean and contaminated water to its residents if the number of houses connected to the current infrastructure is increased (Expert).

Most of the key informant interviewees expressed that the current sewage infrastructure of Windhoek cannot cope with the sewage treatment needs of the city. Considering that most of the informal settlements are not connected to the conventional sewage grid, the planned mass housing project and AR programme will only add to the already bad situation if the new developments are added to the existing sanitation infrastructure. One of the experts said that CoW does not have the human and financial resources to respond to accelerated growth due to rapid developments. The number of engineers is limited and the City needs over N$500 million to upgrade the current wastewater treatment plants.

There are strong indications that the current sewage infrastructure could not cope with the sanitation needs of the mass housing and the AR housing projects. Sharing similar

observations, interviewees two, three and nine indicated that the upgrading of Gammams plant was overdue. The limitations prompted the City Council to reconsider alternative sanitation that could be an interim solution but needed to be handled differently from the Okahandja Park experience. A completely different approach would have to be implemented, and the City's key realisation is:

There is need to work with the community from the planning stage up to the implementation.

However, mass housing and AR projects do not consider dry sanitation. Soak-away and septic tanks are not allowed (Interviewee ten). Another expert viewed the challenge of lack of basic sanitation differently. He said CoW or government cannot get money to build the so-called mass houses which cost around N$500 000 per unit. The interviewee suggested that the CoW or government should service land, provide basic structure, a toilet and a shower and provide security of tenure. People will then build bit by bit because the place has value.

The interviewee argued that this would be sustainable instead of building expensive houses, which will rather benefit middle class households. The idea of building basic structures was supported by interviewee eight representing Shack Dwellers Federation. They opposed the mass housing project as it meant building expensive houses which the majority cannot afford to buy and which create a debt for the whole of their lives. The interviewee suggested building of basic structures which people can continue developing without putting the household in debt. Yet the Blue Print on Mass Housing (2013) spells out that government intended to build affordable houses. Contrary to the government's views, the AR movement suspects that the mass housing project is a cash cow for to some powerful politicians. The AR Housing Charter (2015) points out that ordinary Namibians cannot afford the mass housing

building. AR's views were echoed by focus group interviewees, who said mass housing will just help a few who have family in SWAPO and the government.

These views reflect the idea that mass housing will benefit the rich and those who are connected to the political elite. The possible solution to problems surrounding big housing projects is creating inclusive committees or boards which are represented by all levels of society so that various interests are taken care of (GRN, 2008).

Linking the mass housing and AR housing projects with the issue of sanitation, there was unanimous agreement that housing programmes should take place concurrently with the development of sanitation facilities. According to interviewee two, the mass housing project implies that a complete package should be part of the house including all services and facilities and connection to the electricity grid. Viewed critically, the implication of the mass housing and AR projects is that there is an obvious need to upgrade CoW sanitation facilities. According to interviewee one development needs to follow an integrated model, houses cannot be built without services being developed. AR (2015) views the solution to services differently and suggests creating a national board responsible for servicing land in Namibia. AR Housing Charter (2015) accuses local authorities such as Windhoek for lacking capacity and having inadequate qualified staff to service land to meet the needs of the landless people. This study found indubitable evidence that the current infrastructure cannot cope with further expansion of housing and provision of land as envisaged by the government programme and by AR. Even less it can manage the integration of the informal settlements into the existing grid. The experts interviewed agree that already now water treatment and reticulation facilities are overburdened, the upgrading of bulk infrastructure upgrading is overdue and therefore CoW needs to invest in water and sanitation. Interviewee one justified this need by

indicating that the growth of Windhoek is inevitable in future, and it cannot be stopped. The interviewee said:

"We have not had a catastrophe. Windhoek will continue to grow, we need to keep on planning. We should focus on long-term, not wasting money on short-term solutions. When investing millions, we need to focus on long-term benefits. Integrated development is a possible theory."

These views offer a perspective to an infrastructure development which lags behind. The shortcomings of municipal sanitation may result in the situation of Kibera, an informal settlement in Kenya where sewage flows along the roads exposing residents to diseases (Interviewee two). WHO (2015) and GWTF (2015) share the importance of putting in place a robust sanitation facility to protect the community from water borne diseases and protect the environment from pollution including polluting underground sources of water.

Picture 4: Part of the Gammams water care works.

© Unknown

Picture 5:One of the ponds that receives wastewater from Havana and surrounding informal settlements

© Dickson Kasote

4.6 Alternatives to waterborne sanitation

Committee members lock up the toilets and those who don't contribute money to fix the toilet will not get the keys to use them. They use the bush. People poop in plastic bags and you find them behind the house, when it's sunny they smell and we have to pick them up and throw them in the bush, some call them flying toilets (Shack dweller from Havana).

