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FACULTY OF SOCIAL SCIENCES AND HUMANITIES

DEPARTMENT OF SOCIOLOGY

**WATER INSECURITY AND SANITATION CHALLENGES IN INFORMAL
SETTLEMENTS: THE CASE OF DUNCAN VILLAGE IN EAST LONDON, SOUTH
AFRICA.**



BY

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**A MINI DISSERTATION SUBMITTED IN PARTIAL FULFILMENT OF THE
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DECLARATION

This dissertation is my original work and it has not been previously submitted for examination in any other university.

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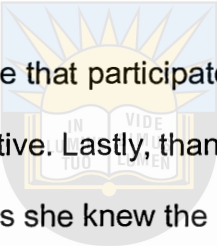
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God bless you all abundantly.

The logo of the University of Fort Hare is a shield-shaped emblem. It features a sun with rays at the top, a book in the center, and the motto 'IN VIDE TUO' on a banner below the book. The shield is flanked by two vertical bars.
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ABSTRACT

Water supply and sanitation has been a primary logistical challenge since the dawn of civilization. Where water resources or infrastructure or sanitation systems are insufficient for the population, people fall prey to disease, dehydration, and in extreme cases, death. Access to safe drinking water and sanitation is essential to the enjoyment of other rights such as the rights to education, health, safety and an environment that is not harmful to human health or wellbeing. The aim of the study is to explore the challenges of water insecurity and inadequate sanitation in Duncan Village. The study is guided by the following objectives: (i) To assess the negative effects of water insecurity and inadequate sanitation in Duncan Village (ii) To analyse the extent to which water insecurity has exacerbated sanitation challenges in Duncan Village (iii) To investigate the effectiveness of community and institutional responses to water insecurity and sanitation challenges in Duncan Village. The study employed qualitative approach in collecting the data. The researcher interviewed 20 household heads in Duncan Village, 2 ward councillors and 2 key informants. The major findings of this study illustrate the frustration of members of Duncan Village due to limited access to water sources and sanitation facilities. It also highlights the limited intervention from the local government as well as that the community consists of people living in poverty otherwise they would have improved their situation e.g by buying water tanks or mobile toilets. It can be concluded that because they live in poor standards they have been deprived of their human rights (access to water and adequate sanitation). Living in informal settlements has made the people of Duncan Village accept the less privileged lifestyle and make do with what they have at their disposal. Furthermore, a connection is noted between housing and the delivery of basic services.

The type of houses in informal settlements has affected their access to sufficient water and adequate sanitation. Hence fourth this study recommends that the local government concentrate on developing informal settlements also involving the community in the planning and implementing of projects.



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LIST OF ABBREVIATIONS

ANC	African National Congress
BCM	Buffalo City Municipality
BLM	Bushbuckridge Local Municipality
DoHS	Department of Human Settlements
DWAF	Department of Water and Forestry
GEAR	Growth, Employment and Redistribution Macro-Economic
HIV/ AIDS	Human Immunodeficiency Virus/ Acquired Immune Deficiency Syndrome
NDP	National Development Planning
NGO	Non- Governmental Organisation
NPC	National Planning Commission
OECD	Organisation of Economic Cooperation and Development
OECD	Organization for Economic Co-operation and Development Policy
RDP	Reconstruction and Development Programme
UNICEF	United Nations Children's Fund
WASH	Water Sanitation and Hygiene
WHO	World Health Organisation

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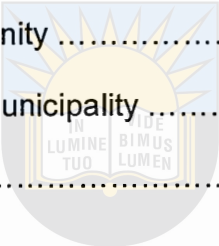
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CHAPTER 1

1.0 INTRODUCTION

Africa as a whole faces several problems that have direct impact on health, one of which is the accessibility of clean water and adequate sanitation to both urban and rural areas.

WHO (2006) states that:

59% of the world's population have access to adequate sanitation systems, yet on the other hand efforts to achieve the Millennium Development Goal to provide sanitation by 2015 will fall short by nearly half a billion in South African communities.

The Water Supply and Sanitation Policy (1994:4) argues that the issue of water supply cannot be alienated from the history of South Africa holistically. Under the previous apartheid system water ownership was tied to ownership of land; the majority of South Africans were “condemned to a life of poverty, insecurity and contentious exposure to diseases that would otherwise be avoidable” (Cottle and Mettler 2003:27). According to Cottle and Mettler (2003:27) access to water as a basic necessity has been identified as a challenge in most poor infested communities “...at nationwide public hearings on poverty in 1981, the restriction to access to water was continuously cited as one of the many obstacles in the development of many impoverished communities”.

In South Africa, a number of responses have been made by the ANC towards the widespread water insecurity among the majority blacks. Firstly, the right to access water is protected in the South African constitution of 1996. Section 27 of the Constitution states

that “everyone has the right to have access to water and sufficient food”, and holds the State responsible to ensure that this is established (RSA, 1996). Therefore, it is everyone’s right in South Africa to access water and adequate sanitation including people living in informal settlements.

In line with this constitutional provision, the South African Water Services Act of 1997 (No. 108 of 1997), Section 3(1) further states that “everyone has a right of access to basic water supply and basic sanitation”. According to Cottle and Mettler (2003:34) “basic water supply” is the “prescribed minimum standard of water supply services necessary for the reliable supply of a sufficient quantity and quality of water to households, including informal settlements, to support life and personal hygiene”.

Secondly, the South African government has implemented a number of policies to address water insecurity in areas inhabited by the poor majority black population. It has done so through the Reconstruction and Development Programme (RDP, 1994) which promised the delivery of basic services. These basic services include water and sanitation. The programme made a “short-term” target of clean water provision of 20-30 litres per day situated 200 meters including an adequate sanitation infrastructure per site to every urban household (Cottle and Mettler, 2003:35). The targets made by the RDP were achieved to a certain extent and unfortunately not in all areas including informal settlements. The township of Duncan Village under study for instance yes has access to water of more than 20/30 litres within a radius of 200m but the problem is the number of people depending on that one source is very large.

The second policy was the Growth, Employment and Redistribution Policy, which was introduced in 1996. The introduction of GEAR (Meyer, 2000:3-4) suggests that the government realised that while the social objectives of the RDP were noble, faster economic growth was required to provide resources to meet social investment needs. The positive achievement of GEAR was macro-economic stability. The economy grew consistently for 10 years without major boom-bust cycles. South Africa's external debt is low, private-sector foreign exchange reserves are significant and government's short-term debt, manageable. However, GEAR's main objective – an increase in employment – failed to materialise. This is noted in the high unemployment amongst people living in informal settlements of South Africa (Bond, 2000:78,116,183,187; Van der Walt, 2000:71-73; Marais, 2001:163-165).

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In the White Paper on Water Supply and Sanitation Policy (2001:06) it is noted that:

The development approach which guides the policy proposed for water supply and sanitation is derived directly from the principles which underpin the Reconstruction and Development Programme, it is also informed by substantial, sobering, international experience gained during and after the international Drinking Water and Sanitation Decade of the 1980s

Thirdly, the National Planning Commission (NPC) established a plan which was devised to deal with South Africa's development problems; this was the National Development Plan (NDP). One of the major goals of the NDP was to ensure the development and establishment of sufficient water sources and adequate sanitation between 2012 and 2017. Also part of the goal was to ensure that all South Africans by 2030 have equal

access to clean water and adequate sanitation. However, the NDP emphasises the different levels of this provision highlighting clearly that there would be discrepancies between rural and urban areas or urban areas and the urban poor. Currently, it has been noted that there is irregularity between the services provided in urban areas as to those in urban poor areas (informal settlements), inequality projected at its highest form. It is therefore concerning that the NDP does not expressly focus on water and sanitation provision at a rural level. Against this background, this study examines the challenges informal settlers in Duncan Village (East London) face due to lack of sufficient water and adequate sanitation. It further investigates how water insecurity affects their day to day lives and the actions they adopt in coping with the situation.

1.1 RESEARCH PROBLEM

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In Africa, over 115 lives are lost per hour due to diseases connected to unhygienic sanitation and unclean water (UNICEF, 2010). WASH (2012) goes on to emphasise that “limited access to safe drinking water and sanitation still kills more children than malaria, measles and HIV/AIDS combined.” If there is no improvement in these trends, 2.4 billion people will continue living without adequate sanitation in 2015 (UNICEF, 2010). With this the children are the most affected in disease and malnutrition. The use of proper toilets, washing of hands with soap reduces the spread and transfer of microorganisms, germs and bacteria found in human waste, which on the other hand would probably pollute water resources. UNICEF (2010) continues to state that “improving access to sanitation is a critical step towards reducing the impact of these diseases. It also helps create physical environments that enhance safety, dignity and self-esteem. Safety issues are above all

essential for women and children, who otherwise risk sexual harassment and assault when defecating at night and in secluded areas.”

In South Africa, one of the challenges municipalities face with regards to providing water and sanitation in informal settlements is the poor housing and building material used e.g. metal plates/wooden planks. Also on the other hand, the location of many informal settlements makes it difficult to provide water and sanitation services, given either the distance from existing bulk infrastructure, or location on marginal land deemed unsuitable for residential development (road and rail reserves, wetlands, flood-prone areas, landfills, etc.). Furthermore, there is a clear tension between the mandate for local government to provide basic services and the sentiment that informal settlements should not exist (Huchzermeyer, 2009).



This study investigated minimum government intervention in the delivery of water and sanitation services in Duncan Village. This study analysed the impact of these limitations and how people living in informal settlements cope around these challenges. These challenges have dire consequences on the dwellers. On the other hand the Municipality has a role to play in implementing and providing clean water and adequate sanitation for every community despite their location and status quo. This study highlights the Municipality's contribution towards this regard of ensuring water security and adequate sanitation in Duncan Village, East London.