Picture 6: A bush near the ponds in Havana. Faeces can be seen on the ground.
© Dickson Kasote

The Water and Sanitation Policy calls for the installation of alternative sanitation systems where appropriate. It says that local authorities should guarantee safe and affordable sanitation, encouraging decentralised sanitation systems where appropriate (GRN, 2008, p.4). Below are the types of sanitation systems recognised by the sanitation strategy, the Otji toilet is not included, although it is being used in the Havana informal settlement:

Sanitation systems	Centralised systems	Individual Onsite systems
Wet systems	• Conventional waterborne sanitation system and treatment plants • Vacuum / small bore sewer system and treatment plants	• Septic tanks and drains system
Dry systems	• biogas systems	• Dry system (VIP pit toilet) • Ecosan toilet (Enviroloo,Otjitoilet, UDS) • Composting toilets • Enviroflush-type system

Figure 2: Types of sanitation systems. Source: Namibia National Sanitation Strategy 2010/11 – 2014/15

The pressure on waterborne sanitation and sewage infrastructure coupled with the difficulty to connect unplanned, unserviced erven to the convectional grid resulted in the call for alternative sanitation (Interviewee nine). Development and provision of water and sanitation was categorised according to levels. Interviewees two and three gave examples of basic facilities for each level, for example level one services were communal water points and toilets placed within a radius of 200 metres. Level two had different facilities but one major difference with level one was that the community had a say in what they wanted with regard to water and sanitation. Communities covered by level two decided to have toilets and showers and there is such evidence of rows of toilets and rows of showers (Interviewee one, four and ten). According to GRN (2008) community participatory methods are recommended and supported because such methods empower the community and develops and instills ownership hence the project gets full support. These views were confirmed by the majority of the respondents who indicated that sanitation services which involved the community registered more success than those which were imposed.

Regarding alternatives to waterborne sanitation, the analysed documents and the evidence from the field concentrated on two informal settlements where the municipality made an effort to provide alternative sanitation – Havana and Okahandja Park. The two areas offer contradictory examples of success and failure of alternatives to waterborne sanitation.

There is agreement that the Otji toilet in Havana registered a success story compared with other sanitation projects. Fifty-seven Otji toilets serving fifty four households were built, one per household. There are three extra Otji toilets that are not allocated to a household. The planning and the implementation of the Otji toilet used a participative empowerment approach where the City of Windhoek selected community members to visit Otjiwarongo to

personally and practically view this type of toilet (Interviewee one, four and five). Attributing the success of the Otji toilet project to the approach adopted, interviewee ten said, thus:

The Otji toilet project was a good example of working with the community. The community took the project to be theirs and hence became responsible and accountable.

The concept of ownership and responsibility links with what interviewee two emphasised regarding tenure of ownership. According to interviewee two, one of the factors behind the success story of Otji toilets is single ownership. Concurring with the value of ownership and responsibility, interviewee nine added that the simplicity of the maintenance of the Otji toilet and low-cost construction using local materials makes the Otji toilet a suitable interim alternative sanitation while the CoW is working on long term plans. Therefore, out of other alternative sanitation tried in informal settlements of Windhoek, the Otji toilet in Havana registered high support as an alternative notwithstanding the reluctance of politicians, such as councillors, to accept in their efforts to appear as messiahs in the eyes of the electorate. They want the people to think of them as exponents of waterborne sanitation which is dignified. The Otji toilet is designed in such a way that the container can be emptied with ease of human waste once it is full. It is arguably one of the most user-friendly non-waterborne systems that can provide a sustainable solution to sanitation problems in Windhoek.

Picture 7: The Otji toilet for single households in Havana informal settlement

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Pictures 8 and 9: The individual Otji toilet with a regular toilet seat

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Supporting the Otji toilet as an alternative to water borne sanitation and as a possible sanitation decentralization strategy, Namibia National Sanitation Strategy (2010) says the Otji toilet offers an ecological and economical alternative and is an innovative system that saves water and money.

However, interviewee four (an expert) observed that the Otji toilet cannot be a long term sustainable solution to sanitation as the drums may fill up quickly depending on the number of people using it and the toilet smells during the rainy season. This view was echoed by one of the participants of the focus group discussion conducted in Havana informal settlement. However despite these limitations and shortfalls, the Otji toilet has been reported to have received critical acclaim from residents of Havana informal settlement in Windhoek and residents of Otjiwarongo where the concept was developed.

There are some alternative sanitation systems that were implemented in Okahandja Park informal settlement, the Ventilated Improved Pit (V.I.P) and the dry sanitation toilets. Findings from the interviews showed that the dry toilet was the most popular system or model implemented. The dry system toilet goes through a process of separating faecal matter and urine. The faecal matter is collected and used as manure for horticulture and other small agriculture projects. The dry toilets were communal owned serving four to five households (Interviewee one and ten).

The experts in sanitation shared the observation that the dry toilets of Okahandja Park were short-lived because of lack of accountability and responsibility, no one cared to clean or maintain the toilets. Interviewee four said the dry toilets lacked technical creativity, they were poorly constructed and the process of separating faecal matter and urine did not work well

making the toilets unpopular. Interviewees three and five reported cases of over use of the toilets especially those which were constructed near shebeens. Also, conservative cultural attitudes surfaced in this study where using river beds and bushes for toilets is deemed acceptable. This culture of open defecation, mostly associated with rural-urban migrants is deeply rooted in informal settlements. On the other hand it is viewed by many as shameful, uncivilised and dangerous for the environment and society.

Of much concern was the influence of political figures whose comments incite the community to regard the dry toilets an option for poor blacks. Interviewees four and six shared the experience that some politicians indicated that such toilets are demeaning and are not fit for human beings. The unsupportive stance towards dry toilet and other alternative sanitation system by politicians could have contributed to the widespread negative attitudes towards these alternatives. Despite such negative political and social reactions and sentiments towards dry sanitation, interviewees five and ten attribute the failure of the projects to poor planning and implementation. An important aspect raised by the two is involvement of stakeholders, indispensable for understanding and owning the projects as proven in the case of the Otji toilets in Havana informal settlement which practically engaged the community.

The challenge of communal owned toilets was also experienced in other informal settlements. Observations on the demise of communal owned toilets were corroborated by the focus group participants in Havana. One of them expressed that the communal owned toilets were a challenge to use. He had this to say:

Some people do not know how to use the toilet. They sit on top of the toilet that is why some a broken. Some poop outside the toilet and on the floor. It is because they are coming from villages where they poop in the bush (Shack dweller from Havana).

Picture 10: Broken Communal toilet with faeces on the floor in Havana Informal Settlement

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The foregoing view is evidenced by picture 10 above. The door of the toilet was stolen and probably used to construct a shack. This is a regular occurrence in informal settlements.

The issue of communal toilet misuse and vandalism was described by interviewees two and four as common occurrence and in some cases residents were accused of breaking communal taps. According to the Namibia National Sanitation Strategy (2010) theme C, the responsible authorities need to engage the community so that they realise that owning and up keeping toilets is a shared responsibility. Theme C suggests that the community should be trained on how to use toilets and those who have been trained should also train fellow community members. In addition, the Namibia National Sanitation Strategy (2010) suggests that community members be assisted to set up committees responsible for cleaning and

monitoring. A sense of ownership should be built among the community members. The following attitudes reported by one FGD participants are particularly discouraging:

Some say it is not my mother's place so why must I build a toilet, I will go to the north and build. These people do not want to take care of toilets. They just use (Shack dweller from Havana).

The participants also echoed similar sentiments to those shown by politicians that these toilets were meant for poor blacks while the rich enjoyed better sanitation. Such sentiments were seen in a wider context, as shown by one informant who said that residents of Havana informal settlement are suffering because they are black. He also mentioned other determinants such as low levels of education and lack of skills required in the labour market Some informants pointed to carelessness and unhygienic attitudes among the community as factors which make use of communal toilets difficult. The municipality expects communities to look after their toilets on their own.

Keeping the toilets clean is the responsibility of the residents themselves. We can only remind them time and again through their community representatives. If there is anything broken, we have our building maintenance division who attends to that (CoW official).

The cultural norm of regarding Windhoek as a temporary domicile explains why some residents who are well paid opt to stay in informal settlements. Niikondo (2008) notes that there are people from the northern parts of Namibia who develop their traditional homes and lead a life as squatters in Windhoek because when they retire they leave everything in Windhoek. Such feelings, as observed by Macfarlane et al. (2014), reinforce attitudes hostile

to development, and suggest that such residents would opt for using riverbeds as toilets rather than building sanitation facilities. These practices were confirmed by interviewee two and three who maintained that most migrants from the north would prefer squatting because they regard their stay in Windhoek as temporary hence are not concerned with having proper sanitation. This is one of the enduring legacies of apartheid as Owambo people from the four O regions namely Ohangwena, Omusati, Oshana and Oshikoto historically migrated to Windhoek for work and then were forced to move back to northern Namibia.