1.1.1 RESEARCH QUESTIONS

1. What are the negative effects of water insecurity and inadequate sanitation in Duncan Village?

2. To what extent has water insecurity exacerbated sanitation challenges in Duncan Village?
3. How effective have been community and institutional responses to water insecurity and sanitation challenges in Duncan Village?

1.1.2 RESEARCH OBJECTIVES

1. To assess the negative effects of water insecurity and inadequate sanitation in Duncan Village.
2. To analyse the extent to which water insecurity has exacerbated sanitation challenges in Duncan Village.
3. To investigate the effectiveness of community and institutional responses to water insecurity and sanitation challenges in Duncan Village.



1.2 SIGNIFICANCE OF THE STUDY

The main purpose of this study is to investigate the challenges behind insufficient water and inadequate sanitation in informal settlements and suggest possible solutions to improve their situation. Since this has been a major challenge in many informal settlements in South Africa, this study puts forward practical recommendations to providing sufficient clean water and adequate sanitation in informal settlements. On the other hand, for many good reasons there is much interest in issues of participation and empowerment, and, more recently and more broadly, in participatory governance which includes special attention to structures and relationships that make participation possible (de Wit, 2000; Schneider, 1999). Exclusion of communities in the planning and implementation of water and sanitation projects was identified by this study. This study also highlights challenges of insufficient water and inadequate sanitation in informal settlements and also critiques the extent of government interventions aimed at improving urban poor people's lives.

1.3 CONTEXT OF THE STUDY

According to DWAF (2002) 12 million people in South Africa are said to be living with insufficient water and about 20 million people with inadequate sanitation (DWAF, 2002:01). Access to clean water and adequate sanitation is a human right as argued by Gleick (2000). People from poor communities are the one's affected greatly by the poor delivery of basic services of water and sanitation. They are being deprived of their right to equal access to sufficient water and healthy adequate sanitation.

De Visser, Cottle and Mettler (2003:32) argue that the expression "right of access" implies that responsibility is upon the State to ensure this right is received by everyone. According to Goldin (2005) the right to basic water is "...not an 'absolute right', it is subject to the state taking reasonable legislative and other measures within its available resources to achieve 'the progressive realisation of these rights'".

The White Paper on a National Water Policy for South Africa (1997:08) indicates it is solemnly the government's responsibility to take lucrative steps in ensuring that all South Africans have access to clean water and adequate sanitation. All three spheres of government (National, Provincial and Local) are expected to contribute to this regard. Funding should come from National level whilst planning and implementation must emanate from the Local level. The delivery of sufficient water and sanitation simply means that there must be easy access to these facilities. Water must be within safe physical reach for all age groups and in any area/ population.

Despite all the above water and sanitation ideals, South African informal settlements face a myriad of water and sanitation challenges. According to Van Rooijen et al (2009) poor

urban communities are undergoing a rapid increase exacerbating the challenge to provide clean water and sanitation. The increasing growth of urban areas is due to rural-urban migration, people seeking employment or better living standards. This has led to a further rapid increase of informal settlements of which in this rate the delivery of basic services will continue to deteriorate.

The continuous shortage of water and sanitation facilities is manifested in informal settlements where there is improper infrastructure and dense population. The addition of the influx in human waste, has hampered the process of developing proper sewage systems and safe water bodies such as boreholes due to the high contamination of water bodies (Van Rooijen, Biggs, Smout, & Drechsel, 2009).

1.4 THEORETICAL FRAMEWORK

INSTITUTIONAL FRAMEWORK FOR DELIVERY

This study makes use of the Institutional framework for delivery which focuses on government and private institutions ensuring the delivery of basic services in communities which include adequate water and sanitation. This study measured the extent at which these institutions have effectively delivered water and sanitation services in Duncan Village- the second largest informal settlement in the Eastern Cape. Duncan Village is a community that consists of 14,000 shacks and 3,500 formal houses depicting poor standards of living. These informal settlements have to a certain extent affected the delivery of basic services by government institutions. There is a need to develop the housing so as to improve service delivery in such communities.

Emphasis of this theoretical framework is on the involvement of government institution ensuring delivery of basic services to the people of South Africa, mainly people living in informal settlements.

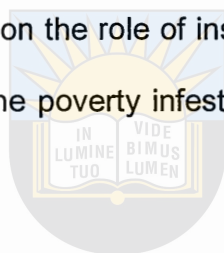
According to Gormley (1987, p. 154) institutional policy analysis focuses on the procedural choices, the redefinition of relationships, within government or decisions that affect the influence of outsiders on government itself in service delivery. The emphasis was on investigating whether government thus far has been successful in providing sufficient water and adequate sanitation in informal settlements.

The institutional theory for delivery stems from this conceptualisation provided by Gormley (1987). The theory emphasises the formal and legal aspects of government structure; their legal powers and their rules and procedures (Kraft and Furlong, 2004, p. 74) in ensuring the accessibility and delivery of basic services to all in South Africa.

Of relevance to this study is the process by national government agencies and provincial government (local authorities in this instance) in policy establishment in providing sufficient water and adequate sanitation in informal settlements.

Williams (2006: 215) argues that institutions may limit as well as enable effective action and responsibility in the delivery of basic services. The institutional theory for delivery gives insight for the methodology to be applied in the research as well as more comprehensive understanding of institutions and their role in water and sanitation provision in the area of study. This will bring to light as to who has failed in delivering adequate water and sanitation services in Duncan Village and why.

This theory on the other hand provides a reference point when examining institutions and their relationships during the different phases of policy-making and implementation for successful service delivery in informal settlements. It is appropriate for this study as it considers all institutions involved in public policy for service delivery. When applied to the study it addresses public administration issues of government within networks of cooperation (Garson, 2008). Garson argues that institutional theory is 'perhaps the single most popular theoretical approach within public administration'. This study emphasises Garson's argument with its emphasis on the role of institutions in the policy process for provision of water and sanitation in the poverty infested community of Duncan Village informal settlement.



1.5 CONCLUSION

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This chapter has delivered an overview of the thesis; it introduces the topic under study and how it will be carried out. A brief background of the study area- Duncan Village is also highlighted in this chapter providing the reader with a clear sense of the settings/ environment of the study. Duncan Village is an informal settlement facing shortages of water and sanitation facilities on the other hand people living below the poverty data line. The main objective of the study is to investigate these challenges and assess the coping techniques by the community members. This chapter also introduces the theoretical framework used by the researcher as the basis for this study. This framework was used so as to investigate the underlying causes of insufficient water and inadequate sanitation facilities in informal settlements. The following chapter will focus on literature review.

CHAPTER TWO

LITERATURE REVIEW

2.0 INTRODUCTION

One major challenge experienced worldwide is that of water and sanitation and this is indicated by Balint (1999:1) when he states that:

"More than one billion people across the globe are living without water sources and three billion lacking insignificantly acceptable sanitation facilities."

This shortage of sufficient water and sanitation services is noted mostly in developing countries. According to Ward (2007:2) by 2050 close to 40% nations worldwide will face water shortages due to population increase. However there are numerous reasons to the lack of adequate water and sanitation infrastructure besides population increase. The main aim of this review is to analyse water and sanitation problems in South Africa, mainly in the informal settlements of Duncan Village, East London and possible intervention thereof.

The possible causes of water and sanitation challenges such as shortage of water and sanitation infrastructure, low coverage for water supply and sanitation and unplanned informal settlements due to population growth will be highlighted in this chapter. In addition, this investigation includes the coping devices used by the people of Duncan Village when facing water and sanitation problems.

2.1 THE HISTORY OF WATER AND SANITATION DEVELOPMENT

The delivery of water in South Africa cannot be alienated from South African history holistically, stated by the Water Supply and Sanitation Policy (1994:4). The background of water is a mere reflection of the relationship between land distribution and housing. South Africa has been seen to focus more on the water resources linked to the growth of the country's wealth sector than improving the position of the poor, particularly in the rural/informal settlement areas. In the 19th century, 60% of water in South Africa was utilised by white commercial farmers causing shortages in the black communities, (ibid). As for the water shortage in informal settlements argument is that it is due to the geographical setting, as well as mismatching of demand and supply. These areas are argued to being geographically unfit to access water e.g. communal taps for each household.

2.2 WATER INSECURITY IN THE GLOBAL SOUTH

Roudi-Fahimi et al. (2002:2) showed that MENA's population has doubled between 1970 and 2001, rising from 173 million people to 386 million people and reducing the average amount of fresh water available per capita by more than half, to 1640 cubic meters per person per year. MENA include countries like Algeria and Libya.

Whereas in Eastern Europe, there are different types of water sources currently used. The OECD (2005:33) depicts that most communities in Ukraine use water facilities which include "wells, reservoirs and open springs while in Kyrgyzstan people have access to water through in-house water taps" while others had access to "water from natural sources such as canals and rivers." This basically highlights the imbalances of access to water and the various sources available.

However, a study in Malawi depicts that people have established their own water technologies due to water and sanitation shortage. Edwards et al. (2007:12) carried out

this assessment where they used technology called gravity systems. According to Edwards et al (2007:25) this infrastructure of water provision is utilised in watercourses or in the hill where it is drawn through a pipe into a tank. This water is then conveyed to communal pipes from the main tank.