It is intriguing to note that some of the experts at CoW are not overenthusiastic about alternative to waterborne sanitation. When asked how the CoW is proactively planning to provide sanitation services to the beneficiaries of the mass housing initiative and AR movement, one municipal official said that:

…for the proposed mass housing, we have only one way, which is to provide waterborne sanitation connected to the conventional system. If the proposed developments cannot be accommodated by the existing wastewater treatment plants (WWTP), the proposal has to include a localised WWTP. Otherwise CoW will not approve it... (Expert)

This leaves so many questions without answers. Did the central government consult CoW when developing the mass housing strategy? Similarly, are the proponents of AR aware of the current sanitation situation in Windhoek? If they are aware, why then there is no mention of sanitation or wastewater treatment in the AR Housing Charter? There is need for dialogue between all stakeholders in order to establish a well-coordinated housing process in Windhoek.

4.7 A critique of discriminatory sanitation

The WSASP says essential water supply and sanitation services should become available to all Namibians, and should be acceptable and accessible at a cost which is affordable to the country as a whole (GRN, 2008). This is a non-discriminatory approach to the provision of sanitation services from the government of independent Namibia. All Namibians, black or white, rich or poor, male or female, able or disabled should have access to basic sanitation.

This study leaves no doubt that sanitation is discriminatory and based on the ability to pay. It is based on the principles of a market economy. However, interviewee one and two indicated that it is an undisputed fact that provision of sanitation in Windhoek reflects the two societies, two different social classes within the Namibian society, disparities of poverty and wealth. Residents are pushed to informal settlements because they cannot afford residential areas where waterborne sanitation is mandatory. Sanitation reflects stratification of society according to economic factors. Interviewee two called it “a new form of discrimination”, one that is based on class and not skin colour. According to AR (2015) disparity in wealth distribution influences the ability to stay in an area with services and the situation reflects the colonial period when poor blacks were relegated to the periphery of the society. As indicated by AR (2015), the challenge of housing and sanitation reflects not just the ability to pay but it mirrors inequality and social stratification perpetuated by concentration of wealth in the hands of a few individuals.

However interviewee ten indicated that not all people in informal settlements are poor or cannot manage to stay in areas where there is water borne sanitation. He said:

Not all people staying in informal settlements are poor. Some regard informal settlements as temporary places to stay while they have good homes in the north (Interviewee ten).

The challenge as noted by interviewee four is that CoW has no information on whether all people who stay in informal settlements or who build shacks are poor. The interviewee expressed politics and bureaucracy as factors that affect effectiveness at CoW. The municipality cannot effectively manage informal settlements. He indicated that some powerful members of society benefit from a situation characterised by informality of housing and living. Cases of exploitation cannot be ruled out, according to the interviewee, and any effort to investigate the level of poverty of people in informal settlements is blocked.

4.8 Gender and sanitation

When formalising informal settlements the disabled and vulnerable members of the community are considered (Interviewee four). Gender though is not a factor considered when formalising. The study stresses that women endure more hardships than men where proper sanitation facilities lack. Women find it exponentially difficult and insecure to use riverbeds as toilets. Cultural norms dictate that they need more privacy than men and it demeans them to be found using an open space or riverbed as toilet. The absence of proper sanitation negatively affects women more than men. The following was said by focus group interviewees on the challenges faced by women with regard to sanitation:

Men can urinate behind a tree but for women it is impossible, we are suffering too much. The situation in Havana is dangerous for women, especially during the night. We are not safe,

there is no security for women. We are afraid to go to the toilet at night. There are boys who walk in the streets who can beat you up and rape you. (Shack dweller from Havana).

This is a reflection of the ordeals endured by many women in informal settlements such as Havana. Another FGD participant said:

Sanitation situation in Windhoek is bad, for us in informal settlement is terrible. The leaders must do something. It is a problem for us women and small girls. Men can urinate behind a tree but for women it is impossible, we are suffering too much. I am not happy with where I have to pee and poop. It is too dirty. People leave their poo on the floor, we have to pick faeces and throw it in the bush because it smells in our house. Some poop on the toilet pot and I have to clean things that are not mine. Some women and girls use buckets with water in the house, during the day and at night and they throw the water in the yard where small children play (Shack dweller from Havana).

This is tantamount to gender stereotyping. Women are expected to clean up faecal matter that is disposed of improperly by other shack dwellers. The stereotypes are also appropriated by women who accept that it is their – and not the men's task to clean up the excreta.

Policies and lawmakers are aware of gender discrimination. The authors of Gender in Water and Sanitation (2010) maintain that women's privacy and security are determined by easy access to and location of sanitation facilities. The implication: Inadequate sanitation in informal settlements compromises especially the well-being of women and girls.

4.9 Water and sanitation

Windhoek gets its water from Namwater, from the town's own aquifers and from recycled water. Interviewees four and ten indicated that the CoW had no particular challenges with the quality of water as the recycling plant and other sources provided adequate water. However the majority of the interviewees expressed fear over the adequacy of water if all residents and the intended mass housing projects are connected to the conventional grid. Interviewee six strongly argued against recycling water for domestic use which he indicated was expensive. There is need to critically review a technology installed 50 years ago to find out whether it is still a cost effective way of getting water (Interviewee six).

Windhoek has two major aquifers, one in the southern part of the town near Prosperita and the other one in north that has saline water (Interviewee three). These are important reserves of water for the CoW. The aquifer near Prosperita has been protected from underground contamination through development policies scrutinised and monitored by the Sustainable Development Division (Interviewee nine). According to interview three, industries in Prosperita are aware that they should not spill oils. A petrol filling station was denied establishment in this area. Aquifers according to the study are more advantageous than dams as they have minimum loss of water through evaporation. The interviewee indicated that the Sustainable Development Division of CoW closely monitors the aquifers to exclude underground contamination, using maps to ensure no underground sewage contaminated the reservoirs. The focus group interviewees expressed the challenges they encounter in accessing water, one of them said:

We get water from one tap that we share. We stand in queues for water. We use cards to get water but sometimes the water cards do not work so we do not get water. We go very far to fetch water when our tap is not working. I go to the tap to get water sometimes at 04h00. Urban is now like rural. Now it is difficult to get the card from the municipality. You need a lot of papers and some people cannot read and write so they suffer without water. The cards have many people who use them. We need the water for drinking and to clean these toilets (Shack dweller from Havana).

The interviewees are testimony that without adequate water supply, sanitation becomes a nightmare. As indicated by interviewee two and ten that we cannot speak of sanitation if we do not have water; even in dry sanitation there is need for water to clean the toilets and to wash hands. Therefore, the study found water and sanitation to be intrinsically connected and that the two pose a serious challenge in informal settlements.

4.10 Factors influencing planning and provision of sanitation

Development levels have been the basic consideration when planning sanitation in the informal settlements. Interviewee one cited an example of development level one where the areas in this category were provided with communal water and toilets. A key consideration in planning sanitation indicated by data collected is the ability to pay, for example waterborne sanitation needs payment for water which is used to flush the waste. It is not viable to connect a house to the waterborne sanitation grid if the occupant will not be able to pay for the water. Supporting the view, interviewee two indicated that the CoW or government needs to recover its money where they assist communities to have services.

The study also established that the rocky topography of Windhoek is a key determinant when planning the provision of sanitation. Interviewee ten indicated that the terrain of Windhoek requires professional knowledge so that servicing is easy and less costly. The manner in which most residents have settled in informal settlements makes it impossible to service land. Also considering that the bulk of sewage transportation depends on gravity, some areas are difficult to connect to the sewage grid (Interviewee ten). The Water and Sanitation Policy (2008) justifies the amounts charged by service providers for the purpose of recovering costs. Without consumers paying for water and sanitation, the service providers may find themselves unable to continue providing the services (Water and Sanitation Policy, 2008). Therefore, the ability to pay factor is a challenge to the community which cannot pay for sanitation and water.

4.11 Conclusion

Chapter four presented findings from primary sources and documents answering whether the City of Windhoek has the capacity to provide sanitation services in a socially, economically and environmentally sustainable manner considering the current requirements in meeting the service needs of informal settlements, the mass housing programme and the Affirmative Repositioning programme. The study found that the unabated influx of migrants into Windhoek and unplanned settlement put immense pressure on water and sanitation provision. The study found that mass housing programme and the AR housing project are likely to add pressure to the already struggling infrastructure. Social and economic factors were found to be the major determinants in the provision of sanitation. It also firmly established that sanitation is a social issue, which needs to be examined sociologically. The ability to pay for the services was found to determine whether people stayed in an area where services are

provided. However, the study found that Otji toilet could be an interim alternative to waterborne sanitation while the City of Windhoek is implementing long term plans to solve sanitation challenges.

CHAPTER 5: SUMMARY OF FINDINGS, RECOMMENDATIONS AND CONCLUSION

5.1 Introduction

Chapter five summarises the findings from the phenomenological research and desk-based content analysis. Recommendations based on the findings of the research are given in this chapter which ends with a conclusion of the whole study.

5.2 Summary of findings

When comparing the provision of sanitation services in apartheid and post-apartheid Windhoek, the study found that pre-independence Windhoek did not have informal settlements as municipal regulations forced all inhabitants to live in serviced areas. There was strict control of the movement of Africans to urban areas. Any squatting was in the form of shacks attached to the main house in Katutura, the apartheid black location, allowing residents access to ablutions. With the fall of apartheid towards the end of the 1970s and Namibia's independence in 1990, freedom of movement led to the influx of people into Windhoek, exerting pressure on the housing and sanitation sector and marked the genesis of informal settlements. Unorganised and unplanned settlement resulted in enduring challenges in the provision of municipal services.