Telmo (2002:52) did another research which indicated that in Mali, Gouansolo the nature of water supplies that exist in their poor communities (informal settlements) were mainly hand dug wells and borehole pumps. These were discovered to be unsafe and dangerous especially for children (unprotected holes). According to Gleick (1998:574) water availability was to a greater extent affected by extensive population growth due to rural-urban migration. A study done by Katri and Vairavamoorthy (2007:2-9) indicated that the accessibility to adequate water throughout the world was gradually decreasing due to the continuous population increase especially in developing countries.

2.3 SANITATION CHALLENGES IN GLOBAL SOUTH

Kistermann (2008:2-6) carried out a study that illustrates that in Kyrgyzstan there is poor sanitation facilities. He states that they are situated behind their houses and are unhealthy and undignified. These poor sanitation lavatories are hardly cleaned/ sanitised hence release an unbearable stench. According to Kistermann (2008) this life style was unhygienic and caused a lot of out breaks of diarrhoea and other related diseases.

A study by Telmo (2002:60) states that in Mali village sanitation infrastructures mainly were out-dated pit latrines as well. The most commonly built "latrines was usually a hole dug in the ground, with a slab of wood, or clay mortar", as some sort of structure built for seclusion. The article further revealed that these "traditional pit latrines could easily deteriorate from the eroding action of water, weather, and frequent use or wearing of

wood which have shown to be very unhygienic.” (Telmo, 2002). These were unsafe for children to use.

Parker (2009:8) in Naivasha in Kenya, argues that the government has limited capacity to implement and develop the provision of basic services. This is unlikely to become a priority in the future to come due to the government’s inability to facilitate water and on-site sanitation. Another study done by Telmo (2002:95) mentioned that in Mali the lack of financial means by government was identified to be the main obstacle to the improvement of water supply and sanitation. A research conducted by Mehta & Mehta (2008:45) revealed that in many African countries it was a common practice for NGOs to fund investments directly, bypassing local government budgets. These practices affect local government control and combined with the lack of reliable and transparent information, make it difficult for local government to plan and budget efficiently.

However, for those living in shacks/ informal settlements in the Eastern Cape, access to sanitation remains low and has even declined in some areas. Buffalo City metropolitan municipality has the highest level of access to sanitation services, but even there over 60% of households who live in shacks not in backyards have no access to basic levels of sanitation services (Census 2001vs2011).

2.4 WATER INSECURITY IN SOUTH AFRICA

It is indicated by Kasrils (2004: 2) that about 14 million people in South Africa did not have access to drinking water since 1994. Mostly these were people, mainly in rural areas and the urban poor who would collect water from natural sources such as rivers and springs. It was established that the poor urban included informal settlements. Till date some still

fetch with buckets and drums from the communal taps on a daily basis because taps have not been built in their premises. This study will highlight this further.

Moe and Rheingas (2006:44) carried out a study which indicated areas in Africa with the highest population growth faced water shortages. An example is the large populations in informal settlements in South Africa which show a high shortage of water supply. Research carried out by the Human Development Report (2006:136) showed that most water-stressed countries were undergoing rapid population growth rates hence per capita availability of water was deteriorating quickly. This report indicated that the rapid global population increase has impact on availability and delivery of water.

Roudi-Fahimi et al. (2002:2) is another study that shows the impact of population growth on water supply. The MENA's population (Algeria and Libya) has:

“Doubled between 1970 and 2001, rising from 173 million people to 386 million people and reducing the average amount of fresh water available per capita by more than half, to 1640 cubic meters per person per year.”

This indicates to a greater extent that population increase is a major challenge in providing sufficient water and adequate sanitation. The most affected people are noted to be those in informal settlements as their population continues to grow due to rural-urban migration. People from rural areas are continuously in search for better living standards and employment hence move to urban areas.

Population increase in South Africa, predominantly between 1960 and 1980, has drastically contributed to the serious deteriorating water delivery hence demand constantly on the increase (Sigenu, 2006:25-32). Otieno&Ochieng (2004:120) however

conducted a study that depicted that South Africa is one of the countries said to be “water stressed”. Recently (2015) droughts have been experienced in Kwazulu Natal, but this water stress on the other hand is also due to lack of water infrastructure such as boreholes and tanks. The population increase in South Africa indicates that they will continue to be frustration in the delivery of basic services. The above studies have shown that as the demand for water increases the lower the supply, there is pressure on the state to ensure these provisions throughout South Africa.

On the other hand, the lack of adequate water facilities increased the spread of diseases. Lack of adequate water facilities + poor sanitation infrastructure= spread of waterborne diseases. A good example of diseases that are both water and excreta-related are the faeco-oral diseases. It may seem best to control them by the provision of sanitation to isolate people from their excreta: however, because faeco-oral disease are most commonly spread by the water washed transmission route, the provision of an adequate water supply, together with hygiene promotion- especially the promotion of hand washing with soap, is more important than sanitation (this does not mean that sanitation is not important, just that an adequate water supply and good hygiene are more important).

Below is the different forms of routes waterborne diseases can be spread from one individual to another.

Box 1: Transmission routes of faeco-oral diseases (waterborne)

Faeco-oral diseases occur when sufficient number of pathogen in the faeces of one person enters the mouth of another person. The likely routes are listed below:

1. Faeces of person A → fingers of person A → mouth of person B (imagine two very small children playing: they commonly put their fingers in each other's mouths),
2. Faeces of person A → fingers of person A → fingers of person B → mouth of person B (two people shaking hands),
3. Faeces of person A → fingers of person A → food → mouth of persons B, C, D etc. (a mother preparing food for her family), and
4. Faeces of person A → water → mouths of persons B, C, D, etc.

Routes 1-3 are examples of the very direct person to person water- washed transmission route, and route 4 is the waterborne route.

In poor communities with inadequate water supplies routes 1-3 are likely to occur more frequently than route 4. Water- washed disease are more important to prevent than waterborne diseases.

A study conducted by Makgoka (2005:12) discussed that even though the South African government has delivered water supply to rural communities, but many challenges remain. The service provision has suffered due to financial and human resource shortages, leading to the insufficient service delivery water and sanitation. A study done by Peters (2010, s.p) mentioned that the problem of service provision by local government

is that, it was hampered by low capacity of local government, corruption, political influence, the lack of political accountability and transparency.

A similar study conducted by Dlamini & Cousins (2009:23) showed that in BLM there was poor performance by water service authorities because of poor capacity, due to lack of sufficient human resource, lack of strategic management due to lack of leadership and strategic management skills. Planning was not practical and the tendency was to focus on legislation compliance rather than on performance.

A study conducted by Raab (2009:114-116) states that BLM does not have financial resources to develop water infrastructure and was also a lack of transparency. According to Dlamini (2007:1) in Bushbuckridge the lack service provision was due to institutional confusion that has arisen as a result of changing mandates for water services. Peters (2010:s.p) mentioned that the problem of service provision by government was the lack of people's participation.

The access and delivery of water in Buffalo City Municipality, Eastern Cape is illustrated and explained further in Table 2 in the next few pages.

2.5 SANITATION CHALLENGES IN SOUTH AFRICA

In many countries including South Africa sanitation facilities have not been adequate (Alcock, 1999:5 and Johnstone & Porras, 2003:108). An estimation of 3 billion people in Africa have inadequate sanitation (DWAF, 2002b: 1; Stephen, 2003:48 & Tladi, Baloyi, Schreiber-Kaya, Mathekgana, Mangold, de Klerk & Winde, 2002:17). Roughly 21 million South Africans lacked access to adequate sanitation facilities (DWAF, 1994:9) but however the numbers decreased in 2001 to 18 million (DWAF, 2001: 9). However,

because population continues to grow rapidly access to adequate sanitation is most likely to continue being a challenge (Stephen, 2003: 50), especially in poor communities. Poor sanitation affects the quality of life, and in many cases, can result in deaths and spread diseases.

Still (2002:1) argues that in South Africa pit latrines are specifically more dominant in rural areas where as the bucket sanitation system in informal settlements.

Definition of the bucket sanitation system:

“A bucket sanitation system is defined as a toilet with a bucket or other removable receptacle placed directly under the toilet seat for the purpose of collecting urine and faeces” (DWAF, 2007).

According to UNICEF (2002) the impact of poor sanitation results to “loss of privacy and dignity, and increases risks to personal safety when toilets are placed at a distance from the home.” Predominantly this affects children, females and the aged, whilst for men they can use the nearby bushes to relieve themselves.

Extensive programmes have been put in place to reduce poverty: focusing on aspects such as sanitation improvements (UNICEF).

Participation by community (instead of contractor-based) frameworks that focus on adequate sanitation delivery for communities are fortified by the State. Involving the community encourages cooperation in the maintaining of these sanitation sources once established. Contractor-driven services offer prompt delivery whereas community-based approaches in most instances ensure better sustainability of the facilities (Netshiswinzhe and Eales, 2002). According to Netshiswinzhe and Eales (2002), community managed

projects prove to be more sustainable, as the projects reflect local preferences resulting in a “sense of ownership.”

This study is carried out in East London in the Eastern Cape Province. This is one of the provinces with the highest levels of poverty, underdeveloped infrastructure (water and sanitation) and a high unemployment rate (Eastern Cape Department of Social Development, 2004: 14).