The study confirmed that sanitation is a social issue and the lack of basic sanitation among poor blacks in informal settlements has become a highly contested social issue. In cultural and political terms, waterborne sanitation is associated with dignity. Where alternative

sanitation is considered an option for poor black people only it is seen as unacceptable. In Havana informal settlement, shared toilets are a cause for social discord and public outcry. The shack dwellers in the informal settlement are not content with these toilets; they are seen as unhygienic, inconvenient and unsafe for women and girls. Most shack dwellers prefer in-house waterborne sanitation. However, some indicated that they can accept alternatives such as the Otji toilet and other systems as long as they are not forced to share with other families. This study found a strong link between sanitation, race (white versus black) and poverty. It is mainly black people who are poor and live informal settlements where access to basic sanitation is very limited.

In response to the challenges of provision of sanitation, a number of sanitation models were tested in Windhoek's informal settlements. The dry sanitation and V.I.P. models were installed constructed in Okahandja Park. CoW allocated a single toilet to four to five households but the multiple users could not agree on the responsibility of cleaning the toilets. Some of the toilets built near shebeens were overused and also vandalised. The project was short lived and its failure attributed mainly to non-involvement of the community during the conceptualisation and inception of the project. The community did not 'accept' the toilets. In addition, the toilets were communal and there was no ownership. This affected the maintenance of the toilets resulting in vandalism and misuse of the facilities.

In Havana informal settlement, the Otji toilet was implemented on one-household-per-unit basis. The Otji toilet succeeded as an alternative to waterborne sanitation. The planning and development of the Otji toilet involved the community and this enhanced the sense of community ownership of the project. The Otji toilet appears suitable because it is cheaper to build and it uses local building materials. It does not need water hence it is cost effective.

Each unit allocated to a household makes users accountable and responsible for the upkeep of the toilet. The usability and maintainability of the Otji toilet makes it a suitable interim sanitation alternative while the City of Windhoek works on long-term waterborne sanitation measures.

Regarding the capacity of the City of Windhoek's sewage infrastructure in sustaining both the formal districts and informal settlements, sector experts from the City's ranks and from the private sector interviewed in this study appear critical of the integration of the national mass housing scheme and the Affirmative Repositioning housing programme. They maintain that the sewage infrastructure could not cope with the demand and therefore it needed systematic upgrading. The Gammams sewage treatment plant is already operating beyond its capacity and the wastewater treatment ponds in Havana are not a permanent and therefore are unsustainable as a solution to sanitation in the informal settlements. The study established that any new housing project is to be implemented concurrently with expanded sanitation and water service plans. The mass houses and the AR houses have to be built on serviced land. This means that the already overstretched sewage infrastructure needs to be upgraded in terms of capacity and operations to meet the demands of an expanding locality. While alternatives such as dry sanitation were suggested, the general impression was that it these were not readily welcome by CoW due to technical reasons.

The provision of sanitation mainly depends on the user's ability to pay for the services. The study established that this has become a new form of discrimination that denies such services to members of society who are unable to pay. Race alone is no longer a determinant of the provision of sanitation as it was during apartheid, socio-economic and spatial factors are now at play. The ability to pay reflects social stratification and disparity in wealth distribution,

often based on structural unemployment. Windhoek houses a divided society, two conflicting social worlds exist, on the one hand the poor, mostly blacks and on the other one finds the rich, predominantly whites who rub shoulders with upper middle class blacks.

The need to pay for services is a requirement formulated in the vein of the commercialisation paradigm characterising the Water Supply and Sanitation Policy (2008). Cost recovery for service providers is required to meet the basic cost of sustaining the services. Topography is also a crucial determinant in the capital's provision of sanitation. Windhoek's terrain makes some places difficult to service and to connect to sanitation infrastructure at a reasonable cost. This is the case in some informal settlements that are not connected to the sanitation grid.

The study established that the policies of formalisation of informal settlements considered disability and vulnerability as conditions which require special attention. On the question of gender and sanitation, the study found that women endure more difficulties as a result of poor sanitation than men. Females need more privacy than men do, they need more security than men do, and using riverbeds as toilets was labelled as demeaning and a serious threat to their safety. Using bushes or riverbeds as toilets was seen as exposing women to gender-based violence and sexual attacks or rape. Thus, sanitation in informal settlements has serious social and gender implications.