Table 1: ACCESS TO SANITATION IN THE EASTERN CAPE: HOUSEHOLDS LIVING IN SHACKS

SHACKS

Census 2001					Census 2011				
DISTRICT MUNICIPALITY	Total household	Access %			Total households	Access %			
		1	2	3		1	2	3	
Buffalo City	44 157	38%	5%	57%	38 894	39%	5%	62%	
Nelson Mandela Bay	57 901	16%	1%	83%	29 999	12%	3%	85%	
Amathole	10 954	3%	6%	92%	9 376	3%	8%	89%	
Cacadu	9048	12%	6%	82%	8 908	8%	4%	88%	
Chris Hani	6126	5%	7%	88%	2 690	12%	7%	81%	
Joe Gqabi	4901	10%	4%	86%	2 648	13%	6%	81%	
OR. Tambo	6049	6%	5%	89%	2 542	7%	11%	83%	
Alfred Nzo	2350	2%	15%	83%	945	4%	16%	80%	
EASTERN CAPE	135 485	20%	4%	76%	95 983	19%	5%	76%	

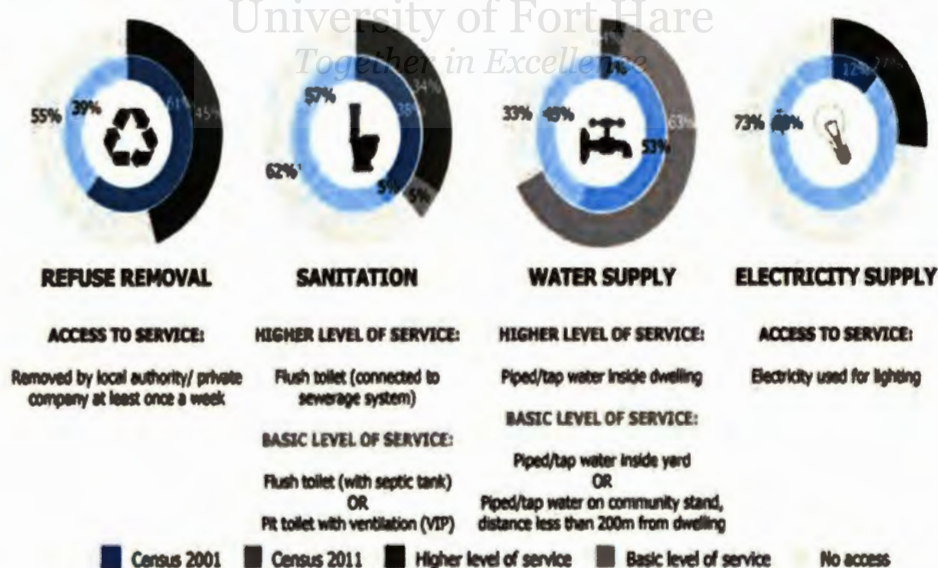
Source: Census 2001, Census 2011 Note: Higher levels of service: Flush toilet (connected to sewerage system); Basic levels of service: Flush toilet (with septic tank) / Pit latrine with ventilation (VIP)

Column 1 (Access %)	Column 2 (Access %)	Column 3 (Access %)
Higher level of access	-Basic access	No access

The above table illustrates the different levels of access to sanitation in the Eastern Cape. Buffalo City Nelson Mandela Bay are the only two Districts that have not improved in increasing accessibility to sanitation for people living in informal settlements/ shacks. In 2001 people in Buffalo City Municipality without access to sanitation were 57% and this number has increased to 62% in 2011.

Table 2: Access to services in Buffalo City Municipality- Informal Settlements (2001vs2011)

CHART 22 ACCESS TO SERVICES IN BUFFALO CITY 2001 VS. 2011: HOUSEHOLDS LIVING IN SHACKS NOT IN BACKYARDS



Source: Census 2001, Census 2011

Note: There is no indication as to the location of the toilet (in the dwelling, in the yard, and so on)

The above caption is an illustration of the access to services in Buffalo City Municipality informal settlements. The main focus of this study is water and sanitation therefore as indicated in the table, basic access to sanitation in 2011 was 5% whilst inadequate or no access to sanitation was 62%. Basic access to water in 2011 is reflected as 63% whilst poor access is 33% and higher level service (piped tap water inside dwelling) 4%. There has been a gradual decrease in the provision of water and sanitation in informal settlements between 2001 and 2011.

2.6 COMMUNITY PARTICIPATION

Community participation is a factor that weakens the implementation of adequate water and sanitation facilities. This section will focus on how community participation and/or exclusion has contributed to the sustaining of water and sanitation sources hence affecting accessibility and availability.

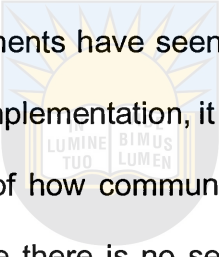
Barat (2007:17) carried out a study that discovered an aspect that hampers the sustainability of basic services, this is community participation. Barat (2007) goes further to argue that there is study which showed:

“That many water projects by government in Afghanistan did not sufficiently involve the community, who therefore did not feel that the project was theirs. As a result, demand for the improved services suffered, and services became unsustainable.”

The people did not feel they were part of the projects hence sabotaged it otherwise. The following section discusses community participation in Uganda.

According to Barungi et al. (2003:22-23) Uganda failed to involve communities in decision making. Communities were unaware that they had the right to participate in communal projects thus the adoption of projects was done without consulting the community. Communities were basically excluded from the decision and implementation process. It is the engineers and responsible institutions that made the final conclusion on where the water sources will be located, based on water availability and ignoring the population size of the community.

According to Barat (2007:20), governments have seen community participation as non-relevant aspect in project planning or implementation, it has been done in performing their facilitation roles. This is an example of how communities hamper the sustainability of water and sanitation sources, because there is no sense of ownership of the projects implemented by municipality.



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This section briefly discusses the importance of community participation in Duncan Village, East London. Duncan Village has a population of 8 000 people, a fundamental part of the City of East London in South Africa.

A short term programme was established to instigate and implement an incorporated development programme where the community of Duncan Village was to be empowered through their active participation and benefit. Unfortunately this was short term but it proved to encourage sustainability of these projects by the community. This is an illustration of the importance of community participation in project implementation and service delivery.

Community participation offers an opportunity for people to engage directly and actively in the development process, it is nevertheless essential to “highlight the difficulties it entails so as to promote realism and awareness of the root cause to problems and how they can be effectively tackled”(Coombs, 1980).

Despite the analysed programme of community participation above, Duncan Village has continued to suffer exclusion in most community projects hence continues to face poor service delivery. There has either been limited projects for service delivery taking place or none involvement in the planning and implementation of projects. These crucial services include delivery and implementation of adequate water and sanitation facilities. This study investigated and presented the findings supporting the challenge the people of Duncan Village are facing of water insecurity and inadequate sanitation.

2.7 CONCLUSION

Different literature review related to this study was covered in this chapter. An analysis of water and sanitation problems in different parts of the world was provided. It also highlighted the water and sanitation infrastructure utilised by different communities worldwide.

The chapter discovered that problems of service delivery for water and sanitation were mainly manmade (population increase and lack of commitment from responsible authorities). Water and sanitation problems due to inadequate prioritization by local government having other areas receiving priority than others was further argued in this chapter. Impact of population growth on the supply of water and adequate sanitation is explained in this chapter extensively. Population increase showed to have great impact

on the provision of water and sanitation in informal settlements. On the other hand, these unplanned informal settlement make it difficult to supply let alone increase water and sanitation services because their structures and how they are disoriented/ dispersed. Another obstacle discussed extensively in this chapter as challenge in providing water and sanitation is the exclusion of community members in the planning and implementation of projects. Chapter 3 discusses research methodology and methods.



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CHAPTER 3

RESEARCH METHODOLOGY AND METHODS

3.0 INTRODUCTION

The main aim of this chapter was to describe the research methodology and methods used to carry out this study. This includes describing the research approach and methodological steps used to conduct the study. The chapter therefore includes research design, data collection methods, a brief outline of the study area, population and sampling, challenges during data collection, limitations of the study as well as ethical considerations.

3.1 QUALITATIVE APPROACH

This study used a qualitative approach. "Qualitative research is an enquiry process based on methodological traditions that explore a social or human problem" (Creswell, 1998: 15). Creswell (1998) goes to add that in order for the phenomenon under study to be explained carefully one should carry out qualitative research whereby a rich source of information is provided. Therefore it is research that is not established through quantitative or statistical methods (Strauss and Corbin, 1990). In using this approach, researchers study things in their natural settings and attempt to interpret phenomena according to the respondents' perceptions (Creswell, 1998). According to Denzin and Lincoln (1994) cited in Creswell (1998), such an approach is based on an interpretive and a naturalistic approach.

TABLE 3: CHARACTERISTICS OF QUALITATIVE RESEARCH DESIGN

✚ Qualitative research: • is holistic and focuses on the full picture; • concentrates on personal and subjective experience, providing an inner or intrapersonal perspective; • is involved with events/phenomena • focuses on relationships within a system, or symbolic interaction; • has key concepts including meaning, common sense understanding, definition of the situation and social construction. • constructs social reality and cultural meaning; • focuses on interactive processes and events; • demands time in analysis equal to time in the field; • has particular research procedures and replication is rare; • goals are to describe multiple realities and develop understanding; • focuses on the understanding of a given phenomenon; • emphasizes that the researcher develops a model of what occurred in the setting investigated; • demands that the researcher becomes the research instrument and have the ability to observe human behaviour objectively;

(Adapted from Denzin & Lincoln, 1994:212; Schurink in De Vos, 1998:242; Neuman, 1997:11; 1997:329; Fourie, 2002:99-100; Mouton & Marais, 1996; and Mouton, 2002:161-162.)

Mouton (2001) cited in Fourie (2003) argues that in qualitative research, the data collected is used to answer the research questions. In essence it is important to project a “complex holistic picture of the problem under study through words and views of informants “, (Creswell, 1998). In this study, data was collected through one-on-one in-depth interviews and key informants.

The information obtained from the Duncan Village Ward Councillors was reviewed against information provided by residents in the one-on-one in depth interviews. The main

purpose for collecting and cross examining data is to “assess the validity of the information”, (Frey and Fontana, 1993). According to Schwandt (1997), collecting data through the method of in-depth interviews deepens and increases the readers understanding of the problem. On the other hand, Schurink (2000) asserts that this method of data collection helps in gaining a holistic understanding of the link between the local municipality and the people in the area of study. Therefore it is in this regard that Creswell (1998) postulates that if the evidence is enough, and drawn from multiple perspectives it would authenticate the conclusions.

3.2 STUDY AREA: Duncan Village

Duncan Village is a South African township situated a few kilometres from East London Central Business District. It is one of the largest informal settlements in the Eastern Cape mainly inhabited by black Africans. According to StatisticsSA (2008) Duncan Village consists of a high unemployment rate as well as crime. Most people that dwell here live below the living wage according to the government's economic classifications (Creative Commons Attribution, 2010).

Duncan Village was chosen because it consists of a large number of informal settlements. A typical informal settlement is mostly characterized by a lack of proper housing, overcrowded homes, poor health and educational services, poor ablution and waste collection services, inadequate social amenities, unemployment, high levels of poverty and poor infrastructure (Evangelides, 2004). This study area therefore assisted in investigating the under lying factors and challenges of insufficient water sources and inadequate sanitation and the challenges thereof.

Due to time constraints as indicated in the limitations of the study below, the researcher used one area of study so as to keep it simple and straight forward. Crescent (1998) argues that the motivation behind researchers choosing multiple areas of study is the idea of generalizing. In this study, there is a high possibility that the depth of the data might be weakened if more than one area is to be investigated. Creswell (1998) points out that “collecting enough information to provide a convincing discussion on the case relegate any need for more case studies”. In addition, Strauss and Corbin (1990) support Creswell (1998) when they state that collecting diverse data and carefully analysing it, should lead to a sound conclusion and complex recommendations of the study.

3.3 RESEARCH POPULATION AND SAMPLING METHODS

3.3.1 Research population

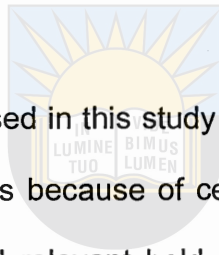
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Babbie and Mouton (2005) state that a research population is the “theoretically specified portion of study elements from which the sample is selected” where data is then retrieved from. Michelle (2008) goes on to explain that a study population is a full set of respondents from which a sample is drawn from. The population of this study is drawn from among all the informal settlements in East London. It is from this population that the researcher drew the sample of the study from.

3.3.2 Sample and sampling

A sample is a small group or subset of the population from which the researcher collected data in such a way that the knowledge obtained is representative of the total population under study (Cohen et al, 2007). Babbie and Mouton (2001) further attest to this statement by defining a sample as a special sub set of a population observed in order to make

inferences about the nature of the total population itself. The process of arriving at a particular sample is referred to as a sampling. Meriam (1998) goes on to define sampling as the selection of a research site, time, people and events in a research field. Further simplified is Niewenhuis (2007) who refers to sampling as a process to select a portion of the population for a study. A sample is studied in order to understand the population from which it is drawn from. The focus in describing the sample is not principally an end in itself, but rather a means to help the researcher to explain some component of the population.



The sampling technique which was used in this study is purposive sampling. Purposive sampling is a “selection of participants because of certain defining characteristics that make them the most appropriate and relevant holders of data needed for the study” (Niewenhuis, 2007). This basically means that participants are selected for a particular purpose in order to retrieve relevant information towards the study. Purposive sampling was thus used to select the 20 respondents in this study. Purposive sampling is best when the researcher intends to identify particular type of information through in-depth investigation. The purpose is to generalize less to a large population and to gain a deeper understanding of the phenomenon under study (De Vos, A. C et al, 2002:208).

3.3.3 Data collection instruments

3.3.3.1 In-depth interviews

This study made use of in- depth interviews. Interviews are a “two way conversation initiated by the interviewer for the specific purpose of obtaining information relevant to the study based on the objectives of the study.” (Cohen et al, 2005: 269). This means that

interviews involve the collection of information verbally and directly, thus obtaining different perspectives and ideas of the interviewees. According to Babbie and Mouton (2005), qualitative interviewing method is characterised by “flexible, interactive and cautious” rather than being prepared in advance and ‘locked in stones’ (closed ended questioners). The researcher engaged with the interviewee in conversation and ensured that questions asked established the objectives of the study. A rather interesting metaphor is used by Kvale (1996) cited in Babbie and Mouton (2011) that a participant is like a ‘mine’ and the researcher has to dig out the information.

Kvale (1996) as cited in Cohen et al. (2005:267) states that “the use of interviews in research marks a separation from seeing human subjects as simply convincible and data as somehow external to individuals, and towards regarding knowledge as generated between humans, often through conversations.” This simply means that in this regard perception is on the centrality of human interaction for knowledge production and emphasis of the social “situatedness” of research data (Cohen et al, 2005). Furthermore, Cohen et al (2005) argue that the purpose of interviews is to provide access to what is a person’s mind since it is able to measure what a person is thinking. The disadvantage would be that it cannot measure the truth in what the interviewee is saying.

The strength of an in-depth interview is the richness and depth of information it is able to gather. It is high on validity as the interviewee is given the opportunity to ask if he/she does not understand the question unlike in questionnaires where the participant will give feed- back even if they did not understand the question. Through in-depth interviews the researcher is able to gather relevant information, which is rich in detail. The researcher is

also able to explore the participants' feelings and deep perspective on the topic being studied.

On the other hand interviews have limitations, interviews can be expensive as the researcher may have to travel to the participants and also time consuming (Karjornboon, 2005). Face to face interaction may be deceitful as the participant may be nervous he/she does not know the interviewer hence could give false information. They may also give feed-back that they believe the researcher wants to hear and not what they actually think, and also act in a socially desirable manner. However, these limitations were addressed in the study by assuring the respondents that the interviews were solely for academic purposes, no victimisation would follow and that the researcher is not guaranteeing any change of their situation.

In carrying out the in-depth interviews, the researcher went door to door after having selected the 20 households. The researcher firstly explained the purpose of the interviews and what they entailed. Emphasis was made that the purpose of this study was for academic purposes only. Most respondents were welcoming and preferred the interview outside and a few took the interviewer inside their homes. The researcher informally discussed things that were not part of the study as an ice breaker so as to make the respondent feel relaxed and free e.g. "So for how long have you been staying here?".

The researcher took pictures of the water and sanitation issues at Duncan Village. This was done in order to visualise the actual situation and hence conclude how it affected the community. The type and number of water sources used in Duncan Village were photographed as well as the state of sanitation in the community (see next chapter).

3.3.3.2 Key Informant Interviews

Key informants are people who are very familiar with the area under study (Schwandt, 1997: 78). The researcher made use of key informants so as to consolidate the data from the in- depth interviews and reach a valid conclusion (Bryman and Burgess, 1999). This opinion is in line with Creswell’s (1994) concept that the “bias inherent in a certain source of data can be dismantled by combining it with other sources.” The information from the key- informant interviews will be aligned with data retrieved from in- depth interviews. This is also referred to as data triangulation.

The key informants in this study were two ward councillors of Duncan Village. The interviews were held separately with each warden in one day, and were asked the same questions so as to ensure that their responses were aligned and therefore valid. There is normally one ward council per community but the researcher decided to interview the previous warden as the current one did have some of the answers.

The data collected herein was analysed using the thematic analysis technique. In this technique people’s ideas are translated from voice recording tapes and either paraphrased or taken as direct quotes (Aronson, 1994). Likewise, perceptions from respondents in this study were paraphrased or taken from direct quotes which were then translated by the researcher.

Table 4: Respondent socio-demographics

SOCIO- DEMOGRAPHICS	SECTION X	SECTION Y
MALE	01	04
FEMALE	08	07
WARDEN	01	01

Total number of respondents was 22 people.

3.3.4 Data analysis

De Vos, Strydom, Fousche and Delpont (2011: 397) argue that “data analysis is a process of bringing order, structure and meaning to the mass of collected data.” The data for this study was analysed according to the research questions. The researcher grouped the three research questions and answered them according to the results of the study and drew a conclusion from each question. Recommendations were then indicated after the analysis of each research question. This method assisted the researcher to group the data collected into a structured form linking them with the research questions. This was achieved by the researcher looking at the research questions providing the answers given by the participants.

In this event of the qualitative study, data was collected and hand-recorded by the researcher within the involved community units in Duncan Village according to the interview schedule. Based on the documented information obtained from the study, the researcher undertook data analysis, a process that was done by hand. With this, the researcher obtained an overview of the content of the interviews. This enabled the researcher to make sense of the real concerns, needs, challenges and frustrations of the people in Duncan Village informal settlements.

3.4 CHALLENGES DURING DATA COLLECTION

The challenges faced during data collection were that some of the respondents were not in a good state to be interviewed. The researcher only interviewed those that were in a normal sober state of mind. This is indicated further in the limitations of the study.

On the other hand the researcher was very selective in choosing which area to engage the interviews as some areas were high in crime. Relevant feed-back could have been obtained even in these areas if not for the high crime. However the researcher still carried out the in-depth interviews and obtained rich, relevant information regarding the challenges of water insecurity and inadequate sanitation in informal settlements.