Water and sanitation were found to be interdependent. Water is the classical prerequisite for waterborne sanitation. In society's general perception sanitation implies water. Apart from the major water supplier for Windhoek, the Von Bach Dam near Okahandja, there are important local aquifers in Windhoek that need to be protected from contamination. Water

supply from Namwater was found to be unstable where cases of drought threaten the City with the desiccation of dams. Water from aquifers was found to have more permanence and sustainability than water from the dams but they need to be protected as last reserve for the capital's population in times of severe crises. The department that oversees sustainable development department at CoW is responsible for protecting and ensuring that the aquifers remain safe. The City monitors industries in Prosperita and ensures that policies are adhered to.

The study found that the City of Windhoek's strategic plan outlines an integrated development policy guiding planning and provision of sanitation. In principle, houses should be built on a serviced land. However the City of Windhoek's building regulations reflect a differential approach to formal and informal townships. While building in formal districts requires connection to the existing water and sewerage grid, this requirement is deferred in informal settlements allowing inhabitants transitionally to settle on unserviced land. In addition, from a technical point of view, the dependence of the sewerage system on gravity flow makes some areas difficult to connect to Gammams sewage plant. The ability to pay was identified as the factor that had the most impact in relation to access to sanitation. The need to pay for water and sanitation is supported by Dentlinger (2004) and The Water Supply and Sanitation Policy (2008) as a cost recovery measure indispensable for sustained service provision.

Cultural dispositions of recent dwellers have considerable effects on sanitation as they shape sanitation practices. Some residents do not value the use of toilets. Open defecation is widespread in informal settlements. Using riverbeds and the bush is acceptable in other cultural domains, especially among rural to urban migrants who grew up practising open

defecation. It is extremely difficult to convince such individuals of the need to accept and use toilets properly in their new urban environment.

The study found that formalising informal settlements, the mass housing initiative and the Affirmative Repositioning put additional pressure on the existing sanitation infrastructure. Their implementation implies construction of new houses concurrently with sanitation provision. City of Windhoek has limited financial resources to upgrade sanitation infrastructure. An additional budget of 500 million Namibian dollars is required to increase the capacity of wastewater treatment plants, money that is not available. It was suggested that rather than building mass houses, which are beyond the financial reach of many applicants, the government should use the money to service land with basic access to ablutions. Allocation of residential plots should come with security of tenure, offering owners the scope of building houses which they can afford.

Political interference was indicated as a barrier to providing municipal sanitation services which could benefit disadvantaged residents. Politicians prefer political expediency influencing shack dwellers to reject some service alternatives offered by the City of Windhoek. They regard dry sanitation as second choice that discriminates against poor blacks. The behaviour of some politicians compromises the effort of the City Of Windhoek in providing alternative sanitation. In some cases, politicians are found condoning illegal settlers, and such interference affects organised planning and provision of services.

5.3 Recommendations

Based on the findings this study makes the following recommendations:

- The subject of sanitation should be treated as a critical social issue that has serious implications on the economy, politics and the environment.
- There is need for City of Windhoek to conduct a thorough study to establish the current capacity of the existing sanitation infrastructure in order to guide the city planners when integrating new developments such as government's mass housing initiative and AR's demand for serviced urban land. Research will guide city planners and engineers where there is need to upgrade the sanitation facilities. Objective data will help the City of Windhoek to make accurate forecasts and engage in long-term investments which are sustainable and cost effective.
- The municipality and central government should consider social, economic and environmental sustainability whenever housing and sanitation plans are made.
- The City of Windhoek needs to engage all stakeholders and agree on the relocation of people who settled on unserviced land. Politicians must be engaged so that they can fully understand the technicalities involved in sanitation services. Advocacy should be carried out in order to have buy-in from politicians and community leaders to convince shack dwellers and their federation to accept sustainable sanitation systems, whether they are prestigious or not.
- There is need to engage the community in the planning and development of alternative dry sanitation as an interim measure based on decentralised sanitation solutions. The empowerment of the community enhances responsibility and accountability and allows for a sense of ownership hence greater acceptance of alternative sanitation. Waiting for the

City of Windhoek to connect them to the sewage grid may take years and the current sanitation situation threatens the health of the community.