3.4.1 Limitations of the study

This study had some limitations, which form part of the challenges faced whilst carrying out the study. The first one was;

1. **Language barrier:** Interviews were drafted and conducted in English and in 90% of the interviews there was a need to interpret them, the researcher clarified questions in the local language (Xhosa).
2. **Unavailability of interviewees:** Some responses were not available in the unevenly selected households and some were not in an appropriate state to be interviewed (drunk). Also there was a struggle to set appointments with the key informants.
3. **Misinterpretation of questions:** On the other hand questions were being misunderstood; fortunately the researcher was there to clarify on those misinterpreted questions. Lack of accurate statistics of informal settlements within

the municipality and provincial government was also sadly noted. Some respondents the researcher interviewed spoke on behalf of the whole community, and not just about their households or experiences.

3.5 Ethical considerations

Babbie and Mouton (2001:520) state that ethics are basically the basis for administering morality, differentiating what right from wrong. All respondents of the study were informed before being interviewed that the aim of the study was for academic purposes. Participants' consent was requested before carrying out the interview and it was emphasised that participation is only voluntary. The respondents were assured that their identities will be kept anonymous and that the information they give will be treated with confidentiality. All ethical considerations were observed according to the UFHREC (University of Fort Hare Ethics Committee). Ethical clearance certificate received. Respondents as indicated in the following chapter are coded in numbers and not their real names as part of observing the ethical considerations in research. The following chapter is the data presentation and analysis.

3.6 CONCLUSION

This chapter highlighted the research methods employed by the researcher. The main method was the qualitative which involved in-depth interviews and key informant interviews. The researcher maybe use of observations and took pictures of the current water and sanitation situation in Duncan Village. This was done so as to assist the reader to understand better whilst visualising the conditions thereof. The challenges observed during data collection are also indicated in this chapter but however they did not affect

the outcome of the study. The number of people that were intended to be interviewed were sourced and interviewed without fail. The following chapter presents and analysis the collected data.



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CHAPTER 4

DATA PRESENTATION AND ANALYSIS

4.0 INTRODUCTION

This chapter presents the findings of the study. It discusses the sanitation situation and water status in Duncan Village. It also analyses the coping strategies that are carried out by the people of Duncan Village when there is shortage of water facilities and inadequate sanitation. The Buffalo City Metro Municipality's intervention strategies to address water and sanitation problems in Duncan Village are also discussed.

It will be recalled that this study set out to answer the research questions below. The discussion that follows in this chapter is thus an attempt to answer these questions:

1. What are the negative effects (impacts) of water insecurity and inadequate sanitation in Duncan Village?
2. To what extent has water insecurity exacerbated sanitation challenges in Duncan Village?
3. How effective have community and institutional responses been to water insecurity and sanitation challenges in Duncan Village?

4.1 WATER SOURCES IN DUNCAN VILLAGE

The study found that there was a shortage of water infrastructure systems in the community of Duncan Village. Water infrastructure herein refers to basically water sources such as taps, water tanks and boreholes. There is only one water infrastructure system in Duncan Village, which are the taps (two installed by the community and two installed by the local municipality), these however have shown to be insufficient for this large community section of over 300 people.

Image 1: Two taps installed by the community



In addition to community installed taps, there are two other communal taps that were installed by the Municipality (see Pic 2 below)

Image 2: Communal Tap



From the above, it is clear that water sources in Duncan Village are very limited. This was also stated by some of the respondents who went further to express frustration about this situation:

"I decided to make a tap in my yard because using those that municipality built are always full. My shack is far from those taps this is why I made my own. Now people come and collect here and it is fine because we are one community. But we would like our municipality to make more taps for us we are man here in this section in Duncan Village. If they cannot make taps even tanks and boreholes are fine" (Interviewee 5)

Due to limited water sources, there are always queues at the few available taps. The long queues seem to be a frustration to the community:

"There are few taps here. If you don't fetch water early in the morning you will go later and find long queues because people will be now washing their clothes, blankets whatever at the taps. Why are we not given water tanks?" (Interviewee 3)

From the above citations, the respondents highlight that there is a shortage of water sources in their community. Despite requests being made to the local Municipality for more taps, nothing has been done. Community members have to then fetch water from these limited sources with 20 litre containers for the day and night, for purposes such as cooking, bathing and washing clothes.

4.2 IMPACTS OF INADEQUATE WATER ACCESS

Lack of water has a negative impact on the health of the people of Duncan Village especially children. At night (7pm) the communal toilets are locked. From then onwards they use the bucket system and this is hazardous to their health as there will be no water

to wash their hands. Because their homes do not have taps, hygiene to greater extent is difficult to maintain.

Furthermore, the respondents highlight that collecting water from the available taps is very unhygienic:

"It is not nice to collect water next to someone else's dirt. Every time in the morning we have to go through seeing rubbish that people empty from their buckets from the night but during the day it is fine because people go to the toilets or bushes." (Interviewee 7)

Water shortage also had great impact when it comes to fires. The community indicated a concern when there is a fire in one of the shacks it is difficult to extinguish it because they will have to fetch the water at a distance hence the fire spreads uncontrollably. As one respondent indicated:

"In these shacks we get fires almost every day and lives are lost because it spreads very fast and water is very far to fetch. The fire brigade people have also explained that it is difficult to reach some shacks because of the size of the truck. This is one of our major concerns of not having enough taps here." (Interviewee 1)

One other respondent gave her view as follows regarding the shortage of water sources:

"From these taps water comes out very slow, we queue long hours not only because they are many people but also the water just comes out slow. If we could have many more taps in the area the better. Before I leave for work I have to collect the water for my children. And I have to wake up very early it is really a lot of work. Why is it so difficult to give us more taps? Is it because we are living in shacks or because we are black?" (Interviewee 8)

From the in-depth interviews one respondent stated that the water taps are not enough for the community as they have to join long queues early morning to collect water for the rest of the day. The long queues are said to be frustrating as you will find that some people are doing their laundry there and some have thrown urine emptying their buckets from the night before. She goes on to explain how unhygienic this situation is especially for their children who walk and play bare foot when they fetch water. 90% of the respondents shared the same sentiments, as they further highlighted the poor state of the taps and their limited numbers for a large community such as theirs. One respondent indicated as follows:



"We cannot be living like this our children play all over in this dirt and it is not healthy. These taps are next to sewage waste, it smells. These waters are also bringing mosquitoes again. The municipality does not do anything because we have told him many times." (Interviewee 13)

"You see this tap the water comes out so slow and people dump their dirt from their buckets here. It smells like sewage because of that. This tap is made of a pipe and it does draw water properly from underground at times water does not come out." (Interviewee 14)

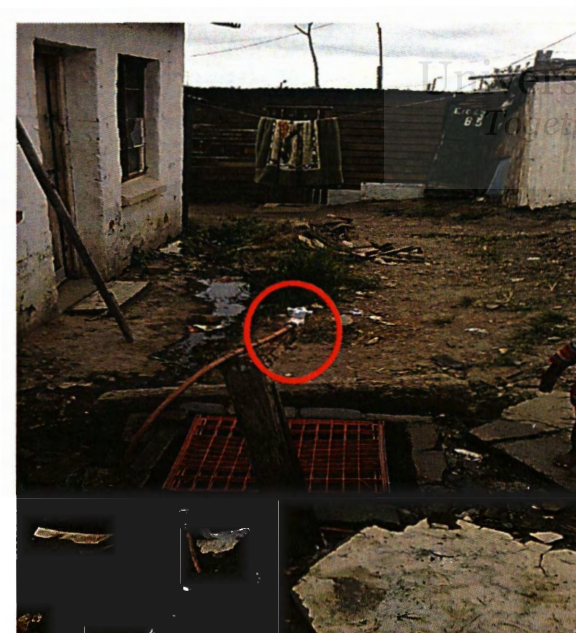
The study does not only depict the impact due to inadequate water sources but also the impact of the state of these sources. Members of the community state that taps built by the community release the water so slow hence the long queues when they are filling several 20 litre containers. Also at times it does not draw any water hence they use the taps next to the toilets, which for others they are far:

"We thank Sizwe (not real name) for building this tap. It helps us but the water comes out slow and at times it does not have any water. Then we have to walk a long distance to the taps next to the toilets. Those ones are very far, yhoo!" (Interviewee 2)

4.2.1 Water insecurity coping strategies

Figure 3 below is one of the communal taps that the community built themselves. A hole was dug with a pipe inserted to the bottom and a plastic tap put to draw the water quicker. It is at this tap that water to drink, bath, wash clothes and cook is collected in 5litre or 20litre containers to last them the day.

Image 3: Communal tap built by the community



Residents sounded frustrated as the researcher asked them how the structure of the water sources was affecting their day to day lives. As one respondent shared their view:

"Our sons are the ones who are building these taps instead of the government. All we have been asking for a few more taps, even tanks. These people (government) do not

care about us, only when it is elections they want to promise us and they do not deliver the services.” (Interviewee 12)

Besides having built their own taps, 4 out of the 20 respondents stated that they also fetch water from their friends who live in the brick houses nearby. Whilst one respondent mentioned that he had a tank but it was stolen:

“I have friends who live in those houses and when there are long queues or I want to wash my clothes I go and ask from there. They are helpful and they understand our water situation here in Duncan Village shacks. They know we have a few taps.” (Interviewee 13)

“There are two taps that were built by young men in our community. I had my own tank which I used to collect rain water. It was stolen in less than a month I had it. It was very painful for me because I used my pension money to buy it. Now we are suffering like everyone else carrying containers with wheel barrows or we ask from relatives who have taps in their homes nearby. I might as well move to the rural areas.” (Interviewee 14)

The people of Duncan Village built a tap of their own due to the limited number of taps amongst them. This was a strategy to improve their way of life in terms of accessing water. However this has not to a greater extent improved the situation as there is still a large number of people using these limited resources. The people emphasize the inconvenience this has been in their lives for the past 10years, and question why their government has not assisted. Most of the community members have concluded that such treatment is mere discrimination because they live in shacks and not the brick houses.

The study found that about 45%of the people in Duncan Village travel a long distance to collect water if not in long queues at the water sources (taps). One respondent says:

"I moved from the rural areas 4 years ago because I was looking for a job in town. Here in Duncan Village we collect water with 2litre containers twice a day, the taps are so far from our houses and there are queues most of the time. This is what we used to do in the rural areas. Why can't municipality make more taps because this is like living in the rural areas?"

(Interviewee 15)

4.3 SANITATION IN DUNCAN VILLAGE

The area of Duncan Village under study has approximately 500 people and only 4 community toilets in use. These 4 flush toilets are not all in good condition as some do not flush anymore. The main concern of the community regarding these toilets is that they are not properly cleaned and not enough for the whole community, hence some resort to relieving themselves in nearby bushes or using the bucket system. This is a health hazard as diseases like diarrhoea quickly spread. As one respondent noted:

"These toilets are not cleaned at times and our children stamp all over people's faeces and urine. My child had diarrhoea for a long time he almost died because of this dirty place. People throw their faeces at the taps where we collect water." **(Interviewee 17)**

The women raised issues of the toilets being shared with men and stated that they were not comfortable at all. Despite the structure of the toilets, the respondents highlighted that the toilets get locked at 7pm every day. With this they then have to use buckets with their families throughout the night and empty them in the morning:

"These toilets do you know they are locked at 7pm every day. Now after that we have to use buckets at our houses for the children most of the times. My husband can go and urinate outside at night. The bucket use is now normal to my children but it is really not

good living, very unhealthy. If the children have running stomachs they still have to use the buckets. You can imagine the sight.” (Interviewee 10)

This is the same refuse that is dumped at the water sources because the toilets will not be opened in the morning. The bucket system on its own is hazardous to health and it is clearly evident that hands are left unwashed as there is no running water to wash from.

The ward councillors were asked why the toilets are locked at this time and they stated that it was for the protection of the people because they had many cases of people being mugged or raped on their way to the toilets, especially for those that lived quite a distance to the toilets. As one respondent says:

“The ward councillor locks the toilets at 7 every day. They say that it is dangerous for people to use them at night. One girl got raped in those toilets because even if you lock the door someone can sneak underneath. She was a young girl and it was not fair. Also a baby was dumped in those toilets that are why they are locked.” (Interviewee 2)

On the other hand they maintained that it is easier for the toilets to be sustained if locked at this time. This is what the ward councillor had to say about locking the toilets:

“We decided as a community that it is better for the toilets to be locked at night and opened in the morning. There has been quite a number of cases where people were getting robbed either at the toilets or on their way to the toilets. Not only that, but some were raped/ almost raped in these toilets at night. There is a high rate of crime in Duncan Village by the way. We also discovered new born’s being dumped so now all these cases have reduced as it is safer to use the toilets during the day” (Ward Councillor 1)

This means sanitation services do not satisfy the wishes of the urban poor. A significant number of people throughout the Duncan Village highlight dissatisfaction with the number of sanitation facilities. Respondents who are depending solemnly on the communal facilities state that they would prefer private, household latrines.

Another respondent gave a description of how the shortage of adequate sanitation affected her:

“Every morning we have to empty dirt from the buckets as the toilets are locked in the evening. With my family we are just sick and tired of this but what can we do? Because we live in “umkhukhu” (shacks) we have to be patient and hope to get an RDP with a proper toilet for me and my children.” (Interviewee 19)

One would argue that adequate delivery of water and sanitation facilities in informal settlements is a challenge to municipalities mainly because the poor housing and how they are scattered in disarray.

4.3.1. Coping strategies to sanitation challenges

The main coping strategy carried out by the community of Duncan Village regarding sanitation shortages is the use of the bucket system. The community members have opted to the bucket system or using the bushes close by. The use of the bushes seemed to be more convenient for men than women, especially during the day. A young lady was asked by the researcher what she does due to the limited sanitation sources:

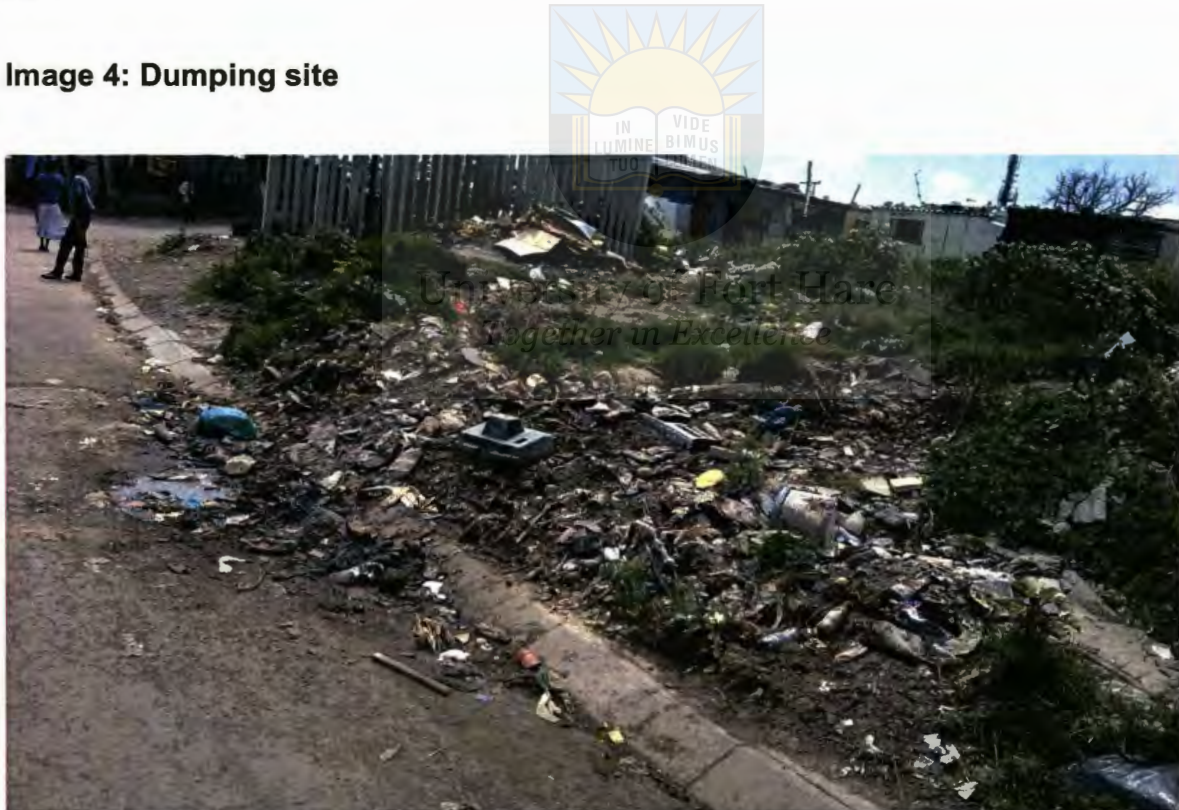
“If my children do not urinate just outside the house in the nearby bush they use the bucket system. We then throw out the “stuff” in the morning at the taps around the corner because the community toilets are far. At the taps there is a sewage drain that flows with the dirt

but at times it does not flow it dries up. This is the only place close were we can throw the “stuff” (Interviewee 18)

“It is easier for men to urinate in the bushes especially during the day. For us women it is really difficult. At night we use our buckets” (Interviewee 19)

This is the major coping strategy of people living in the informal settlements at Duncan Village. As illustrated below, this is one of the dumping areas since there are no sewage pipes.

Image 4: Dumping site



The second ward councillor was asked as to why this waste was not taken care of by BCM, he responded as follows:

"It is the responsibility for Municipality to ensure that the community is clean but they seem to come whenever they want to and this has caused this area to be a dumping area for all sorts of waste including human waste. I have spoken to the local Municipality officials several times and they however have assured us that the cleaning up of this area will be done as a matter of urgency." **Ward Councillor 2**

The study has identified the urgent need for more water and sanitation sources in Duncan Village. The community has been improvising with the taps they built themselves regarding the water situation. Several requests had been made to the local municipality but to no avail. There is a high demand for more sanitation sources in Duncan Village:

"You know we used to have pit toilets, we are thankful to our municipality who built flush toilets for us in 2008 or something. The only problem we are so many people using these toilets and they are not enough. They should not say because we live in shacks we cannot have toilets of our own we want them. They do not want to give us RDP houses we have been on the waiting list for more than 5 years, and they don't want to build more toilets for us. How do they want us to live? We are tired of these buckets. Our children have seen it to be normal to use a bucket when it is not." **(Interviewee 17)**

People of Duncan Village have lost hope for a better life. They have been holding to their dreams of owning RDP houses which of course have running taps and flush toilets, but to no avail and continue living below the poverty data line. As one respondent noted:

"Long time ago have we been promised RDP houses but have not gotten any. These promises most of the time are made to use towards elections because they want us to vote for them. This is not really fair. We cannot have 3 or 4 toilets as many as we are in

this community. Of which these toilets get locked then we have to use the buckets with our children or go outside.” (Interviewee 16)

There is a high level of poor means of living and the local government has been requested to improve this situation to no avail.

4.4 CONCLUSION

The study found that water and sanitation sources are seriously lacking in urban poor communities (informal settlements), and that there is one major aspect why there is limited provision of water and sanitation in such situations. This is lack of response from the local Municipality. The respondents from Duncan Village indicated that they had made several requests to Buffalo City municipality to install more water and sanitation infrastructure. The local municipality has not attended to their plea hence the community resorted to building their own taps. There has been no responsibility and accountability from national level for the planning and implementation of more water sources and efficient sanitation in this community.