- There is need to adapt the Otji toilet to the needs of the community and each household should have its own facility for the purpose of upkeep. Constant monitoring and community engagement is critical in order to maintain and sustain the Otji toilet.
- Through its Community Development Department, the City of Windhoek should conduct regular stakeholder meetings to discuss issues of concern in the communities, especially informal settlements. The City of Windhoek can also use such fora to educate and make the community aware of the importance of maintaining hygienic environments. Stakeholder engagement enables the City of Windhoek to improve the delivery of sanitation services.
- There is need to conduct a door-to-door survey to obtain reliable data on the economic status of informal settlers. This relevant information will be used for planning purposes. As indicated in the findings of the study some of the people living in informal settlement may not be poor.
- The City of Windhoek should engage the water industry, private sector, non-government organizations (NGOs) and other institutions to deliberate and seek technical and financial assistance to enhance the provision of sanitation services. Stakeholder engagement helps the City of Windhoek to create and manage its relationships with people and organisations that contribute to the development of the city.
- The City of Windhoek needs to engage in benchmarking and south-south cooperation in order to learn from best practices in the area of sanitation. Dry sanitation is not practiced in Namibia only. Neighbouring countries in the SADC region experience similar problems linked with the accelerated urbanisation process of the recent decades, and they share the same apartheid legacies. Beyond the southern African region there are countries or cities

where dry sanitation has worked and benchmarking against such practical experiences offers an opportunity to learn from the best. Visits to such cities should include the community members so they become ambassadors in promoting alternative sanitation programmes.

- Academic views and empirical research findings on the sustainability of existing sanitation models should be considered by CoW and line ministries so that they can embark on a socially acceptable, economically sound and environmentally sustainable journey towards inclusive and sustainable urban development.

5.4 Conclusion

The study was conducted to explore the sociological aspects of sanitation in Windhoek as a post-apartheid capital city. It also aimed at investigating the capacity of the City of Windhoek to provide sanitation services to its expanding population without creating a milieu wreathed in social problems, as well as economic and environmental disasters. The study sought to find out whether CoW can meet the sanitation needs of the mass housing and the Affirmative Repositioning projects. The study employed qualitative research methodology. It used phenomenological and content analysis approaches in collecting data. Experts in sanitation and residents of Havana informal settlement were purposively selected for the study and interviewed in-depth. Open-ended face-to-face interviews were conducted to gather data. Data were recorded and transcribed. Document analysis, which included desk-based scrutiny of sanitation policy and strategy documents was conducted in order to juxtapose what specialised literature establish and what emanates from the field. Themes and categories were built to analyse the data obtained.

The study emphasises that sanitation is a social issue. Against the backdrop of the experience of apartheid, cultural attitudes stress the need for dignity where sanitation is concerned. From a technical perspective, it found that the current infrastructure does not have the capacity to meet the demands of an expanding Windhoek population. It established that alternative sanitation is possible but there is need to change the attitudes of the community and local politicians so that they view alternative sanitation as a viable solution and beneficiary for poor people. The community needs to be actively involved in alternative sanitation projects so that they own the project. The study recommended the City of Windhoek to look for benchmarking partners in the provision of sanitation. Research and development (R&D) in Windhoek need to engage in robust research to evaluate the efficiency as well as social, economic and environmental sustainability of the current sanitation infrastructure.

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APPENDICES

Appendix 1: Ethical clearance certificate issued by the University of Namibia

UNAM
UNIVERSITY OF NAMIBIA

ETHICAL CLEARANCE CERTIFICATE

Ethical Clearance Reference Number: FHSS/108/2016 **Date: 16 August, 2016**

This Ethical Clearance Certificate is issued by the University of Namibia Research Ethics Committee (UREC) in accordance with the University of Namibia's Research Ethics Policy and Guidelines. Ethical approval is given in respect of undertakings contained in the Research Project outlined below. This Certificate is issued on the recommendations of the ethical evaluation done by the Faculty/Centre/Campus Research & Publications Committee sitting with the Postgraduate Studies Committee.

Title of Project : Sanitation in Post-apartheid Capital City: Windhoek in The Age of Accelerated Growth

Nature/Level of Project: Masters

Researcher: Dickson M. Kasote

Student Number : 201114828

Faculty: Faculty of Humanities and Social Science

Supervisor : Dr. V. Winterfeldt

Take note of the following:

(a) Any significant changes in the conditions or undertakings outlined in the approved Proposal must be communicated to the UREC. An application to make amendments may be necessary.
(b) Any breaches of ethical undertakings or practices that have an impact on ethical conduct of the research must be reported to the UREC.
(c) The Principal Researcher must report issues of ethical compliance to the UREC (through the Chairperson of the Faculty/Centre/Campus Research & Publications Committee) at the end of the Project or as may be requested by UREC.
(d) The UREC retains the right to:
  (i). withdraw or amend this Ethical Clearance if any unethical practices (as outlined in the Research Ethics Policy) have been detected or suspected,
  (ii). request for an ethical compliance report at any point during the course of the research.

UREC wishes you the best in your research.

Dr. H.M. Kapenda
Director –Centre for Research and Publications
ON BEHALF OF UREC