There is a budget for water and sanitation for all provinces in South Africa however responsibility and accountability for those funds is lacking within the local government in order to deliver these services. Little attention has been given to informal settlements and one would argue that could it be because these settlements were not administered by the government in the first place? Despite this standard of living in Duncan Village the community continues to grow implying that if these services are not met adequately, the community will continue facing further challenges.

For arguments sake, perhaps the most significant limitation to providing water and sanitation in poverty infested communities is the illegality and poor development of these areas (informal settlements) such as Duncan Village. It is evident that the development/ increase of informal settlements is as a result of the continuous population growth due to- rural to urban migration. This increase in population hence plays a major role in hampering the provision and supply of sufficient water and adequate sanitation by the local government.

However, there is an urgent need for the development of a framework by the responsible agencies as well as local government to focus on the provision of clean water and adequate sanitation in informal settlements. There is an urgent need as well to implement more projects to meet the demand of water and sanitation facilities in Duncan Village. Seemingly, these settlements are not dissolving any time soon hence the local government should consider increasing 'health hazard free' water and sanitation infrastructure.

CHAPTER 5

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.0 INTRODUCTION

This chapter provides the summary of findings, conclusions and recommendations of the study. These recommendations can be implemented to possibly reduce water and sanitation problems in Duncan Village. These recommendations are in line with the Institutional Framework for Delivery which emphasises the need for government intervention in the provision of services to poor urban communities like Duncan Village. This theory highlights the importance of a united front of government and other responsible institutions so as to implement projects that will increase water and sanitation facilities.



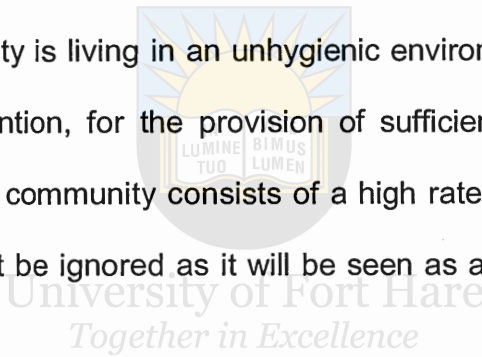
5.1 SUMMARY OF FINDINGS AND CONCLUSIONS

In answering research question one which is "What are the negative effects (impacts) of water insecurity and inadequate sanitation in Duncan Village?", the study found the following:

People in Duncan Village face a severe water and sanitation predicament. They have however gradually adapted to the situation through installing their own taps because the local government has given them little attention. There is also the use of the bucket system as a means of improvising to the limited sanitation facilities. There is a total number of 6 toilets of which two are not functioning for a community of over 300 people. Hence some community members resort to using the bucket system due to the limited communal toilets.

Water and Sanitation Policy (1994:4) highlighted that the challenge of water insecurity and inadequate sanitation cannot be separated from the issue of land distribution and housing. The poor housing in Duncan Village has hampered the people's access to adequate water and dignifying sanitation. The informal settlements have limited the community to only 6 toilets and 3 taps. One would argue that if this form of housing was developed the community's access to water and dignifying sanitation would be established.

The Duncan Village community is living in an unhygienic environment. There is a great need for government intervention, for the provision of sufficient water and adequate sanitation infrastructure. This community consists of a high rate of unemployed people therefore this situation cannot be ignored as it will be seen as a form of segregation of the poor by the "rich".



This study hence forth indicates that the main problems of water are primarily due to the shortage of the facilities and not drought for instance. There is also an acute shortage of sanitation facilities. The government must thus ensure that all South Africans have access to adequate water and sanitation services, including people living in informal settlements. One may argue that maybe they are not being provided with these services adequately by government because it is not the government that settled them there in the first place. However, with the continuous flow of rural to urban migration local government must surely look into providing these services adequately in informal settlements.

Population increase (rural-urban migration) is one of the causes of water insecurity and inadequate sanitation in Duncan Village. The population is 80,000 with 3500 formal

dwellings and 14,000 informal settlements. Houses are overshadowed by the continuously growing shacks.

Loss of privacy and dignity is another challenge the people of Duncan Village are facing due to the lack of adequate water and sanitation. UNICEF (), have supported this, and stated that if these two aspects are improperly administered to people, they will certainly lose their privacy and dignity. One respondent highlighted this saying there is no privacy in these informal settlements as they have to share toilets with the opposite sex. She added that there is no safety at all. There have been cases of rape because of such an establishment hence people resort to the bucket system which is safe but more undignified.

The second question that this study answered is: "To what extent has water insecurity exacerbated sanitation challenges in Duncan Village?" In response to it, the study found the lack of taps within households has hampered hygiene in Duncan Village increasing the sanitation challenges thereof. With community members using buckets as an alternative for toilets, the washing of hands after use is unlikely since they have no running water. This has seen the increase of diseases such diarrhoea especially amongst children below 10years.

The washing of hands is very essential so as to maintain hygiene levels but people of Duncan Village are to a greater extent deprived of it. There is a high shortage of taps and toilets and one can only wonder for how long this community will continue managing in this situation. Despite "Poo" protests carried out in the past at Cape Town International Airport against the bucket system, government has done little to change the situation.

The third questions that this study answered is: “How effective have community and institutional responses been to water insecurity and sanitation challenges in Duncan Village?” In answering it, the study found that the community to a greater extent has played a pivotal role in reducing water insecurity challenges. This is proven by the two taps the community installed themselves. They may not be the best of taps but they do the job. The community dedicated themselves and came forth to meet one of their major needs.

According to Barat (2007:17) community participation is necessarily in the sustaining of basic services. The community of Duncan Village has not been included in the establishment of basic services (building of toilets and taps). This exclusion has resulted to the community take matters into their own hands and building their own taps and resorting to the bucket system in their homes. There has not been any consideration of the peoples' needs and safety by the residing local government. This is noted in the findings where a respondent highlighted that the community toilets are locked at 7pm and then what are people expected to use after that? Why can't more toilets be built? There is not consideration of the people's dignity whatsoever.

In attempting to reduce sanitation challenges, the community of Duncan Village did not do much. The community could not build toilets due to circumstances beyond their control. If they had the resources, they certainly would have built more toilets for themselves so as to reduce the challenges of inadequate sanitation.

The foregoing findings demonstrate that the municipality and other government institutional bodies have failed to improve the shortage of water and sanitation facilities in

Duncan Village. This is noted by the community building their own taps. Institutions have failed to engage with the community and implement projects to provide Duncan Village with more taps and more toilets. This community has been left in distress and frustration to find their own means to cope with these challenges. The institutional framework of delivery emphasises the need for government intervention in the delivery of services to communities and this includes informal settlements.

This study shows that informal settlements have been deprived of adequate water and sanitation facilities contrary to the central arguments of the service delivery institutional framework. The Local Government despite developing institutions such as e.g Duncan Village Development Forum it has not fully addressed the issue of inadequate water and sanitation in Duncan Village. The community has highlighted that it has raised their concerns several times with this institution and minimum ineffective changes have been made. The community continues to plea with the Government for improved service delivery.

5.2 RECOMMENDATIONS

Based on the above findings and conclusions, this study makes the following policy and development practice recommendations:

5.2.1 Investing in portable water tanks

Investing in rainwater harvesting tanks definitely will assist the community of Duncan Village in reducing water problems. The government should introduce and promote simple and cost effective technologies of water sources such as tanks. These are portable

and can be placed anywhere. These can be placed in several places in the community of Duncan Village to reduce the long queues and long distances to the limited taps.

5.2.2 Provision of more water sources

The government should construct more water infrastructure that will supply the whole community of Duncan Village. These include installing boreholes and increasing the number of taps. More water sources will reduce the burden of early morning queues to fetch water filling 20 litre containers. If possible, a tap be positioned for 5 households instead of 4 taps only for over 600 households.

5.2.3 Investing in more sanitation facilities

It is evident from this study that the community of Duncan Village is in need of more sanitation facilities. The people have adjusted to the bucket system because they have no other option. Therefore government should consider providing more toilets for the community with proper sewage systems. The bucket system is unhygienic and therefore should be eliminated as quickly as possible.

5.2.4 Community participation

Public participation action is needed to reduce the water and sanitation problems. The community of Duncan Village has indicated that many a times they have been excluded by the local Municipality in the planning of projects regarding water and sanitation. The community knows what exactly they need and where they want the facilities situated, however they are not consulted. This is when the community then decides to install their own taps because what the municipality plans either is not sustained or covers only a few

people. Opportunity should be given to the community to identify, implement, monitor and evaluate community water and sanitation projects. They should also be given the opportunity to select the appropriate water technologies they want and the location of facilities.

5.2.5 Developing Informal settlements

This section lastly focuses on improving informal settlements so as to increase water and sanitation coverage. The poor structure of the informal settlement houses has hampered the delivery of sufficient water and adequate sanitation facilities. Drainage pipes would probably be difficult to install and hence a challenge to build more flush toilets even for each house hold. These settlements are haphazard therefore there would be a great challenge in the logistics to connect more taps from one source.

Hence fourth water and sanitation coverage should be increased in Duncan Village. This simply means that everyone in this community must have equal access to proper water and sanitation. The bucket system should be eliminated by increasing sanitation coverage (construct more toilets). This can be done effectively through the development of policies and proper funding of the projects to completion by the State. With more accountability of funds, the government would be able to construct more toilets possibly with air ventilation systems for households in informal settlements.

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